

C. G. JUNG

THE COLLECTED WORKS

Edited by Sir Herbert Read

Michael Fordham, M.D., M.R.C.P., and Gerhard Adler, Ph. D.

Volume One

PSYCHIATRIC
STUDIES

TRANSLATED FROM THE GERMAN

BY R. F. C. HULL

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EDITORIAL PREFACE

The publication of the first complete collected edition, in English, of the works of C. G. Jung is a joint endeavour by Routledge and Kegan Paul, Ltd., in England and, under the sponsorship of Bollingen Foundation, by Princeton University Press in the United States. The edition contains revised versions of works previously published, such as *The Psychology of the Unconscious*, which is now entitled *Symbols of Transformation*; works originally written in English, such as *Psychology and Religion*; works not previously translated, such as *Aion*; and, in general, new translations of the major body of Professor Jung's writings. The author has supervised the textual revision, which in some cases is extensive.

In presenting the Collected Works of C. G. Jung to the public, the Editors believe that the plan of the edition * may require a short explanation.

The editorial problem of arrangement was difficult for a variety of reasons, but perhaps most of all because of the author's unusual literary productivity: Jung has not only written several new books and essays since the Collected Works were planned, but he has frequently published expanded versions of texts to which a certain space had already been allotted. The Editors soon found that the original framework was being subjected to severe stresses and strains; and indeed, it eventually was almost twisted out of shape. They still believe, however, that the programme adopted at the outset, based on the principles to be outlined below, is the best they can devise.

An arrangement of material by strict chronology, though far the easier, would have produced a rather confusing network of subjects: essays on psychiatry mixed in with studies of religion, of alchemy, of child psychology. Yet an arrangement according to subject-matter alone would tend to obscure a view • See announcement at end of this volume.

of the progress of Jung's researches. The growth of his work, however, has made a combination of these two schemes possible, for the unfolding of Jung's psychological concepts corresponds, by and large, with the development of his interests.

C. C. Jung was born in northeastern Switzerland in 1875, a Protestant clergyman's son. As a young man of scientific and philosophical bent, he first contemplated archaeology as a career, but eventually chose medicine, and qualified with distinction in 1900. Up to this time, Jung had expected to make physiological chemistry his special field, in which a brilliant future could be expected for him; but, to the surprise of his teachers and contemporaries, he unexpectedly changed his aim. This came about through his reading of Krafft-Ebing's famous *TextBook of Insanity*, which caught his interest and stimulated in him a strong desire to understand the strange phenomena he there found described. Jung's inner prompting was supported by propitious outer circumstances: Dr. Eugen Bleuler was then director of the Burghölzli Mental Hospital, in Zurich, and it was under his guidance that Jung embarked on his now well-known researches in psychiatry.

The present volume, first of the Collected Works, though not large, is sufficient to contain the studies in descriptive psychiatry. It opens with Jung's first published work, his dissertation for the medical degree: "On the Psychology and Pathology of So-called Occult Phenomena" (1902), a study that adumbrates very much of his later work. But clearly a man of Jung's cast of mind could not be content with simple descriptive research, and soon he embarked upon the application of experimental psychology to psychiatry. The copious results of these researches make up Volume 2 and Volume 3. Jung's work brought about the transformation of psychiatry, as the study of the psychoses, from a static system of classification into a dynamic interpretative science. His monograph "The Psychology of Dementia Praecox" (1907), in Volume 3, marks the peak of this stage of his activity.

It was these experimental researches that led Jung to a fruitful if stormy period of collaboration with Freud, which is represented by the psychoanalytic papers in Volume 4. The chief work in this volume, "The Theory of Psychoanalysis" (1913), gives at length his first critical estimation of psycho-

analysis. Volume 5, *Symbols of Transformation* (originally 1912), and Volume 7, *Two Essays on Analytical Psychology* (originally 1912 and 1916), restate his critical position but also make new contributions to the foundation of analytical psychology as a system.

The constant growth of analytical psychology is reflected in Jung's frequent revision of his publications. The first of the *Two Essays on Analytical Psychology*, for example, has passed through several different editions. *Psychology of the Unconscious*, as it was titled in its first (1916) edition in English, appears in the Collected Works, extensively revised by Jung, with the title *Symbols of Transformation*. The Editors decided to leave these works in the approximate chronological positions dictated by the dates of their first editions, though both are published in revised form. Revision and expansion also characterize the group of studies that form Volume 12, *Psychology and Alchemy* (originally 1935-36), as well as many single essays in other volumes of the present edition.

Psychological Types (Volume 6), first published in 1921, has remained practically unchanged; it marks the terminus of Jung's move away from psychoanalysis. No further long single work appeared till 1946. During the intervening period, when Jung's professional work and his teaching occupied a large part of his time, he was abstracting, refining, and elaborating his basic theses in a series of shorter essays, some of which are collected in Volume 8, *The Structure and Dynamics of the Psyche*.

Volume 9, part I, contains essays, mostly of the same period, that have special reference to the collective unconscious and the archetypes. Part II of this volume, however, contains a late (1951) major work, *A Ion: Researches into the Phenomenology of the Self*. From the chronological point of view, *A Ion* should come much later in this sequence, but it has been placed here because it is concerned with the archetype of the self.

From Volume 10 onwards, the material deals with the application of Jung's fundamental concepts, which, with their historical antecedents, can be said by now to have been adequately set out. The subject-matter of Volume 10 to Volume 17-^{or}ganized, in the main, around several themes, such as religion, society, psychotherapy, and education-is indicated by the volume titles and contents. It will be noted that, in his later years, Jung

has returned to writing longer works: *Aion*) the *Mysterium Coniunctionis*) and perhaps others yet to come from his pen. These arise, no doubt, out of the reflective stage of his life, when retirement from his analytical practice has at last given him time to work out ideas that those who know him have long wanted to see in print.

In 1956, Professor Jung announced that he would make available to the Editors of the Collected Works two accessions of material which will have the effect of enhancing and rounding out the edition: first, a selection of his correspondence on scientific subjects (including certain of his letters to Freud); and second, the texts of a number of the seminars conducted by Jung. Accordingly, Volume 18, and thereafter such additional volumes as may be needed, will be devoted to this material.

The Editors have set aside a final volume for minor essays, reviews, newspaper articles, and the like. These may make a rather short volume. If this should be so, an index of the complete works and a bibliography of Jung's writings in original and in translation will be combined with them; otherwise, the index and bibliography will be published separately.

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In the treatment of the text, the Editors have sought to present Jung's most recent version of each work, but reference is made where necessary to previous editions. In cases where Professor Jung has authorized or himself made revisions in the English text, this is stated.

In a body of work covering more than half a century, it cannot be expected that the terminology would be standardized; indeed, some technical terms used by Jung in an earlier period were later replaced by others or put to different use. In view of their historical interest, such terms are translated faithfully according to the period to which they belong, except where Professor Jung has himself altered them in the course of his revision. Occasionally, editorial comment is made on terms of particular interest. The volumes are provided with bibliographies and are fully indexed.

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Of the contents of Volume 1, nothing has previously been translated into English except the monograph "On the Psychology VII I

and Pathology of So-called Occult Phenomena." The translation of the latter by M. D. Eder has been consulted, but in the main the present translation is new. It may be noted that, except for the 1916 English version of the "Occult Phenomena," none of these papers has ever been republished by Professor Jung.

An effort has been made to fill out the bibliographical details of the material, which were sometimes abbreviated in the medical publications of the 1900's.

Acknowledgment is made to George Allen and Unwin Ltd. for permission to quote passages from Freud's *The Interpretation of Dreams* and from Nietzsche's *Thus Spake Zarathustra*.

EDITORIAL NOTE TO THE SECOND EDITION

Since the above paragraphs were written, and following Jung's death on June 6, 1961, different arrangements for the publication of the correspondence and seminars have been made with the consent of his heirs. These writings will not, as originally stated, comprise Volume 18 and subsequent volumes of the Collected Works (for their contents as now planned, see below). Instead, a large selection of the correspondence, not restricted to scientific subjects though including some letters to Freud, will be issued under the same publishing auspices but outside the Collected Works, under the editorship of Dr. Gerhard Adler. A selection of the seminars, mainly those delivered in English between 1925 and 1939, will also be published outside the Collected Works in several volumes edited by R. F. C. Hull.

Two works usually described as seminars are, however, being published in the Collected Works, inasmuch as the transcripts were approved by Jung personally as giving a valid account of his statements: the work widely known as the Tavistock Lectures, delivered in London in 1935, privately circulated in multigraphed form, and published as a separate volume entitled *Analytical Psychology: Its Theory and Practice* (Routledge & Kegan Paul, London, and Pantheon Books, New York, 1968); and the seminar given in 1938 to members of the Guild of Pastoral Psychology, London, and published in pamphlet form by the Guild in 1954 under the title *The Symbolic Lite*. Both of these will be published in Volume 18, which has been given the general title *The Symbolic Life*.

EDITORIAL NOTE TO THE SECOND EDITION

Volume 18 will also include the minor essays, reviews, fore'ords, newspaper articles, and so on, for which a "final volme" had been set aside. Furthermore, the amount of new lateral that has come to light since the Collected Works were lanned is very considerable, most of it having been discovered her J ung's death and too late to have been placed in the olumes where thematically it belonged. The Editors have lerefore assigned the new and posthumous material also to 'olume 18, which will be much larger than was first envisaged. 'he index of the complete works and a bibliography of Jung's Titings in the original and in translation will be published as separate and final volume.

Jung ended his long years of creative activity with the posthumously published *Memories) Dreams) Reflections)* recorded n.d edited by Aniela .J affe and translated by Richard and Clara v'inston (Collins with Routledge & Kegan Paul, London, and antheon Books, New York, 1963). At his express wish it was ot included in the Collected Works.

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inally, the Editors and those closely concerned with implelenting the publication programme, including the translator, ish to express their deep sense of loss at the death of their)lleague and friend, Sir Herbert Read, who died on June 12,)68.

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or the second edition of *Psychiatric Studies*, bibliographical tations and entries have been revised in the light of subseuent publications in the Collected Works and essential cor~ctions have been made.

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1 1970, the Freud and Jung families reached an agreement that ~sulted in the publication of *The Freud/lung Letters* (the)mplete surviving correspondence of 360 letters), under the iitorship of William McGuire, in 1974. And a selection from I of Jung's correspondence throughout his career, edited by ,erhard Adler in collaboration with Aniela Jaffe, was published 1 1973 (1906-1950) and 1975 (1951-1961). Finally, a selection f'interviews with Jung was planned for publication in 1975 nnPT thp tit]p C. r.;. *Tnnrr Shp-akin;¥*.

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Volume One

PSYCHIATRIC STUDIES

TRANSLATED FROM THE GERMAN

BY R. F. C. HULL

THE ASSOCIATIONS OF NORMAL SUBJECTS¹

by C. G. Jung and Franz Riklin

For some time past, attention has been paid in this clinic to the process of association. In order to produce scientifically useful material for this, my director, Professor Bleuler, has compiled a list of 156 stimulus-words and experimented with them on all types of psychosis. In these experiments a very considerable difficulty soon presented itself. There existed no means of precisely and quantitatively separating association in abnormal subjects from that in normal ones. No work had been done giving any facts on the range of normal subjects and formulating the apparently chaotic coincidences of association into rules. In order to fill this gap to some extent and thereby to pave the way for experiments on pathological associations, I decided to collect more material on association in normal people and at the same time to study the principal conditions involved. I carried out this plan with my colleague, Dr. Riklin.

² The main experimental methods are as follows: Initially we collected associations from a large number of normal people, with the intention, first, of examining the reactions to see whether they are at all subject to any law; and, next, of

¹ [First published as "Experimentelle Untersuchung über Assoziationen Gesunder," *Journal für Psychologie und Neurologie* (Leipzig), III (1904), 55-83, 145-148, 193-214, 238-308, and IV (1905), 24-67, 109-23. Republished in *Diagnostische Assoziationsstudien: Beiträge zur experimentellen Psychopathologie*, edited by C. G. Jung, Vol. I (Leipzig, 1906; 2nd edn., 1911; 3rd edn., 1915), pp. 7-145 (1. Beitrag). Translated by M. D. Eder in *Studies in Word-Association* (London, 1918; New York, 1919).

[Franz Riklin (1878-1938) was assistant physician on the staff of the Burghölzli at this time. From 1907 to 1913, he and Jung were active in the International Psycho-Analytical Association. For his principal publications, see the Bibliography.]

discovering whether individual patterns occur, i.e., whether any definite reaction-types are to be found. We combined with this a second experiment of a general psychological nature.

3 The mechanism of association is an extraordinarily fleeting and variable psychic process; it is subject to countless psychic events, which cannot be objectively established. Among the psychic factors that exert the main influence on the mechanism of association, *attention* is of cardinal importance. It is the factor that in the first place directs and modifies the process of association; it is also both the psychic factor that can most easily be subjected to experiment and the delicate affective apparatus that reacts first in abnormal physical and mental conditions and thereby modifies the associative performance.

4 Attention is that infinitely complicated mechanism which by countless threads links the associative process with all other phenomena of the psychic and physical domain in consciousness. If we know the effects of attention on the process of association, then we also know, at least in general, the corresponding effects of every psychic event that attention is capable of affecting.

5 These considerations led us to investigate the effects of attention on the process of association, hoping to clarify as precisely as possible the following questions:

1. What are the laws governing the range of association in normal subjects?

2. What are the direct effects of attention on the association process? In particular, does the valency of the association decrease with the distance from the focus of consciousness?

6 Our experiments have revealed a series of facts that not only encourage us to follow the paths on which we have set out into psychological regions but also, as we believe, fit us to do so.

C. G. JUNG

PART ONE

I. GENERAL EXPERIMENTAL PROCEDURE

7 The experiments were carried out alternately by the two authors so that each one in turn undertook a series of experiments on the subjects concerned. Altogether thirty-eight people took part: nine educated men, fourteen educated women, seven uneducated men, and eight uneducated women; the age-bracket was 20-'50 years. Care was taken to use, as far as possible, normal subjects for the experiment. This, however, led to unexpected difficulties, particularly with the educated subjects, as precisely on this level the concept of normality must be very elastic. Nevertheless we hope we have not deviated too far from the norm in our selection of subjects for experiment. We give the numbers of the subjects in detail and in many cases combine with this a short description of the personality, which will facilitate the understanding of possible anomalies. Naturally the two authors have also carried out the experiment on each other.

8 In noting associations we have entirely limited ourselves to those produced by calling out stimulus-words. We used altogether four hundred different stimulus-words. These, grammatically classified, are as follows:

nouns	231
adjectives	69
verbs	82
adverbs and numerals	18

9 The number of syllables was not taken into account (the stimulus-words have one, two, or three syllables). Nor were the stimulus-words arranged in definite categories as Sommer, for instance, has arranged them. On the contrary, as much care as possible was taken to see that stimulus-words of similar

forms or meaning should not follow each other, so as to avoid the subject adapting to a particular topic after one or two reactions. Through an unfortunate coincidence it happened that among the first hundred stimulus-words there were about thirty that can easily be associated according to temporal or spatial co-existence; in the second hundred there are only about twenty of these, which caused a notable difference of the co-existence association in the first and second hundred. The shortage of stimulus-words of this kind is made up by verbs. It was considered important completely to exclude difficult and rare words, in order to prevent mistakes or lengthened reaction-time due to lack of knowledge on the part of the subjects. The stimulus-words were therefore taken as far as possible from everyday life.

This consideration was all the more essential for us, as with most of our subjects we had to work under somewhat abnormal linguistic conditions. In German-speaking Switzerland the vernacular consists, as is well known, of the Swiss-German dialect or dialects, which not only deviate considerably from standard German but also show significant phonetic differences among themselves. In the schools children learn standard German as if it were a foreign language. In later life educated people gain a fairly complete knowledge of and facility in the German language. The uneducated man, however, unless he has spent a considerable time in Germany, retains at best those German phrases that he has learned at school and later learns little or no more. Nevertheless, literary German is familiar to him in printed or written form and he also understands it as a spoken language without being able to speak fluent, correct standard German himself. We tried therefore in many cases to call out the stimulus-words in the dialect form, but we soon noticed that the uneducated subjects did not understand dialect words as well as standard German. They reacted to the dialect words more laboriously and tried to react in standard German. This somewhat paradoxical phenomenon can be explained by the fact that Swiss-German is a purely acoustic-motor language, which is very rarely read or written.

Everything printed or written is in standard German. The Swiss is therefore not used to experiencing words individually but knows them only in acoustic-motor connection with others.

If he has to say a single word without an article he will usually choose the standard German form. We therefore avoided dialect words completely in our experiments. In most cases a correct standard German reaction was given, but any reactions that were in dialect were fully accepted. The reactions were, of course, written down in the form in which they were given. To subjects who had never taken part in such experiments, their significance was first explained and practical examples of how they had to react were demonstrated to them. Not a few of the uneducated subjects thought that it was a kind of question-and-answer game, the point of which was to find an appropriate word connection to stimulus-words, e.g., *house / housecat) wild / wild cat*. The experiments were never started till it was certain that the subjects understood the experiment. We stress that a case of not understanding never occurred and that general lack of intelligence was much less disturbing than affects, particularly a fairly frequent emotional obtuseness. It is of some significance that many of the uneducated came with a certain "schoolroom" attitude and a certain correct and stiff demeanour.

12 We organized our experiments as follows: The *first two hundred reactions* were noted without further conditions. The reaction-time was measured with a 1/ s-second stop-watch, which we started on the accented syllable of the stimulus-word and stopped on the uttering of the reaction.² We do not, of course, presume to have in any way measured complicated psychological times by this simple procedure. We were merely concerned with establishing a general idea of a roughly average reaction-time which is in many cases not without importance, being very often of value in the classificatibn of reactions.

13 After two hundred reactions, these were as far as possible classified, with the help of the subjects. With educated subjects this was always done; with uneducated subjects, who only rarely have any capacity for introspection, it was of course impossible. We had to limit ourselves to having the connection explained in particularly striking associations. The results of the experiment were divided into a first and second hundred and

2 A later paper will report on time-measurements. The times were not measured in all subjects. [See below, "The Reaction-time Ratio in the Association Experiment."]

these were written down separately. During the experiment the psychic state of the subject was as far as possible established, both objectively and subjectively. If for any reason physiological fatigue occurred, we waited till the next day before doing the second experimental series. With the educated subjects fatigue almost never occurred during the first experiment, so that we could continue at once with the second series in nearly every case.

! The *second series of experiments* consisted of one hundred reactions which were recorded under the condition of internal distraction. The subject was asked to concentrate his attention as much as possible on the so-called "A-phenomenon" (Cordes) and at the same time to react as quickly as possible, i.e., with the same promptness as in the first experiment. By the "Aphenomenon" we understand, with Cordes,³ the sum of those psychological phenomena that are directly stimulated by the perception of acoustic stimulus. To establish whether the subject had observed the A-phenomenon he had occasionally to describe it after the reaction, and this was noted. On completion of this experiment new classifications were again made. Of course, for this experiment only educated people could be used and of these unfortunately only a selection, because it takes a certain psychological training to be able to observe attentively one's own psychic phenomena.

) The *third experimental series* was sometimes not carried out till the second day. It consisted of one hundred reactions and was based on the condition of external distraction. The distraction in this experiment was brought about in the following way: The subject had to make pencil marks of about one centimetre, in time with a metronome. The beat for the first fifty reactions was 60 per minute and for the second fifty reactions 100 per minute. The classification results of the first fifty reactions and the second fifty were recorded separately and for ease of calculation brought to one hundred. With a very few subjects the metronome was speeded up at every twenty-fifth reaction in order to exclude an all too quick habituation. The beat was in these cases increased from 60- to 72 and from 100 to 108 per minute.

³ Cordes, "Experimentelle Untersuchung iiber Assoziationen" (1899), p. 30.

- 1 The factor of habituation, in any case, unfortunately plays a large part
 6 in these experiments, as one would expect. Many people very quickly
 get used to a purely mechanical activity in which, in the second phase
 of the experiment, only the beat changes. It is difficult to introduce
 other disturbing stimuli of equal continuity and variability without
 adding word-images, particularly when one does not wish to make
 too great demands on the intelligence and will-power of uneducated
 subjects.
- 17 In trying to find a suitable disturbing stimulus we were
 above all intent on excluding that which might have had an excitatory
 effect on verbal imagery. We think we did exclude such effects by our
 experimental procedure.
- 18 From these experiments three hundred to four hundred associations, on
 an average, were obtained from every subject. We also tried to
 supplement our material in other directions, in order to obtain a certain
 connection with Aschaffenburg's results, and for this purpose we took
 associations from some of our subjects in a condition of obvious fatigue.
 We were able to obtain such reactions from six subjects. Associations
 were also taken from one subject in a state of morning sleepiness after a
 night of undisturbed sleep, in which the factor of fatigue was
 completely excluded. With one subject associations were taken when
 he was in a state of acute moodiness (irritability) without fatigue.
- 19 In this way we obtained about 12,400 associations.

n. CLASSIFICATION

1. GENERAL

- 20 Anyone with practical experience of work on ASSOCIATION
 has been confronted with the difficult and unrewarding task of
 classifying the results of the experiments. On the whole we agree with
 Cordes⁴ when he says that in earlier association experiments the false
 assumption prevailed that the fundamental psychological phenomenon
 corresponds to the stimulus-word and that the connection between
 stimulus-word and reaction is an "association." This somewhat too
 simple interpretation

⁴ Ibid., p. 33.

is at the same time too pretentious, for it maintains that in the connection between the two linguistic signs there is also a psychological connection (the association). We do not, of course, share this point of view but see in the stimulus-word merely the stimulus in the strict sense of the word and in the reaction merely a symptom of psychological processes, the nature of which we cannot judge. We do not, therefore, claim that the reactions we describe are associations in the strictest sense; we even wonder if it would not be altogether better to drop the word "association" and talk instead of *linguistic reaction*, for the external connection between stimulus-word and reaction is far too crude to give an absolutely exact picture of those extraordinarily complicated processes, the associations proper. Reactions represent the psychological connection only in a remote and imperfect way. Thus, when describing and classifying linguistically expressed connections, we are not then classifying the actual associations but merely their objective symptoms, from which psychological connections can be reconstructed only with caution. Only in psychologically educated subjects is the reaction what it really should be—namely, the reproduction of the next idea; in all others a distinct tendency to construct something is mixed with the reaction so that in many cases it is the product of deliberation, a whole series of associations. **In** our association experiments we stimulate the language apparatus. The more one-sided this stimulus is, the greater the number of linguistic connections that will appear in the reaction. As we shall see, this is mainly the case with educated subjects, from whom a finer differentiation of psychological mechanisms, and therefore a greater ability for isolated application, can *a priori* be expected. One must therefore guard against the fallacious assumption that the educated subject has in any way more external associations of ideas than the uneducated.⁵ The difference will be a psychological one, as in uneducated subjects other psychological factors insinuate themselves. **In** the second part of this paper we shall refer to this difference.

21 As long as we still know so little about the connection be-

⁵ Ranschburg states that in uneducated subjects inner associations predominate. With Balint, "Ober quantitative und qualitative Veränderungen geistiger Vorgänge im hohen Greisenalter" (19⁰⁰).

tween psychic events, we must refrain from formulating the principles for a classification of external phenomena from inner psychic data. We have therefore confined ourselves to a simple logical classification, to which as a precaution it is in our view essential to limit oneself, till we are able to derive empirical laws from psychic associations.⁶ The logical principles of classification must also be adapted to the special experimental conditions, that is, to the verbal reaction. We must therefore, in classifying the associations, take into account not only the logical quality but also, if possible, all those external circumstances occurring as a result of this particular experimental design. The use of the linguistic acoustic brain mechanism naturally is not without influence on the associations. The purely intrapsychic association cannot become the object of another's consciousness without being transformed into the familiar symbolism of language. Thus a completely new element is added to simple association, which exerts a great influence on the latter. **In** the first place, the results will be determined by the subject's verbal facility; i.e., James Mill's generally valid "law of frequency" directs the reaction even more selectively towards what one is accustomed to. Thus one of the chief principles of our classification will be that of verbal facility.⁷

22 We proceeded with the classification of associations essentially according to the Kraepelin-Aschaffenburg scheme. We preferred this system to others because in our opinion it is heuristically the most valuable. When Ziehen describes the Kraepelin-Aschaffenburg attempt at classification as a failure, this is surely a rather strong term. No one will maintain that Aschaffenburg's classification is exhaustive; Ziehen would not want to claim that even for his own.

⁶ Aschaffenburg, too, is cautious about this and confines himself entirely to the relation between stimulus and reaction as it is reflected in speech. He insists on this, since the linguistic reaction does not by any means always tally with the simultaneous inner associations. ("Experimentelle Studien über Assoziation" (1896), p. 220.)

⁷ Trautschold says: "First and foremost in this respect is practice or habit, which facilitates certain associations so much that in the end they occur quite mechanically, and there can be no question of other reactions" ("Experimentelle Untersuchungen über die Assoziation der Vorstellungen" (1883), p. 221).

I Ziehen's classification has certainly opened up most valuable vistas, but it is itself not completely satisfactory. First of all, the differentiation between "jumping association" and "judgment association" is a very doubtful one, if it is completely dependent on the presence or absence of the copula, a fact which Claparede⁸ also strongly criticizes. The complete failure of Aschaffenburg's schema should first be proved, but this has in fact not been done; on the contrary, the results based on this classification are very encouraging, so that at present one can still venture to use it, although bearing in mind its one-sidedness. The other schemas of classification are, however, biased in other ways. The criticism that Aschaffenburg's schema is biased on the side of logic is not valid, as it makes sufficient allowance for logical data as well as for sensual and perceptual connection, and also for the linguistic factor. Faced with reactions in the form of sentences, however, the schema is more or less powerless. On the other hand it must be stressed that with normal subjects sentences occur very rarely. One factor of great practical significance deserves to be stressed. Aschaffenburg's schema has been tested on a great deal of material, part of it pathological, and has proved itself of value. His *conditio sine qua non* is not the subsequent questioning of the subjects about the reaction phenomenon, as in the schemas of Ziehen, Mayer and Orth, and Claparede; it also allows at least an approximately correct classification without the help of the subject, which is of particular importance in psychopathological experiments.

I As we regard this work merely as a preliminary to psychopathological experiments, we have not hesitated to give preference to Aschaffenburg's schema. Those of Münsterberg and Bourdon appear to us as too much weighted on the side of logic; Ziehen's criticism of these, that they are unpsychological because they abstract completely from the context, is valid. Claparede's extremely subtle and penetrating suggestion (p. 226) does, however, deserve serious consideration, but should perhaps first be used on a wider range of material to test its application in practice.

5 In attempting the classification of acoustic-verbal associations one must never forget that one is not examining images

⁸ Claparede, *L'Association des idées* (1903), p. 218.

but their verbal symbols. The examination of associations is an indirect one and is susceptible to numerous sources of error caused by the great complexity of the process.

26 In our experiments we examine the resultant of an appreciable number of psychological processes of perception, apperception, intra-psychic association, verbal comprehension, and motor expression. Each of these activities leaves its traces in the reaction. In view of the great psychological significance of motility, particularly of the speech function, one must attribute above all a main role to linguistic facility. It is mainly this factor that is to be considered in classification. This principle of classification can be criticized for introducing an extremely variable and indeterminable magnitude into the calculation. We must admit that verbal facility is an extremely variable magnitude and that in an actual case it often causes difficulties, and that therefore the logical character of the classification also suffers. It introduces an arbitrary element into the classification that one would like to avoid. But, for the reasons stated above, we have nevertheless, *tal/te de miel/x*, decided on this mode of classification, taking as a guiding line certain empirical rules that we shall discuss later.

27 By these restrictions and a thorough consideration of the subject, we hope to have avoided being arbitrary in applying this principle.

28 In the following nomenclature (flight of ideas, associations etc.,) it must be remembered, after what has just been said, that by this we mean primarily ~peech-phenomena from which we have allowed ourselves to make deductions about psychological events. Here we are fully aware that we are examining a relatively limited area, that is, associations that are for the most part reflected in the speech mechanism. Thus, when we speak of "flight of ideas," we mean by this the speech phenomenon that is an external manifestation of internal processes. Of course, the psychological event is not necessarily reflected *in toto* in the form of word associations, but is only expressed in linguistic signs of that type when it affects the speech mechanism. In the flight of ideas, the actual thinking would naturally present a totally different picture if it could manifest itself directly. Thus, for example, the flight of ideas resulting from predominantly visual parts of images constitutes a special aspect

that can hardly manifest itself adequately enough and is therefore hardly accessible to external examination; particularly in mania, it will as a rule not be accessible to examination, because of the linguistic agitation. We shall find an opportunity in a later publication⁹ to discuss the visual form of flight of ideas.

2. SPECIAL CLASSIFICATION

A. *Internal Association*¹⁰

(a) GROUPING. We classify under this heading all ASSOCIATIONS connected by co-ordination, superordination, subordination, or contrast. The perusal of the cases in question leads to the following special classification of co-ordinations:

(a) *Co-ordination*. The two parts are linked by a similarity of content or nature; i.e., a general idea, in which both parts are contained, underlies them. Examples:

(accumulation of water)

---A-----
lake ocean

(fruit) ~
cherry apple

(measurement)

---,---
long narrow

(injustice or vice)

~njust faithlessnes~

⁹ [No such publication has been traced.]

¹⁰ Ziehen (*Introduction to Physiological Psychology* (orig. 1891), p. 205), arguing against internal association, gives as examples the following: *guest/chest, pain/ rain*, and remarks that these so-called internal associations are purely external and are almost completely limited to the acoustic image of words that have similar sounds. One can readily agree with Ziehen, for surely no one will want to call these examples of inner association.

We consider, with Wundt, that associative affinity is the principle of internal association and practice the principle of external association (or similarity = internal association, contiguity = outer association).

3¹ Association by co-ordination must take place within the framework of a clear-cut common general concept, but may be the result of more or less vague similarity. The similarity may be very great, so that only a nuance prevents it from being identical, e.g., *to forbear / leniency*. The similarity can also be very remote, so that the common meaning of the two concepts is not an essential one but a more or less coincidental attribute of the stimulus-image. In such cases the reaction appears very loosely connected with the stimulus-word and thus is distinguished from other co-ordinations. The distance of the association is, as it were, greater. Therefore these co-ordinations can to some extent be separated from those already discussed. In the loosely connected associations two categories can be distinguished:

(1) The stimulus-image is linked to the reaction by a meaningful but otherwise coincidental attribute, e.g.:

father (worried) play	worry
(of child?) War	youth
(peace-league)	Bertha v. Suttner"
murderer (to hang)	gallows
sentence (contains something)	content
star (romantic, night?)	romanticism

(2) The stimulus-image is linked to the reaction by an essential, external, mostly quasi co-existent attribute, e.g.:

pencil (long)	length
sky (blue)	colour
sea (deep)	depth
table (particular shape)	style

3² These two modes of co-ordination may be called "the connection of images according to internal or external kinship." The first category contains by far the more significant co-ordinations, and justifies to some extent the terms internal and external. The co-existence of attributes in the second category indicates that the formation of these co-ordinations is due to external association.

¹¹ [Baroness von Suttner (d. 1914), Austrian writer and pacifist, recipient of the first Nobel Peace Prize, 1905.]

As a last category of co-ordination we should like to propose "co-ordination through example." This category primarily contains reactions that are nothing but the inversions of the two previously discussed patterns:

worry	father (e.g., of the father)
content	sentence (e.g., of the sentence)
colour	sky (e.g., of the sky)
misery	old woman (e.g., an old woman is in misery)

f Now, there is a series of reactions to adjectives and verbs which, although it is true that they are not grammatically coordinated to the stimulus-word, can nevertheless perhaps best be grouped with co-ordinations, particularly those of the examples:

to give in	peace-loving	foreign	emigrant
to pay attention	clever man	to pray	pious man
to despise	wickedness	to help	good man

These associations can, if the expression be permitted, be called analytical; they are conceptions that are given, so to speak, implicitly with the stimulus-word to which they have been subordinated or superordinated. But as it is difficult, if not impossible, to distinguish this relationship with certainty in concrete cases, and as in addition the concept of the whole and the part cannot be applied to adjectives and verbs, we count these reactions also as co-ordination through example, inasmuch as among the possible nouns certain typical ones always appear in the reactions. The reactions in these cases are always extremely general and closely dependent on the stimulusword.

5 The special classification of the co-ordinations would then be as follows:

- (1) by common general concept (2)
- by similarity
- (3) by internal relationship (4)
- by external relationship (5) by
- example

Examples

- (1) father unCl
- (2) father e
- God

- | | |
|----------------------|------------|
| (4) father | our house |
| (5) to pay attention | clever man |

37 It must be added that with these examples the rich variety of co-ordinations is by no means exhausted. With individuals who associate intensively according to subjective constellations, a whole series of different co-ordinations, which cannot really be placed in any of these categories, is possible. In these cases one can safely admit one's inability and simply content oneself with the classification "co-ordination." One can console oneself with the idea that the individual possibilities are innumerable and that no schema could ever be invented that would make possible a clear-cut classification of all associations. But there is a number of co-ordinations that could without undue strain be placed under different headings, i.e., they have no clearly defined character; one can either leave it at that or perhaps group these reactions with the type they most resemble. The headings set out above are not meant to be absolute, compulsory categories, but merely a name for empirically found types which, on occasion, however, may merge into each other without sharp boundaries. More must not be expected in our present state of knowledge of association.

3⁸ (3) *Subordination*. The reaction is considered as a part or a minor (subordinated) concept of the stimulus-word, e.g.:

tree	beech
------	-------

39 Here we include all reactions that specify the stimulus-word, i.e., that represent special instances of the general stimulus-concept, e.g.:

house	house on X street
horse	Mr. X's horse
railway station	Baden

4⁰ In some cases there may be doubt whether the association should be considered as subordination or as predicate, e.g.:

food	today's (viz., food)
------	----------------------

4¹ (y) *Superordination*. The reaction is considered as the whole or general concept of the stimulus-word, e.g.:

Ofen ¹²	town
cat	animal

Here too the separation from the predicate is difficult, e.g., *thirteen / unlucky number*. Is *unlucky number* in this case a general concept and as such includes thirteen with other unlucky numbers? In our opinion there is a predicate here; on the other hand we would include Aschaffenburg's association *baptism / ancient custom* as a superordination, as *ancient custom* is a general concept that includes many other subordinate concepts.

⁴² (0) *Contrast*. The concept can be understood without difficulty. The classification and evaluation of the contrasts is much more difficult, however. Contrasts are as a rule very closely associated images, not only conceptually but also perceptually and above all linguistically. There are even languages in which only one and the same word exists to express typical contrasts. It must have been a considerable psychic achievement in the beginning of language and conscious thought to separate contrasts in speech and concept. Today, however, we have these ancient achievements in thought already formulated in the language; they are taught to us from earliest youth together with the first concepts of speech, with the first songs and reading material. We are verbally very practised in these closely connected concepts, which are very often supported by quotations and rhymes; e.g.:

sorrow	JOY	sour	sweet
pain	pleasure	light	dark
good	bad		

Sauersiiss and *helldunkel*¹³ are even colloquial words in German. For these reasons we have grouped a large number of common contrasts with external associations. Here we only count associations that are not current, such as:

friendly	angry	sense	stupidity
good	sinful	vengeance	to forgive
animal	plant		

⁴³ In spite of this detailed classification of the groupings there are still associations that cannot be put into any of the subgroups. For these there remains simply the general term "coordination," e.g., the association *high / silk*. The stimulus-word

¹³ [Sour-sweet and light-dark, Le., *chiaroscuro*.] • q

high [German *hoch*] has been understood as a proper name; the bearer of this name [Hoch] has a silk shop; hence the reaction *silk*. This cannot be merely a case of co-existence; the reaction consists of two specific images that are spatially co-existent; it is therefore a rather complicated formation. One could perhaps place it under the heading "co-ordination through external connection," though admittedly on slight evidence. Therefore it is safest, for the moment, to admit that such co-ordination cannot be further classified.

-14 Summarizing, we arrive at the following schema:

- | | |
|----------|--|
| Grouping | <ul style="list-style-type: none"> (a) Co-ordination: (1) by a common general concept (2) by similarity <li style="padding-left: 2.5em;">(3) by internal relationship (4) by external relationship <li style="padding-left: 2.5em;">(5) by example (3) Subordination: (1) Actual subordination <li style="padding-left: 2.5em;">(2) Specification (γ) Superordination (8) Contrast (€) Groupings of doubtful quality |
|----------|--|

45 (b) PREDICATE. We include here, in agreement with Aschaffenburg, all judgments, properties, and activities that in any way refer to the stimulus concept as subject or object (summarized by Kraepelin under the name "predicative relationships").

46 It is well known that Kant divides judgments into analytic and synthetic. This principle of logical classification is of value to us only in so far as, in an analytic judgment, a part of the concept (i.e., a predicate) is presented that is necessarily inherent in the concept. Thus only that is given which already implicitly exists. But in the synthetic judgment something is added to the concept that is not necessarily already contained

↳ *Psychol. Arb.*, **1**, p. 222.

15 "In an analytical judgment I do not go beyond the given conception, in order to arrive at some decision respecting it. If the judgment is affirmative, I predicate of the conception only that which was already cogitated in it; if negative, I merely exclude from the conception its contrary. But in synthetical judgments, I must go beyond the given conception, in order to cogitate, in relation with it, something quite different from that which was cogitated in it ..." etc. Kant, *Critique of Pure Reason* (trans. Meiklejohn, 1934), p. 126 .

in the concept. As regards associative performance the synthetic judgment is in a way superior to the analytic. If we approach this question practically, we find (in so far as this method of classification can in practice be applied at all) that in simple judgment-reactions the analytic judgment exists mainly in the naming of a co-existent perceptible attribute, while the synthetic judgment is mostly a value judgment with a more or less marked ego-reference. Thus we see here a relationship analogous to that between "co-ordination by external relationship" and "co-ordination by internal relationship." In the association *pencil/length*) *length* is essentially contained in the concept or is co-existent, while in *father / worry* the concept *worry* adds something new and therefore causes a shifting of concept. We should readily accept the grouping of judgment-reactions into analytic and synthetic if there were not a considerable practical difficulty: we have no way of knowing in the individual case whether the analytic predicate is an essential part of the concept or not. One can only attempt to decide this question if one can differentiate in individual cases between a concrete and an abstract concept. We know that Ziehen considers that he has done this by direct questioning, even of children. We not only consider this method most unreliable, but also find the distinction between concrete and abstract concepts particularly difficult. If I give a name to a mental picture, then the picture consists of a condensation of many memories, whose more concrete or more abstract aspect depends on minimal differences of perceptual vividness. In many cases even psychologically educated people would be at a loss if they had to decide whether, for example, in *hOllse / roof* they had visualized a concrete or an abstract roof. Of course we are far from denying the existence of abstract concepts; but in concrete cases of acoustic-verbal experiments we cannot help suspecting that the so-called abstract concepts are merely words that lack individual content, only not so much because they are abstract concepts as that they are mostly linguistic formations of a motor kind, in which the other sense-impressions participate only very slightly.

47 For the answer to the question whether we are faced with an analytic or synthetic judgment we should have to know exactly whether the thought was concrete or abstract: e.g., *snnkp / urppn* is *ohiPrtivp]v pntirp]v svnthptir* It is not *nprpss;nv*

to think of *green* together with *snake*; only in the case of the image of a definite snake must green be already implicit, in which case it would be an analytic judgment. Apart from these reservations, there are other, mainly practical, difficulties which interdict this mode of classification.

~8 In order to arrive at a special classification of the predicate we must consider the different possibilities:

(1) The stimulus-word is a noun, the reaction an adjective. (2) The stimulus-word is an adjective, the reaction a noun.

-19 We have no reason to separate these two cases, any more than the other forms of predicative connection:

(1) The stimulus-word is the subject, the reaction its active or passive activity.

(2) The stimulus-word is the active or passive activity of the reaction.

Or:

(3) The stimulus-word is the object, the reaction is the activity referring to it.

(4) The stimulus-word is an activity, the reaction is its object.

Let us consider the first forms: of

5 noun and adjective. Two main distinguished: the predicative connection

o (a) The adjective describes an essential and meaningful characteristic of the stimulus-image. One can call this type of predicate

51 "internal." It can easily be divided into two groups:

(1) Objective judgment, e.g.:

snake	poisonous	war	bloody
glass	fragile	grandmother	old
mild	spring	winter	raw
thirst	intense		

These predicates describe an essential and meaningful addition to the stimulus. Their purely objective character distinguishes them from the second group:

(2) Value judgment, e.g.:

father	good	pupil	good
to stink	unpleasant	soldier	brave
to ride	dangerous	wood	useful
mountain	beautiful	murderer	base
J...~1,	.....flocf-....r	TH~a'~	~af~a' J...;

In these reactions the personal element is more or less prominent; but where the ego-reference is clearly expressed in the form of wish or rejection, one can speak directly of "egocentric predicates." We do not however want to separate such reactions from value judgments as a distinct group, for reasons stated below. We also count the following as value judgments:

Iron	useful metal
water	one of the most interesting chemical substances
scoundrel	disgrace

2 Value judgments expressed in the form of an activity, e.g.:

smoke	stinks
apple	tastes nice

are best placed with the predicates.

3 We also count as value judgments reactions in which a value is not stated but demanded, e.g.:

good	one should be
diligent	the pupil should be
to threaten	one must not

4 Such reactions are not frequent in normal subjects; we merely mention them for the sake of completeness.

5 (/3) The adjective refers to an external, less significant, possibly co-existent, and perceptible characteristic of the stimulus. For this type of predicate we should like to use the term "external":

tooth	protruding	exercise-book	blue
water	wavy	salt	granular
tree	brown	ete.	

We assess the predicate-relation between adjective as stimulus-word and noun as reaction according to the principles explained above. Thus, in classifying, we evaluate *green / meadow) meadow / green*, as more or less equivalent.

7 Aschaffenburg has with some reason considered interjections as predicates, but we have interpreted them differently (see below).

1 A further sub-group of predicates is made up of the "relationships of noun and verb."

- 59 (a) *The subject relation.* The noun as the stimulus-word or the reaction is the subject of a definite activity:

resin	sticks	to cook	mother
hunter	to shoot		

- 60 (/3) *The object relation.* The noun as the stimulus-word or the reaction is the object of a definite activity:

door	to open	to clean	brass
to recruit	soldiers	throat	to strangle

- 61 The predicates so far discussed cannot easily be distinguished from the above-mentioned "co-ordination by example," if the attributive part is the stimulus-word. For this diagnosis we consider decisive the subject's evident effort to find a reaction-word (i.e., a noun) as appropriate as possible to the stimulus-word and with a general validity, as in:

to pray	pious person
to despise	wickedness
to give in	peace-loving

Thus we count *to clean / brass* as an object relation and *to clean / shining metal* as co-ordination by example.

- 62 Specifications of place, time, means, and purpose are somewhat loosely connected with the group of predicates (Ranschburg's¹⁶ "end-defining association").

<i>Place:</i> to go	into town
<i>time:</i> to eat	12 o'clock
<i>means:</i> to beat	with a stick
<i>purpose:</i> wood	for burning

- 63 One can sometimes, with th'-se reactions, be in doubt about whether perhaps they are to be interpreted as specification and therefore belong to subordinations. But in most cases the decision will be easy, so that error will not be too great. Definitions or explanations of the stimulus-word, which in general occur very rarely, have a certain connection with the group discussed above, for which reason they too have been placed in the group of predicative relations. Examples:

door	noun	star	heavenly body
blue	adjective		

¹⁶ Ranschburg and Balint, p. 7¹⁵.

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64 The predicative relations are thus made up of the following groups:

(I) Objective judgment (2) Value judgment

1 N d. ((a)) Internal predicate

1 (3) N noun an a (jective) External predicate

((a)) Subject relation

I noun an (ver) Ob' Ject re a tlOn

65 (c) CAUSAL RELATIONSHIP (Minsterberg). Stimulus-word and reaction-words linked by a causal connection. Examples:

pain tears
to cut painful

B. External Associations

56 (a) CO-EXISTENCE. The connection of co-existence is *contiguity or simultaneity*, i.e., the link between the two concepts is not exclusively similarity or affinity but also temporal co-existence or immediate succession. Spatial co-existence is included in temporal contiguity as spatial co-existence results from succeeding sense-impressions. Examples:

ink	pen	pupil table	teacher
exercise-book	knife	lamp	chair
table	soup	mother	family
Christmas	tree church	institution	child
Sunday			warder

We also include here reactions like:

to ride	horse	to ride saddle
eye	to see	ear to hear
pencil		
paper		
exercise-book		
to sing	to write	
to calculate		
school		

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The associations with *to write* are complexes of school-memories, the connection of which is conditioned by simultaneity; the other examples concern reactive images associated with the stimulus images by co-existence.

67 (b) IDENTITY. The reaction contains no shift or development of the sense, but is a more or less synonymous expression for the stimulus-word .

68 (a) The synonymous expression is taken from the same language as the stimulus-word. Examples:

grand	magnificent
to pay attention	to take notice (in Swiss-German usage, essentially synonyms)
to squabble	quarrel

69 ((3) The synonymous expression is taken from a language other than the stimulus-word, i.e., it is a *translation*. Examples:

stamp	timbre
Sunday	dimanche

70 (c) LINGUISTIC-MOTOR FORMS. (Ziehen¹⁷ "Current word-compounds and associative word-complements." KraepelinAschaffenburg: ¹⁸"Linguistic reminiscences." Trautscholdt: ¹⁹"Word association.") In this sub-group of external associations we collect together all connections of images, which have been canalized through verbal practice, although logically and historically they may have a different meaning and therefore could be put into one of the types mentioned above. In dealing with *contrasts* we have already mentioned a series Of reactions that we interpreted as being of such common verbal practice as to be canalized. We classify them as

7¹ (a) *Canalized verbal associations.*

(1) Simple contrasts. Examples:

dark	light		
sweet	sour		
		white	black
		like	unlike

¹⁷ Ziehen, "Die Ideenassoziation des Kindes" (18g8), p. 2g; *Sammlung von Abhandlungen aus dem Gebiete der Pädagogischen Psychologie*, I (18g8), p. 6.

¹⁸ *Psychol. Arb.*, I, p. 223.

¹⁹ "Experimentelle Untersuchungen über die Assoziation der "orstellungen," p. ²¹3.

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(2) Current phrases. Examples:

hunger	to suffer	something	more
house	and home ²⁰	force bread	to apply
of age	to come	head	to earn
goods	and chattels ²¹	bird	to bow
thanks	to give		bush
gallant	to be	water to	to drink
trials	and tribulations	swim	to be able to
world	and people	tram	to ride
old	frail	to go	for a walk
right	to do	revulsion	to arouse
to come (and) go		cat	mouse
place	time	to break	the news

(3) Proverbs and quotations. Examples:

everywhere	and nowhere	war	and peace
liberty	equality	more	light ²²
everywhere	I am at home	meat	drink
eye	tooth		
do's	and don'ts		

(y) Compound words.

(I) The reaction-word complements the stimulus-word and forms a compound word. Examples:

table	leg	frog	blood ²⁴
needle	case	book	marker
mat	hanging ²³	head	scarf
piano	player	tooth	ache
vengeance	to thirst for	institute	women's

The reaction may also be such that the stimulus-word is repeated in the reaction, e.g.:

tears	tear duct ²⁵	foot	football ²⁷
to knock	to knock at to	star	starlight
to hear	hear out ²⁶	sweet	sweetmeat

²⁰ [In German. *Grund/und Boden* (bottom/and ground), an expression referring to the hospital grounds.]

²¹ [In German, *Kind/Kegel* (child/bastard); *Kind und Kegel* is a folk expression for "the whole family."]

²² [Goethe's dying words.]

²³ [*Matte/Hiinge* = *Hiingematte*, 'hammock,' originally a hanging mat. Some of these compounds are untranslatable.]

²⁴ [Referring to someone who is "cold-blooded."]

²⁵ [The actual example, *Triinensack*, refers to the lacrymal sac.] Oh

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(2) The reaction is essentially only a grammatical variation of the stimulus-word (Wreschner: 28 "Association with inflexional form").

to die	dead	to find	found
kindling	to kindle	love	to love
to hammer	hammer	cab	cabby
school	scholar	murderer	to murder

74 (8) To this should be added a small group of reactions that can be termed anticipatory. Examples:

dark red	light	grandiose	small
slow	short		

75 (e) Interjections, which only rarely occur, have been placed in the category of "linguistic-motor connections" although, as Aschaffenburg stresses, they represent a predicate. We justify our interpretation by pointing out the highly imperfect linguistic form of the reaction, which moreover contains a very strong motor component. Examples:

grand to	ah!	to love	oh!
stink	pooh!		

*C. Sound Reactions*²⁹

76 The content of this group corresponds to Aschaffenburg's group of "stimulus-words acting only by sound."

77 (a) WORD COMPLETION. We interpret these words in agreement with Aschaffenburg, only including here reactions that together with the stimulus-word, form an indivisible word. Examples:

wonder	-ful	modest	-y
love	-ly	friend	-ly

²⁶ [The German, *aufhoren*, means to listen attentively.]

²⁷ [In the German language there is the generic term *Spielball*, meaning a ball used for any game.]

²⁸ Wreschner, "Eine experimentelle Studie über die Assoziation in einem Falle von Idiotie" (1900), p. 241.

²⁹ ["Sound" = German *Klang*, also translated in the *Coli. Works* as "clang."]]

We also consider addition to the stimulus-word, to form a name, as word-completion. Example:

Canter	-bury
Winter	-bourne ^{Ro}

- 8 (b) SOUND. The reaction is conditioned solely by the sound of the whole stimulus-word or its beginning.³¹ Examples:

enchain	enchant	intention	intestine
mercenary	merciful	to roast	roast beef
		humility	humidity

- 9 (c) RHYME.³² Examples:

dream	cream	king	nng
heart	smart	crank	plank
leave	grieve		

To divide sounds and rhymes into "meaningful and meaningless," as Aschaffenburg does, is not worthwhile, owing to the rarity of the "meaningless" ones. We have therefore refrained from doing this.

D. Miscellaneous

This not very large group comprises reactions for which no place can be found in the rest of the schema, but which have only a very limited connection with each other.

(a) INDIRECT ASSOCIATION. Aschaffenburg, as is well-known, contrasts the indirect mode of reaction with all other reactions, which he regards as "direct" ones. We have rejected this quantitatively most disproportionate contradistinction, because with uneducated subjects one can never know how many different contents of consciousness stand between stimulus-word and reaction. We cannot even *ourselves* always state how many conscious, half-conscious, or unconscious constellations affect our reactions. We will not enter here into the academic contro-

³⁰ [The examples given by lung are *Laufen* (to run)/burg and *Winter/thur*, both giving the name of a town.]

³¹ [lung's examples (except for *to roast/roast beef*), being untranslatable, have been replaced by similar pairs of English words.]

³² [Some of the rhyming pairs have been replaced by English equivalents.]

THE ASSOCIATIONS OF NORMAL SUBJECTS

versies about indirect association (that is, whether the intermediate link is conscious or unconscious) but confine ourselves to stating the phenomenon of the indirect mode of reaction within the framework of our cases. We call "indirect association" that mode of reaction that is intelligible only on the assumption of an intermediate link different from the stimulusword and the reaction. We distinguish five forms:

83 (a) Connection by common intermediate concept. Examples:

white far ~ snowfield	dozen 144 "-----y----- heap
false blonde ~ Miss X is false and blonde	turbid shallow
repentance black	water
	red scent ~ flower
mourning	
to close round	bicycle round
to turn	wheel
to disgust odourless	to walk pear ~ under pear-trees
to stink fast	to turn earth
to whistle	
locomotive	to rotate ³
hay green ~ grass	rich s-franc piece
	roll of money

84 It must be noted that in these associations the intermediate link is usually clearly conscious. Such reactions are very rare and occur almost entirely in individuals of markedly visual type.

85 (13) *Centrifugal sound-shift* (Aschaffenburg's "paraphasic indirect association"). There is an inner reaction that is to a greater or lesser extent clear and meaningful, which, however, in the process of articulating it, is replaced by a canalized association with a similar sound. We therefore designate this

group of indirect associations as "centrifugal sound-shift." Examples:³³

decision to slide (to
decide) stubborn
foolish (mulish)
to quarrel to shoot
(dispute)
hair blue (blonde)
sacrifice to castrate
(casket, sacristy)
ears typhus (tubes)

to dress excessive
(overcoat) society
unit (union) earth
house (heap)
medal fastness
(fastened) love
crate (hate)
pair hoot
(boot)

Cordes wants to exclude these reactions from the indirect ones, admittedly, from his point of view, with some justification. The direct inner association appears to be a genuine association and not a sound reaction; so there exists an entirely appropriate and direct intention which, however, at the moment of enunciation, is shifted towards a similarity of sound to the detriment of the meaning. Such shifts can only occur when the inner image to be expressed does not command the intensity of attention necessary to set going the appropriate speech-mechanism. Deviations into by-ways only occur when what has to be enunciated is not intense enough, i.e., it does not reach a sufficient degree of consciousness. Therefore we also assume that, in spite of correct intention, the intermediate link has remained abnormally obscure, which agrees completely with the accounts of subjects who can observe themselves. Some had no more than a feeling that they had not said the right thing, without being able to point to the intermediate link. Whether in such cases the shift towards similarity of sound occurs at the sending station or the receiving station seems to us irrelevant to the evaluation of the reaction.

(y) *CentriPetal sound-shift*. The stimulus-word is internally replaced by a sound similarity, which in its turn determines the reaction. Usually the intermediate link is in that case half-con-

³³ [Most of the original examples are not translatable, so equivalents have been found.]

scious or unconscious. It must be noted that in all cases here classified the stimulus-word has been correctly understood, so that it is not merely a case of misunderstanding. Examples: ³⁴

to ride slip (slide)	lazy mist (hazy)
to wallow bird (swallow) strong	to rust fair (just) room to caw
sin (wrong) malt pepper (salt)	(rook) stroke cigar (smoke)
politics hefty (policeman) stroke	to wallow throat (swallow)
knot (string)	to love turtle
to hit to bite (to smite) malt	(dove) pleasure
vinegar (salt)	tape (measure)

88 In our experience by far the largest number of indirect associations are shifts through sound similarity. What we have said in the preceding paragraph about the consciousness of the intermediate links also applies here. The occurrence of a sound association points to a stimulus-word with an inadequate feeling-tone.³⁵ Reaction to the intermediate sound-link is likewise a result of insufficient feeling-tone of the stimulus-word. In this case the sound association is, in our experience, as indistinct as the stimulus-word, and at first the subject is even unsure of the kind of stimulus-word. The reaction is innervated before the act of apprehension has taken place.³⁶

³⁴ [Many of the original examples, being untranslatable, have been replaced by English equivalents.]

³⁵ Intensity of attention; see above, par. 86.

³⁶ Munsterberg maintains that, in order to stimulate associations, the external excitation does not first have to be converted into a conscious process, but that, between external excitation and conscious central excitation, there is a nonconscious stage in which an association-process takes place that does not reach consciousness (*Reitrage zur experimentellen Psychologie*, IV (1892), p. 7). Nevertheless, Munsterberg denies the occurrences of indirect associations through conscious intermediate links (*ibid.*, p. 9).

1. STUDIES IN WORD ASSOCIATION

J (8) *Centrifugal and centriPetal shift through word-comPletion or linguistic-motor association.* Examples:

standard filter	head block
(solution) false	(blockhead)
faithfulness	angel heart
(faithful)	(hard)
rats poisonous	clean flea (unclean)
(poison)	painter beautiful (painting)
to cook coachman	lockjaw teeth (jaw)
(the cook) avarice	permanently to certify
patient (pathological)	(deranged)
armlet foot (arm)	to roll round
horrible grey	(roller)
(gruesome) look-out	fox finger
strike (lock-out)	(foxtglove)

(€) *Shift by several intermediate links.* The intermediate links may be associations that are mechanical yet of high valency. The reactions in this category are very rare and are mostly of abnormal origin. All the types described above can of course be found among these reactions. Examples:

ink	acid	revenge	rector
(red	litmus)	(right	rectify)
bird	mouse		
(flutter	bat [<i>Fledermaus</i>])		
lithe	big	tough	headache
(lice	small)	(tooth	ache)

We shall not at present look further into the theory of indirect association in acoustic-verbal experiments. For the moment let us simply say that these associations are closely connected with variations in concentration.

(b) **MEANINGLESS REACTIONS.** In moments of emotion or embarrassment reactions are sometimes given that are not words or are not associations.

We of course separate assonances as sound reactions from 3²

mere sounds. Among the non-associated words there are hardly any of inexplicable origin. They are mostly names of objects in the surroundings or of coincidental concepts that are not connected with the stimulus-word. Some nonsense reactions are perseverations of type b (see below).

94 (c) FAILURES. The absence of a reaction we call a failure.

The cause of the failure is usually emotional.

95 (d) REPETITION OF THE STIMULUS-WORD. A very small group that could equally well be put into the category of failures! There are, however, normal individuals who cannot help quickly repeating the stimulus-word to themselves and then giving the actual reaction, a phenomenon that can be observed outside the experiment in ordinary conversation. This reaction is not included in any of the normal categories. Repeating the stimulus-word is, in any case, also an emotional phenomenon (Wreschner³⁷ is of the same opinion).

96 This completes the specific classification of associations.

There remain only a few general points that help to clarify the types of association.

E. The Egocentric Reaction

97 It is striking that certain individuals tend to form ideas of reference during the experiment; that is, to give highly subjective judgments that are clearly influenced by wish or fear. Such reactions have something individually characteristic and are indicative of certain personalities.

98 (a) DIRECT IDEAS OF REFERENCE. Examples:

grandmother	!
to dance	I don't like I
unjust	was not for
praise	me
to calculate	I cannot

9 (b) SUBJECTIVE VALUE JUDGMENTS. Examples:

9

to be lazy to	pleasant	piano	horrible
calculate	laborious	love	stupid
blood	gruesome		

³⁷ "Eine experimentelle Studie über die Assoziation in einem Falle von Idiotie,"

*F. Perseveration*³⁸

By perseveration we understand a phenomenon³⁹ that consists in the fact that the preceding association conditions the next reaction. We have made it a rule to consider the effect on only the immediately following reaction. Thus we have excluded an effect that bypasses un influenced reactions; we prefer to consider this type of effect under the general heading of constellation. Here we do not want to be prejudiced about the nature of the phenomenon of perseveration. We must point out, however, that perseveration may be caused by psychophysical factors at present unknown as well as by specific feeling-constellations. **In** practice, two cases of perseveration are to be distinguished:

(a) The reaction is an association to a previously used stimulus-word.

Examples:

winter ~ skates lake ~
 ice
 to melt ~ hot
 slowJ fire
 water fall
 to dance :5J to fall

(b) The reaction is not an association to a previously used stimulus-word. Examples:

lid box
 rats **S** basket
 softly ~ she comes along
 gallant ---.J up the steps

If at the moment of the experiment consciousness is dom-

³⁸ Aschaffenburg's "association to words previously used."

³⁹ We use the word "perseveration," as in MULLER's and PILZCKER's experiments ["Experimentelle Beitrage zur Lehre vom Gedachtnis," 1900], to denote merely the continuance of the preceding image in so far as it is manifest in the following reaction, The term is intended to be purely formal and is not intended to explain anything. We offer no opinion on whether the perseveration is a cortical or a cellular (nutritional) process (Gross) or whether the result is a particular associative constellation. In any case, we wish to stress that our concept has no connection with the "perseveration" in organic cerebral processes any more than with the hypothetical "secondary function of brain cells" which is said to explain the psychological after-effect of the vector-image.

inated by a strongly feeling-toned complex, then a longer series of heterogeneous stimulus-words will be absorbed into the complex, each reaction being influenced by stimulus-word, and complex-constellation. The more powerful the complex-constellation, the more the stimulating image is liable to assimilation (Wundt), i.e., it is not comprehended in its actual and usual sense but in the special sense adapted to the complex.

G. Repetition

first and second hundred of the associations in normal subjects were counted separately. One could perhaps differentiate between repetition of content and of particular stylistic form. Since in normal subjects particular stereotype-reactions constructed with auxiliary words are extremely rare, we have decided not to count repetitions of form.

H. Linguistic Connection

not only by meaning (i.e., the principles of *association*, *contiguity*, and *similarity*) but also by certain solely external motoracoustic properties. To my knowledge Bourdon was the first to tackle this question experimentally. In his remarkable work "Recherches sur la succession des phenomenes psychologiques," he describes investigations into the phonetic linking of association. Bourdon noted, from the top of every page in books chosen at random, the first noun, adjective, or verb. In this way he compared five hundred pairs of words. The total of phonetically similar pairs was 312, assuming a phonetic similarity if the words have one or more phonetic element in common. It must be noted, however, that Bourdon interpreted this similarity somewhat widely, e.g., *toi* and *jouer* because of the "w" sound! Bourdon examined especially the *ressemblance Phonitique*, *graphique* (one or more common letters), and *syllabique* (a common syllable). He found the following comparative figures:

Ressemblance phonetique:	0.629
.. graphique:	0.88
syllabique:	8

106 Bourdon finds: "Il reste neanmoins vrai, que les mots s'as-₁₂₁set.

I. STUDIES IN WORD ASSOCIATION

societ entre eux plutot par leur signification que par leur ressemblance phonetique."

In accordance with these investigations, we have assembled a group that contains external linguistic factors.

(a) **THE SAME GRAMMATICAL FORM.** We simply counted how often the form of the word was the same in the stimulus-word as in the reaction, that is how often noun / noun, adjective / adjective occurred together. We arrived at this question because we had observed that large individual variations exist.

(b) **THE SAME NUMBER OF SYLLABLES.** We counted how often the stimulus-word and the reaction contain the same number of syllables, with the object of finding out more about the influence of rhythm.

(c) **PHONETIC AGREEMENT.**

(1) *Consonance.* We counted how often the first syllable of the stimulus-word and of the reaction agreed at least as regards the vowel.

(2) *Alliteration.* Here we noted how often the stimulusword and the reaction alliterated in the first vowel or consonant.

(3) *The same ending.* Here we examined the phonetic influence of the ending of the stimulus-word on the ending of the reaction, that is, the tendency to rhyme. Here we only noted whether the final syllables tallied.

SUMMARY

A. Internal Associations

(a) Grouping

(a) Co-ordination

(1) By common general concept (2) By similarity

(3) By internal relationship (4) By external relationship (5) By example

(/3) Subordination

(1) Actual subordination (2) Specification

(y) Superordination

(8) Contrast

(10) Groupings of doubtful quality ,,(1)

THE ASSOCIATIONS OF NORMAL SUBJECTS

(b) Predicative relationship

I. Noun and adjective (a)

Internal predicate

(1) Objective judgment (2)

Value judgment

(/3) External predicate

II. Noun and verb

(a) Subject relationship (/3)

Object relationship

III. Determination of place, time, means, and purpose IV.

Definition or explanation

(c) Causal relationship

B. External Associations

(a) Coexistence (b)

Identity

(c) Linguistic-motor forms

(a) Canalized verbal associations (1)

Simple contrasts

(2) Current phrases

(/3) Proverbs and quotations

(y) Compound words and word-changes (8)

Anticipatory reactions

(10) Interjections

C. Sound Reactions (a)

Word-completion

(b) Sound

(c) Rhyme

D. Miscellaneous

(a) Indirect associations

(a) Connection by common intermediate concept (/3)

Centrifugal sound-shift

(y) Centripetal sound-shift

(8) Shift through word-completion or linguistic-motor form

(10) Shift through several intermediate links (b)

Meaningless reactions

- (c) Failures
- (d) Repetition of the stimulus-word

E. The Egocentric Reaction (a)

- Direct ideas of reference
- (b) Subjective value judgments

F. Perseveration

- (a) Connection with a [previous] stimulus-word
- (b) No connection with a [previous] stimulus-word

G. Repetition of the Reaction

H. Linguistic Connection (a)

- The same grammatical form
- (b) The same number of syllables
 - (c) Phonetic agreement
 - (1) Consonance (2)
Alliteration
 - (3) The same ending

We have classified our material according to the principles laid down in the schema. In order not to complicate the presentation of the results unnecessarily by a plethora of figures, the graphs published in Part Two reproduce only the figures of the main groups, allowing the extensive material to be grouped more clearly than with a detailed report of the figures for all the sub-groups. For reasons of scientific integrity we considered ourselves obliged to give an exact account of the kind of consideration that led us to the classification of the associations in one or other main group. Also it seemed to us of general interest to state the different empirical possibilities of the associations so far as they are known to us.

Thus our figures concern merely the following main groups of the schema:

I. Internal Associations

1. Grouping
2. Predicative relationship
3. Causal relationship

II. External Associations

1. Co-existence
2. Identity
3. Linguistic-motor forms

III. Sound Reactions

1. Word-completion
2. Sound 3.
Rhyme

IV. Miscellaneous

1. Indirect associations
2. Meaningless reactions
3. Failures
4. Repetition of the stimulus-word

A. Perseveration

B. The Egocentric Reaction

C. Repetition of the Reaction D.

Linguistic Connection

1. The same grammatical form
2. The same number of syllables
3. Alliteration
4. Consonance
5. The same ending

PART TWO

RESULTS OF EXPERIMENTS

A. RESULTS OBTAINED FROM INDIVIDUAL SUBJECTS

{ Subjects reacted very differently to disturbing stimuli. Producing internal distraction was the most difficult, as already stated. It was not even possible to achieve with all educated subjects. External distraction by metronome-beats was somewhat easier. But here too great differences are apparent between individual subjects. It therefore seemed necessary to give the figures of each subject fully. Here a plethora of tables cannot be avoided. All figures are percentages.

1. EDUCATED WOMEN

Fourteen subjects with 4P46 reactions

5 *Subject 1.* In general the character of these associations [see table] is very objective and almost entirely un influenced by subjective constellations. In the normal state external associations prevail over internal ones. Between the first and second hundred of the normal reactions a clear difference is apparent, there being an increase of 9 per cent in the sound group. We attribute this change to a certain lassitude appearing in the reception of the second hundred, which psychologically has no more significance than a relaxation of attention.¹ There can

¹ Aschaffenburg says: "Our attention is so enormously unstable, the non-controllable and unavoidable changes in our psychic life so great, that we should not use short experimental series. On the other hand one must not forget that in the course of longer experiments signs of fatigue occur, so that it is not, for example, permissible to compare the first 25 associations with the last 25 of a series of 200 reactions, without taking this fact into consideration" ("Experimentelle Studien," I, p. 217). Thus Aschaffenburg has noted the same phenomenon, but in our view has not interpreted it correctly.

THE ASSOCIATIONS OF NORMAL SUBJECTS

Subject 1. About 22 years of age, very intelligent

ASSOCIATIONS	NORMAL	DISTRACTION	External
SPECIAL QUALITY			
Grouping			
Predicative relationship	26		4
Causal relationship	14	21	
Co-existence	2	14	16 2 4
Identity Linguistic-motor forms	20	1	10
Word-completion	3 ⁶	10	4 54 2
Sound		7	8
Rhyme		3 ⁶	6 6 2 0
Indirect			
Meaningless		8	8
Failures			2 3
Repetition of stimulus-word			4 6
Egocentric reaction			
Perseveration Repetition of reaction			2 2 4
Same grammatical form			
Same number of syllables	5		64 56 4
Alliteration			12 16
Consonance			10 6
Same ending	67	8	
Internal associations	43		18
External associations	10 12 10	58 4 ¹	68 6
Sound reactions		12	12 0
Number of associations	4 ²	15 6	50
	57	3 ⁶	56 60 4 ²
		53	52 14
	100	1 0	8
		100	
			3 ⁰

certainly be no question here of psychological fatigue which, as Aschaffenburg has shown, brings about an increase of sound associations. The preceding psychic effort is much too slight for that. On the other hand, the relaxing of interest could very well be identified with lassitude in Kraepelin's² sense.

5 The columns after those giving figures for normal conditions describe the changes of association under the influence of artificially distracted attention. From a purely dynamic point of view one could say that the "associative energy" (Ranschburg³) was to such an extent diverted to another area that only a fraction of it is still available for the reaction. Thus a correspondingly poor or easy (that is, strongly canalized) association is given, because the stimulation of ready and accustomed cerebral mechanisms requires a smaller amount of energy than the canalization of relatively new and unaccustomed connections. From this point of view, the increase of linguistic-motor forms by 18 per cent in internal distraction can easily be understood;⁴ but to understand the origin of the numerous sound reactions in external distraction is more difficult. Aschaffenburg believes that it is possible to hold motor excitation responsible.⁵ This exists in mania, exhaustion,⁶ and alcoholic intoxication. But it has been proved that flight of ideas, or modes of association similar to flight of ideas, can also occur without

² *Psychol. Arb.*, I, p. 53. Kraepelin distinguishes between "lassitude" [*Müdigheit*] and "fatigue" [*Enlliidullg*]. Lassitude he regards as a sort of warning, a subjective feeling which, however, usually but not always develops before real fatigue.

³ Ranschburg and Hajós, *Beiträge zur Psychologie des hysterischen Geisteszustandes* (1897).

⁴ Aschaffenburg, I, p. 239. At the time of the formation of the external association linguistic habit predominates, while later, on reflection, a secondary tendency to co-ordinate develops.

⁵ "The facilitation of motor-impulses must be considered the essential factor responsible for the number of sound reactions exceeding the norm" (Aschaffenburg, H, p. 69; see also the work of Smith, Fiirer, and Riidin on the effects of alcohol, in Kraepelin's *Psychol. Arb.*). [For Riidin, see Bibliography. Smith and Fiirer did not contribute to *Psychol. Arb.*, though Riidin and others cited their work on this subject.]

⁶ The expression "exhaustion" of mental and physical energy

merely denotes a higher degree of impairment (Aschaffenburg, 11, p. 47).

motor excitation, e.g., in epilepsy (Heilbronner⁷), catatonia, and manic stupor.⁸

J17 In our experiment, motor excitation is as good as excluded. (The act of writing, which could be interpreted as "motor excitation," is excluded in internal distraction, the results of which coincide with those of external distraction.) Thus no relationship between sound reactions and motor excitations can be demonstrated; rather do we see the origin of sound reactions in diminished attention. Distraction has primarily an inhibiting effect on the development of internal associations (of "high valency") and favours the formulation of external, i.e., more mechanical association-forms, hence sound reactions in large numbers. In further description of the experiment we shall have ample opportunity to point out shifts of association-form towards external, that is mechanical associations. We can say that, when the experiment was at all successful, these shifts only occasionally took place.

J18 It is striking that, in this obvious tendency towards mechanical reaction, sound reactions too were clearly favoured. But in the present state of our experience sound reactions are not mechanical, they are apparently non-canalized associations. In our interpretation, sound reactions, which are on only a slightly higher level than mere repetition of words, are the most primitive of associations by similarity. After early childhood they are no longer used but, always called up by the act of speech they predominate as soon as a disturbance impedes the activities of the next higher levels of association (slips of the tongue or mis-hearing). They are, because of their uselessness in the normal thought-process, repressed and usually exist outside consciousness.

J19 We call the increase of linguistic-motor forms and sound reactions the blunting of the reaction. The attentive reaction, which takes place in the focus of consciousness, is not a sound reaction (unless this is expressly sought); but if one succeeds in directing attention to another activity, that is moving the

⁷Heilbronner, "Ober epileptische Manie nebst Bemerkungen iiber die Ideenflucht" (1903).

⁸There are, incidentally, also pure manias which, particularly when subsiding, still show a definite flight of ideas in a completely steady state of motility.

psychic reaction outside the focus of consciousness, then all those associations occur that had been repressed from clearly conscious reactions. We shall deal later in detail with the significance of this hypothesis for the pathology of association.

10 With faulty attention the stimulus-concept is not raised to a level of complete clarity or, in other words, it remains on the periphery of consciousness and is apprehended only by virtue of its external appearance as sound. The cause of these defective perceptions lies in the weakness of their emotional tone which, in its turn, is dependent on the disturbances of attention. Every process of apperception of an acoustic stimulus begins at the level of pure sound perception. From each of these levels associations can be externalized if simultaneously the speech centres are ready to discharge. That this does not normally happen is due to the inhibiting effect of directed attention, that is the raising of the stimulus-threshold for all inferior and undirected forms of association.

In this case the high frequency of meaningless reactions, up to 6 per cent in external distraction, is noteworthy. They are partly due to strong perseverations, e.g.:

intention ~ out of humour ("one notices the
intention" etc.)⁹
to rescue art (art of poetry)
strong mighty
hatred ~ magnificent¹⁰

and partly to distraction due to the unaccustomed noise of the metronome, e.g.:

appearance rhythm

This reaction shows to some extent how strong an effect the 2 disturbing stimulus had on this subject. The intense lowering of attention also explains the unusually high number of sound reactions. The gradual predominance of acoustic and linguistic factors is also illustrated by the distinct rise of the figures in the columns for alliteration and consonance; there

⁹ [The reference is to a well-known quotation from Goethe's *Torquato Tasso*, Act II, Se. I: "Man merkt die Absicht und man ist verstimmt" ("One notices the intention and becomes out of humour").]

¹⁰ [In German, a rhyme: *miichtig!prüchtig.*]

is also a definite increase in the words of the same number of syllables. The increase of perseveration during distraction is not easy to explain; perhaps it can be attributed to the lack of association caused by distraction. It seems to us worth mentioning that the external distraction in this case is a progressive one. We have used the sounds to demonstrate the progression. We divided the two experiments of external disturbance each into three parts and counted the sound associations in each part.

¹²₃ The progression is as follows:

1st experiment: 5,5,7.
2nd experiment: 5,6,8.

¹²₄ *Subject 2.* The general character of the associations is objective. The external associations only slightly predominate over the internal. Internal distraction seems to have had the most intense effect in this case. Sound reactions increase continuously from the first hundred on. The group of verbal associations shows, in comparison with the former case, certain differences during distraction. The agreement in grammatical form shows a distinct increase, and the agreement of number of syllables also increases generally. Consonance and alliteration, however, decrease somewhat. We do not of course know the individual causes of these differences.

¹²₅ The relatively numerous failures are striking, most of them occurring in the first hundred. Of the four in the first hundred, three were in answer to emotionally potent stimulus-words. In the second hundred there is only one, but at the same time numerous predicates, in this case value judgments coming to the fore. This circumstance seems to indicate that failures are essentially emotional phenomena, emotional inhibitions, as it were; they disappear in the second hundred with the occurrence of facilitated and more familiar subjective judgments. As in the former case, there is a definite rise of perseveration.

¹²₆ We should like to point out that in this case the largest number of indirect associations coincides with the smallest number of sound reactions and, conversely, the largest number of sound reactions coincided with the smallest number of indirect reactions. This correlation is, as will appear later, probably not coincidental.

1. STUDIES IN WORD ASSOCIATION

Subject 2. About 24 years of age) intelligent) well read

ASSOCIATIONS	NORMAL			DISTRACTION	
				External	
SPECIAL QUALITY					
Grouping	2	14	1	1	16
Predicative relationship	7	26	0	6	2
Causal relationship	18	3	1	1	0
Co-existence			8	8	
Identity Linguistic-motor form!>	24	16	11	22	8
	2		4	2	12
	21	3 ⁶	5	18	3 ⁶
			0	16	
Word-completion			2	2	6
Sound					2
Rhyme				2	
Indirect	3		2	2	
Meaningless					
Failures	4			2	
Repetition of stimulus-word					
Egocentric reaction					
Perseveration Repetition of reaction			2	2	4
		4		2	
Same grammatical form	5	4	63	7 ⁶	6
Same number of syllables	5	7	2	3 ⁶	4
Alliteration	3 ¹	24	9	2	4
Consonance	1	15	1 ⁰	8	1 ²
Same ending	2	17	7	6	8
	1 ²	9	1		
Internal associations		43	28	3 ⁶	3 ⁶
	4 ⁶				
External associations	4	5	6	5	5
	7	3	5		
Sound reactions		2	3	6 ⁴	6
Number of associations	10	10	10	50	5 ⁸
	0	0	0		0

¹²⁷ The nature of internal distraction (which, with this subject, was in general more successful than with the preceding one) deserves some discussion. We intentionally directed the subject's attention mainly to visual images, as in our experience these are the sensory phenomena that most frequently accompany the association experiment and in most subjects occur with great vividness. Much rarer, on the other hand, is the ability to observe and report this phenomenon accurately. For instance, the first subject gave some rather unsatisfactory information in this respect. The second subject, on the other hand, observed very acutely on the whole and was able to give clear information. The experiment is best illustrated by a few examples:

singing opera (or concert) singing

Directly after grasping the stimulus-word, the subject sees a scene from *Tannhäuser* on a certain stage.

hearth fire

sees a particular memory-image of a fireside scene at a house in London.

tile roof

sees red roofs.

Journey itinerary

sees an English traveller.

apple tree

sees a picture of Eve with the apple.

honour sense
(of)

sees the vivid memory-image of a scene from Sudermann's *Honour*.

sail cloth

sees a sailing-boat.

deportment rule

sees the vivid memory-image of her younger brother at a school for dancing and deportment.

modes -y

sees the picture of a certain young girl.

plant kingdom

sees a certain picture-book with pictures of plants.

sign post

sees a crossroads.

peacefully rest peacefully

sees a certain small kitten.

music enjoyment

sees the interior of a certain concert-hall (vivid memory-image).

¹²
⁸ These examples show that the reactions are very simple, mainly linguistic-motor forms. The mental images are in a certain associative relationship with the reaction. According to the subject's account they occur directly with the reaction, if not before it. In our view the reactions are mostly mechanical side-associations which are stimulated on the way to a higher reaction. The stimulus-image did not reach the level of complete clarity as it lacked the necessary energy to emerge or (not to speak in Herbart's terms) remained in the periphery of the field of consciousness, inhibited by the clear visual image. The following examples show this inhibition of the reaction, together with complete clarity of the visual image:

praise praise for the singer

The subject sees a certain teacher, who praises her.

manners good manners

sees the picture of a Swiss country community-of an old "custom."

like like will to like

sees the written sum: $2 \times 2 = 4$.

to stretch catstretcher (*Katzenstrecker*)

sees a stretched rubber-band (*Katzenstrecker* is a popular nickname for a man from Lucerne).

tight tight-fisted

sees a tight (narrow) lead-pipe.

stone buck (*Stein j Bock*)

sees a collection of minerals.

change time (*WechseljZeit*)

sees a promissory note (*Wechsel*).

fashion woman of fashion

sees an elegant youth.

dull eye

sees a dull, rainy landscape (constellated by the day of the experiment).

mirror smooth

sees the window of a certain glazier's.

forward march

sees a copy of the *Forward* (newspaper).

down to cut

sees a low stool in a certain sitting-room.

¹²₉ **In** these reactions the connection between reaction and inner image is, as it were, completely broken. The reaction mostly comes quite mechanically from a lower level of the process of apperception, while the mental image mostly represents quite a different apperception of the stimulus-word.

¹³₀ Conversely, the visual image may be stimulated from a lower level of apperception, as the following examples show:

number number, quantity (*Zahl, Menge*)

sees a newly extracted tooth (*Zahn*).

to will you must (*wollen j du musst*)

sees a woolly (*wolliges*) sheepskin.

13¹ *Subject 3.* The character of the associations is objective.

The external associations predominate, particularly the linguistic-motor forms. Both attempts at distraction were very successful, particularly internal distraction, which resulted in 29 per cent of sound reactions. A few reactions under internal distraction are of interest:

lid nid (senseless rhyme)

The subject sees a beermug with a lid.

hall throat (*HallejHals*)

sees a waiting-room in a certain station.

fal staf
l f

sees a waterfall.

stone bone (*SteinjBein*)

sees a picture of the little town of Stein on the Rhine.

13² The fact that the number of internal associations remained nevertheless above the normal level in internal distraction, and in the first half of external distraction, can be attributed to the fact that the artificial lowering of attention was not uniform and continuous but decreased from time to time, whereupon normal reactions were given. The reactions obtained from the same subject in a state of great physical and mental fatigue give a more uniform picture of associative levelling-down. According to these findings, the state of fatigue has no other significance for this experiment than a uniform lowering of attention; its repercussion on the association is in no way different from the results of the distraction experiments. Nor is a difference discernible in the finer points of individual associations-which cannot be counted or measured-except in a very few reactions, the content of which is caused by the particular constellation of fatigue. As appears from our further observations on this subject and also from Aschaffenburg's investigations, no specific change, other than the blunting of the emotional response during the state of fatigue, can be demonstrated. The blunting of the reaction in fatigue can easily be accounted for by a decrease of attention. We also have every reason to assume

THE ASSOCIATIONS OF NORMAL SUBJECTS

Subject}. A bout 21 years of age, intelligent, well read

ASSOCIATIONS	NORMAL		DISTRACTION		
				External	
SPECIAL QUALITY					
Grouping	8	9	1	1	1
Predicative relationship		2	9	4	4
Causal relationship	1	2	1	2	4
	6		3	2	
Co-existence	22	7	4		2
Identity	3	1		1	6
Linguistic-motor forms	46	2	6		
		44		0	
Word-completion		2	26	32	54
Sound			5	1	0
Rhyme	3		1	0	6
			5	6	
Indirect		3	9		2
Meaningless		1		6	
Failures					2
Repetition of stimulus-word					
Egocentric reaction					
Perseveration		2		2	
Repetition of reaction	7	1	6	8	8
		2			
Same grammatical form	63	5	6	52	5
Same number of syllables	52	0	2	4	4
Alliteration	6	4 ⁶	6	4	5
Consonance	24	4	0	14	0
Same ending	13	7	16	18	12
		20	35	2	3 ⁰
In ternal associations	24	3 ¹	2	3 ⁶	16
			3		8
External associations	71	6		4	6
		3	4	2	2
Sound reactions	4	3	2	1	1
			9 ⁶	6	6
Number of associations	100	100	100	50	50
					10
					0

that the blunting of the reaction in alcoholic intoxication and manic excitation (observed by Kraepelin's school) is nothing but a symptom of disturbed attention. The connection with motor excitation suggested by Aschaffenburg is in our view merely an indirect one: the motor excitation lowers the intensity of attention and therefore brings about a blunting of associations. The disturbance of attention by motor excitation is a matter of experience and in the named conditions has long been known as "distractibility." Since attention as an affective condition is also linked to certain somatic (that is, muscular) processes, the decrease of its stability can be attributed to motor excitation. Thus Aschaffenburg is not correct when he considers motor excitation as the direct cause of the blunting of the reaction; motor excitation is absent in a whole series of abnormally low reactions. But common to all these conditions is a disturbance of attention, which is probably always the immediate cause for all association types similar to flight of ideas.¹¹ The origin of disturbed attention is of course different in (i.e., specific to) each single process; it can equally well be based on motor excitation or on loss or decrease of kinesthetic feelings, on raising of the muscular stimulus-threshold, on mental excitement, or on psychological split (as in our experiments).

133 The great variability of intensity of attention makes all association experiments with alcohol and fatigue susceptible to an error extremely difficult to estimate, so that in the state of our present experience it is practically impossible to say anything positive about the extent of the disturbances of association through alcohol, etc. Judging from the percentage ratios of these fatigue experiments, the subject must have been in an absolutely psychotic state. According to Aschaffenburg's theory, a result with 5 per cent internal associations and 27 per cent sound reactions corresponds to a state of heavy intoxication or serious mania or a state of quite abnormal fatigue. The intensity of this blunting, however, can easily be explained by the fact that great but not abnormal fatigue was accompanied by marked drowsiness. The decrease of attention, with raising

¹¹ Aschaffenburg errs when he says, for example, that Nordau's descriptions referred to hypomanics; they refer rather to the larger group of individuals incapable of concentration and showing blunt association-type.

of external stimulus-thresholds, peculiar to this condition is, in analogy with distraction experiments, to be considered as one of the main causes of the blunting.¹² The intensity of drowsiness is an unmeasurable quantity; how much drowsiness was present in the states of fatigue examined by Aschaffenburg?

134 Drowsiness is not merely a somatic, physiological, but also to a certain extent a psychological phenomenon, which may perhaps be described by the name "autohypnosis." It is primarily a psychological event that takes place in the area of consciousness. It is mainly stimulated by somatic sensations but can also be produced by pure suggestion. Exactly the same applies to the effect of alcohol. The effects of alcohol may be to a large extent, particularly in the beginning of narcosis, purely suggestive; this probably accounts for the fact that the effects of alcohol on different dispositions may be quite different. Can one exclude or calculate the suggestive effects of alcohol in the alcohol experiment? In our view this is not possible. Therefore great caution is advisable in psychological alcohol experiments. Accordingly, disturbance of attention in fatigue and alcohol experiments need not always have its roots in motor excitation, but could equally well be derived from suggestion.

135 Let us return to our experiment. The great prevalence of external association can be attributed to momentary decreases of attention. The cause of the blunt reaction can, however, lie deeper. It is not unthinkable that there are individuals who because of a congenital or acquired anomaly, have a more superficial mode of association than others; this anomaly may possibly lie in the sphere of attention, in that fatigue appears much more quickly than in other people. The figures for the sister and mother of subject 3 are interesting in this respect as observations of family psychology. We give the tables here.

136 *Subject 4*, about 20 years of age, is the sister of subject 3. The associations have in general an objective character; the external ones predominate considerably, especially the linguistic-motor forms. Sound reactions also are numerous, so that the character of the normal state looks like the result of a distraction experiment. In the experiment of internal distraction there is an unexpected increase of internal associations as well.

¹² See below, experiment in drowsiness with subject 15 (educated men).

I. STUDIES IN WORD ASSOCIATION

Subjects 4 and 5: Sister and mother of subject 3

ASSOCIATIONS	SUBJECT 4			SUBJECT 5	
	NORMAL	DISTRACTION	NORMAL	NORMAL	DISTRACTION
	0	0		0	0
SPECIAL QUALITY	0	0		0	0
	c:	c:	*	c:	c:
	·f	·f	·	·f	·f
			...		
Grouping	3	8	16	24	17
Predicative relationship	7	8	8	10	7
Causal relationship	—	—	1	1	0
Co-existence	8	6	3	8	8
Identity	2	4	1	6	13
Linguistic-motor forms	67	56	39	4 ⁶	45
Word-completion	4	8	14	3	4
Sound	3	5	9	—	3
Rhyme	2	1	2		
Indirect	2	3	5	1	2
Meaningless Failures	1	—	1		
Repetition of stimulus-word					
Egocentric reaction					
Perseverations	1		2	1	2
Repetition of reaction	9	7	4	9	5
Same grammatical form	61	51	53	82	66
Same number of syllables	4 ⁸	47	35	51	3 ⁸
Alliteration	13	11	13	5	12
Consonance	14	19	24	16	17
Same ending	11	14	7	18	10
Internal associations	10	16	25	35	24
External associations	77	66	43	60	66
Sound reactions	9	14	25	3	7
Number of associations	100	100	100	100	100

as a clear increase of sound reactions. The superficiality displayed in the experiment under normal conditions is in our experience abnormal, thus we must assume a disturbance of attention in this state. The subject is a definite "motor type"; from other experiments performed with the subject it becomes apparent that motor perception predominates by far over the other senses.¹³ Externally too the motor disposition is shown by great vivacity of movement and a strongly developed ability for motor expression. It must here be stressed that this active motility by far exceeds the limits of conscious innervation and is expressed in motor automatisms that are innervated by unconscious psychological complexes. Among the reactions of the normal state there are two linguistic automatisms that are very probably related to an unconscious complex. This complex is closely connected with the affect concerning a past engagement. Thus we have two probable reasons for the strikingly blunt reaction-type: the strong and abnormally independent motor tendency and a partially suppressed affect. The latter probably has the most significance for the blunting.

137 (It would be too much of a digression to examine the individual psychology of this case more closely. This will be done elsewhere.)

13⁸ The increase of internal associations during distraction experiments is a phenomenon that we find again in subjects of different character¹⁴ who under normal conditions also show an abnormally blunt type. We know no other explanation for the improvement of reaction-type in this case than that the attention, which under normal conditions is tied to the emotional complex, is released by the conditions of the experiment (new to the subject) and can therefore be used. Nevertheless, great fluctuation of attention occurred; this is indicated by the large number of sound reactions, together with the relatively numerous internal associations.¹⁵

13 By that we do not mean that some sort of motor excitation is responsible for the blunt reaction type. In personalities of a motor type the motor factors per. haps play an independent role in the word-image combination in that they facilitate talking.

14 Cf. subject 16 (educated men).

15 Cf. subjects 15 and 16 (educated men).

139 A special peculiarity of this subject is the occasional occurrence of marked synesthesias (*audition calorice*), which influence the reaction. Examples under normal conditions:

to kiss (*kiissen*) yellow

ii is yellow for the subject.

misery (*Elend*) *e* something red

is red.

indolent (*trage*) *ii* blue

is blue.

14⁰ Examples from the distraction experiment:

orgy orgy

Subject sees a yellow mass.

pious blesse
d

sees something yellow.

14¹ Strangely enough, the subject [3J, who has the same reaction-type as subject 4, is also a definite "motor type" and also has very vivid synesthesias, which, as it happens, did not appear in the reactions.

14² The following phenomena from the distraction experiment are worth mentioning:

stork -'s leg

Subject sees a church-tower.

to hinder hammer-let (Hamlet)

sees a brake.

fall bone (*Fall -z bein*, paper-knife)

sees a high wall from which one could fall.

red wine

sees a red sphere.

barrel -ter (*Fass -ter [Vater?]*)

sees a certain cellar.

"

143 From the subject's account, the visual image fills consciousness completely and exclusively, the verbal reaction being given almost involuntarily and touching consciousness only quite superficially. The above examples show clearly and repeatedly the purely mechanical character of the verbal reaction.

144 *Subject 5* is the mother of subjects 3 and 4. Quantitatively the reaction-type shows much similarity with that of subjects 3 and 4. The objective character of the reactions is qualitatively also very similar. Particularly prominent in these three people are the linguistic-motor forms. Characteristic of this family type are sound reactions under normal conditions, which distinguishes this type from others. For comparison, we give the main figures for these subjects under normal conditions:

	Internal Associations	External Associations	Sound Reactions
Mother	29.5%	62.0%	5.0%
Elder daughter	27.5%	67.0%	3.5%
Younger daughter	13.0%	71.5%	11.5%

145 We draw attention to the increasing degree of blunting in the younger daughter. If the figures were all from the same individual one could believe that it is a distraction experiment. Perhaps this relationship is accidental but perhaps it has deeper psychological reasons. We refer to a similar observation reported below. Ranschburg¹⁶ found 11.8 per cent more internal associations in old than in young subjects.

146 *Subject 6*. Such external associations as are usually found in the normal state predominate. The second hundred shows a slight increase of external associations and a clear increase of sound reactions. The quality of association deviates considerably from the types so far reported, reactions of strongly subjective character occurring with this subject. They are in part highly charged value judgments, e.g.:

pupil	boring	school	beautiful
father	good	frog	nice
book	interesting	piano	horrible

147 On the other hand, it is the predicates that designate properties of things that are to a greater or lesser extent evident

¹⁶ Ranschburg and Balint, p. ⁶⁸9.

I. STUDIES IN WORD ASSOCIATION

Subject 6. About 35 years of age, intelligent, very well read, poetic talent

ASSOCIATIONS	NORMAL		DISTRACTION		
				External	
SPECIAL QUALITY	"d	0.1			
	0.1	"d			
	"d	C	c;	6 _{0.1}	6 _{0.1}
	C	::			
	::	"I	0.1	0.1 F	0.1 0
"I	"d	C	0.10	0.10	
"	0.1	"...	::E c	::E c	
Grouping	9	14	8	8	6
Predicative relationship	3 ²	14	3 ⁰	24	3 ⁶
Causal relationship	1				
Co-existence	12	18	14	16	10
Identity	2	6	2	6	2
Linguistic-motor forms	39	39	4 ⁰	34	4 ²
Word-completion	—	1	—	2	
Sound	—	4	—	4	2
Rhyme	4	2	—	2	2
Indirect	1	2	2	2	
Meaningless					
Failures	—	—	2		
Repetition of stimulus-word	—	—	2		
Egocentric reaction	10	4	6	8	4
Perseveration	—	—	—	2	4
Repetition of reaction	15	5	4	4	4
Same grammatical form	43	52	4 ⁸	4 ⁶	4 ⁰
Same number of syllables	50	33	3 ⁶	4 ²	4 ²
Alliteration	11	13	6	8	2
Consonance	26	28	12	12	10
Same ending	8	10	0	2	8
Internal associations	4 ²	28	3 ⁸	3 ²	4 ²
External associations	53	63	56	56	54
Sound reactions	4	7	—	8	4
Number of associations	100	100	50	50	50

to the senses. In the second hundred an increase of grouping~ from 9 to 14 and a decrease of predicative relations from 32 to 14 can be noticed; accordingly the quality of reactions is altered in so far as they assume a noticeably more objective character with a tendency to irrelevant clichés. The decrease of predicative relations is due to the shifting of subjective value judgments into the background. Thus the more subtle quality of the reactions also shows a markedly fading interest. The relaxation of attention is shown very clearly in the decrease of egocentric reactions from 10 to 4. From this result the distraction experiments must be considered a failure. Objectively this is also shown by the subject's being unable simultaneously to follow the beat of the metronome and to react; either the motion of writing ceased at the moment of reaction or the reaction-time lengthened to the next pause in the beat, when the reaction was given with renewed attention. The only disturbing- influence was the perseveration phenomenon, which significantly only occurred with external distraction.

external distraction is well illustrated by the relatively large number of egocentric reactions. We will refrain from judging how far the relatively strong verbal connection by consonance under normal conditions is caused by the constellations of active poetic application. Many reactions of this subject betray a strong visual predisposition. From the subject's own account every stimulus-concept presents itself as a quite definite picture. The entirely individual character of the reactions distinguishes this subject from others and differentiates her from the subjects so far discussed. It is interesting to learn whether this type is accidental or whether it is of familial origin. Happily we are in the position of being able to some extent to answer this question.

predominates over the external ones. The number of predicative relations is extremely great. Most of these consist of subjective value judgments, some of which are highly charged, e.g.:

to cook	laborious	to ride	dangerous
water	wonderful	prison	horrible
star	magnificent		

.~

q

About 40 per cent of the reactions betray an egocentric direct wish or a defence.

^{15°} *Subject 8.* The internal associations are more numerous than the external. This subject also showed a very subjective reaction-type, which appears particularly in the large number of predicative relations and especially in the numerous subjective value judgments. The number of egocentric reactions too is rather high.

^{15¹} From these figures and from the individual quality of the reactions, a clear familial relation emerges. Thus we can conclude with some probability that the subjective reaction-type of subject 6 is based not on coincidence but on familial disposition. It will be of interest to consider the quantitative aspects within this family; particularly whether, in the case of the youngest member, we can prove an analogous proportion in respect to the blunting phenomenon found in the family of subjects 3, 4, and 5. For this purpose we again collate the main figures of our subjects in a normal state.

Subject 7. The mother of subject 6, over 50 years of age, educated

ASSOCIATIONS	NORMAL	ASSOCIATIONS	NORMAL
SPECIAL QUALITY	1St 100	SPECIAL QUALITY	1St 100
Grouping		Egocentric reaction	40
Predicative relationship	9	Perseveration	3
Causal relationship	16 8	Repetition of reaction	25
Co-existence		Same grammatical form	45
Identity Linguistic-motor forms	12 3	Same number of syllables	22
Word-completion	4	Alliteration	
Sound		Consonance	9
Rhyme		Same ending	
Indirect		Internal associations	78
Meaningless		External associations	19
Failures		Sound reactions	
Repetition of stimulus-word		Number of associations	7 ⁶

THE ASSOCIATIONS OF NORMAL SUBJECTS

	Internal Associations	External Associations	Sound Reactions	Egocentric Reactions
Mother	75%	19%	0	40%
Elder daughter	56%	39%	1%	15%
Younger daughter	35%	58%	5.5%	7%

15² These figures show a complete analogy to what we find in subjects 3, 4, and 5. This too looks like a distraction experiment which goes as far as the reversal of the relation of internal to external associations. There is a corresponding increase of sound associations as well as a decrease of egocentric reaction: which, as was shown in subject 6, express the degree of personal interest. This strange analogy between the two family types does appear to be more than mere coincidence. Unfortunately our material is not sufficient to elucidate these observations. A final statement and interpretation of this apparent fact must for the moment await an experiment at present being carried out based on specially collected material.

Subject 8. The elder sister of subject 6, about 39 years of age, educated

ASSOCIATIONS	NORMAL	ASSOCIATIONS	NORMAL
SPECIAL QUALITY	1st 100	SPECIAL QUALITY	1st 100
Grouping		Egocentric reaction	15
Predicative relationship	6	Perseveration	
Causal relationship	49	Repetition of reaction	14
Co-existence	1	Same grammatical form	29
Identity Linguistic-motor forms	18	Same number of syllables	33
Word-completion		Alliteration	10
Sound	2	Consonance	10
Rhyme	0	Same ending	1
		Internal associations	56
Indirect		External associations	39
Meaningless		Sound reactions	
Failures		Number of associations	7 ⁸
Repetition of stimulus-word			

53 The reaction-type of the last three subjects is characteristic and widespread. What distinguish it from other less definite types are the numerous predicates, among which is a considerable number of subjective value judgments. We call this type the predicate type. The following three subjects are further examples of it .

54 *Subject g.* The predominance of predicative relationships is clear in all phases of the experiment. Internal distraction could not be carried out as the subject was not capable of dividing her attention. The experiment of external distraction failed completely as the subject, exactly like subject 6, could not carry out two actions at the same time and therefore behaved exactly like subject 6. Only in the larger numbers of verbal connection by number of syllables, alliteration, and consonance may a certain shift of reaction towards the mechanical side be noticed.

55 Three of the four failures under normal conditions are associated with emotionally charged stimulus-words (*unjust rich stupid*).

56 The average predominance of internal association over external is noteworthy in an educated subject. The reaction-type is a mixed one and does not by any means show the strongly subjective character of subjects 6, 7, and 8.

57 *Subject 10.* The predicative relationships are on the average many times as numerous as the number of groupings. With reference to the failure in distraction, the same must be stated as for subjects 6 and g. The reaction-type is, particularly in the first hundred under normal conditions, a somewhat subjective one, which incidentally is also expressed by the g per cent of egocentric reactions. Perseverations occur solely with distraction. As in subject g, there is an increase in the number of syllables and consonances, which perhaps may be interpreted as slight disassociation. The large number of failures in all phases of the experiment is striking. Of the 14 failures under normal conditions, 10 coincide with emotionally charged stimulus-words (*must unjust violence to threaten to suffer*, etc); in another two failures the subjective emotional charge of the stimulus-word is only probable. It must here be said that the 'subject is slightly hysterical in so far as she has somnambulant dreams. We attribute the large number of failures to this

THE ASSOCIATIONS OF NORMAL SUBJECTS

<i>Subject g.</i>	<i>About 20 years of age, well read) fairly intelligent</i>			
ASSOCIATIONS	NORMAL		DISTRACTION	
			External	
SPECIAL QUALITY				
Grouping	4	19	18	22
Predicative relationship	37	37	3 ⁸	34
Causal relationship	5	2	2	
Co-existence	26	14	14	14
Identity	1	3	4	12
Linguistic-motor forms	23	23	20	18
Word-completion	–	–	2	
Sound				
Rhyme				
Indirect				
Meaningless				
Failures	2	2	2	
Repetition of stimulus-word				
Egocentric reaction	3	4		
Perseveration	2	1		
Repetition of reaction	13	10	6	4
Same grammatical form	29	33	20	4 ⁶
Same number of syllables	3 ⁸	34	56	54
Alliteration	10	6	8	16
Consonance	15	12	10	20
Same ending	3	8	8	16
Internal associations	4 ⁶	58	58	56
External associations	52	4 ⁰	3 ⁸	44
Sound reactions	–	–	2	
Number of associations	100	100	50	50

I. STUDIES IN WORD ASSOCIATION

Subject 10. About 20 years of age, intelligent, very well read

ASSOCIATIONS	NORMAL	DISTRACTION			
		External			
SPECIAL QUALITY					
Grouping	8	16	6	10	12
Predicative relationship	3 ¹	17	3 ⁸	34	3 ⁰
Causal relationship	1	—	—	—	—
Co-existence	14	13	10	4	12
Identity	3	11	18	14	6
Linguistic-motor forms	3 ¹	35	18	20	3 ⁰
Word-completion	—	—	—	—	1
Sound	1	—	—	4	1
Rhyme	—	—	2	—	1
Indirect	1	1	—	—	2
Meaningless	—	—	—	4	2
Failures	8	6	6	10	3
Repetition of stimulus-word	—	—	2	—	1
Egocentric reaction	9	2	—	4	3
Perseveration	—	—	4	2	2
Repetition of reaction	16	5	18	14	18
Same grammatical form	4 ⁸	51	44	4 ²	4 ⁸
Same number of syllables	3 ⁶	33	4 ⁶	4 ⁰	4 ¹
Alliteration	10	3	8	10	8
Consonance	7	9	14	12	13
Same ending	5	8	18	16	18
Internal associations	4 ⁰	33	44	44	4 ²
External associations	4 ⁸	59	4 ⁶	3 ⁸	4 ⁸
Sound reactions	1	—	2	4	2
Number of associations	100	100	50	50	100

Subject 11. Mother of the previous subject, about 56 years of age, very intelligent. educated. well-read

ASSOCIATIONS	NORMAL	ASSOCIATIONS	NORMAL
SPECIAL QUALITY		SPECIAL QUALITY	
Grouping	5 4	Egocentric reaction	6 5
Predicative relationship	56 35	Perseveration	
Causal relationship	2 -	Repetition of reaction	5 4
Co-existence	4 4	Same grammatical form	27 34
Identity	- 1	Same number of syllables	37 4 ¹
Linguistic-motor forms	28 50	Alliteration	11 3
Word-completion	3 4	Consonance	8 14
Sound	- -	Same ending	1 10
Rhyme	- -	Internal associations	63 39
Indirect	1 -	External associations	3 ² 55
Meaningless		Sound reactions	3 4
Failures	- 1	Number of reactions	9 ⁶ 9 ⁶
Repetition of stimulus-word	-		

abnormality. We shall present the proof of this hypothesis in a publication about association anomalies in hysteria which will appear later^Y

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Subject 11 is an outstanding predicate type of subjective character with numerous value judgments. A marked slackening in the second hundred is striking; this may be attributed to obvious and objectively established boredom. Thus the second hundred does not correspond to normal conditions but rather to a distraction experiment. Nevertheless, if we compare the

¹⁷ In his experiments on normal people Aschaffenburg had only one subject who had a strikingly large number of failures; he was a dreamy, vague, poetic young

man (IV, p. 243). [The textual allusion is to "Association, Dream, and Hysterical Symptom," *infra*.]

reaction-type of this subject with that of the daughter, subject ra, we find the same phenomenon as before, that is that the daughter's reaction-type is a blunter one than that of the mother.

	Internal Association	External Association
Mother	51%	43.5%
Daughter	36%	53.5%

- 59 We take this opportunity to repeat that in spite of this agreement the phenomenon may be pure coincidence and therefore urgently requires retesting.
- 60 We also give the figures for three further subjects. *Subject 12*, a North German lady. The large number of current phrases is particularly striking. Internal distraction failed. External distraction shows a definite disturbance of attention. The reaction type is objective.
- 61 *Subject 13*. Very diffident, hence the large number of repetitions of the stimulus-word. Only distraction by metronomebeat of 100 was to any degree successful. The writing movements were, in accordance with what has been said before, very awkward.
- 62 *Subject 14*. We give figures for this subject only for the sake of completeness. The reaction-type is an objective one. Internal distraction was only partially successful. Its effect is uncertain as, because of the omission of the second hundred of normal reactions, we have no information on the degree of variation in normal people. The second hundred could not be obtained for external reasons.

Summary of the Group of Educated Women

- 63 Unfortunately the material collected in this group is quantitatively somewhat uneven. On the other hand, the linguistic background is very similar, only one out of the fourteen subjects coming from North Germany and all the others being Swiss, whose colloquial language is the Swiss dialect. Their level of education is in general very high, two of the subjects having University education. Six subjects know one or two foreign languages. Ten subjects are relatively well read. Dis-

THE ASSOCIATIONS OF NORMAL SUBJECTS

Subject 12. About 40 years of age, very intelligent, well-read

ASSOCIATIONS	NORMAL	DISTRACTION	External	
SPECIAL QUALITY				
Grouping	23	12	1	2
Predicative relationship	1	16	5	8
Causal relationship			1	
			9	
Co-existence	34	18	1	6
Identity	7	6	8	
Linguistic-motor forms	34	56	9	1
			3	0
Word-completion			4	7
Sound				0
Rhyme				2
Indirect				
Meaningless				
Failures			4	2
Repetition of stimulus-word				
Egocentric reaction				
Perseveration	1			2
Repetition of reaction	6	5	5	2
Same grammatical form	57	92		5
Same number of syllables	50	52		6
Alliteration	5	4	6	3 ⁸
Consonance	16	18	4	4
Same ending	25	16	5	12
			8	20
Internal associations	25	19	34	1
			1	0
External associations	75	80	8	8
			1	6
Sound reactions			2	2
			1	
Number of associations	100		10	50
100			0	50

I. STUDIES IN WORD ASSOCIATION

Subject I3. About 22 years of age, intelligent, all-round culture

ASSOCIATIONS	NORMAL	DISTRACTION		
			External	
SPECIAL QUALITY				
Grouping	11	21	22	10
Predicative relationship	18	19	20	14
Causal relationship	5	1	2	—
Co-existence	10	10	16	20
Identity	3	12	16	16
Linguistic-motor forms	4 ⁶	3 ¹	14	34
Word-completion	—	1	—	—
Sound	—	—	—	—
Rhyme	—	1	—	—
Indirect	—	—	—	—
Meaningless	—	—	—	—
Failures	6	—	6	—
Repetition of stimulus-word	—	4	4	6
Egocentric reaction	—	—	—	—
Perseveration	—	—	—	—
Repetition of reaction	9	11	4	2
Same grammatical form	61	60	56	68
Same number of syllables	43	43	4 ²	4 ²
Alliteration	8	3	8	6
Consonance	10	14	8	14
Same ending	11	12	18	16
Internal associations	34	4 ¹	44	24
External associations	59	53	4 ⁶	7 ⁰
Sound reactions	—	2	—	—
Number of associations	100	100	50	50

THE ASSOCIATIONS OF NORMAL SUBJECTS

Subject I4. *A bout 22 years of age, fairly intelligent, cultured*

ASSOCIATIONS

NORMAL

DISTRACTION

SPECIAL QUALITY

Grouping	29	9
Predicative relationship	1	10
Causal relationship	—	1
Co-existence	3 ¹	12
Identity	2	12
Linguistic-motor forms	34	51
Word-completion		
Sound	2	
Rhyme	1	2
Indirect		
Meaningless		
Failures	—	2
Repetition of stimulus-word		
Egocentric reaction		
Perseveration		
Repetition of reaction	14	
Same grammatical form	95	69
Same number of syllables	59	4 ⁰
Alliteration	10	9
Consonance	15	22
Same ending	24	7
Internal associations	3 ⁰	20
External associations	67	75
Sound reactions	3	3
Number of associations	100	100

traction experiments were carried out with ten subjects; of these in five cases external and internal distraction, in two cases only internal and in three cases only external was carried out. External distraction was definitely successful in four cases, internal in three. One case of internal and one of external distraction were partially successful.

¹⁶₄ Distraction failed in four cases, of which three are definite predicate types. (All predicate types who took part in the distraction experiments at all showed a much smaller distraction phenomenon than the other subjects.) Of the six subjects over 30 years of age, three showed an average predominance of internal association over external; of the eight subjects under 30 years of age, only one subject showed a predominance of internal association over external.

II. EDUCATED MEN

Nine subjects with 3)793 associations

¹⁶₅ *Subject II.* Reactions were obtained from this subject in four different states of disturbed attention: in the states of internal and external distraction, fatigue, and morning drowsiness on waking. The reaction-type is a very blunt one, as the ratio between internal and external associations shows, 15: 78 and 29: 65. The reactions show a very objective, almost entirely verbal character. The distraction experiments do not have much influence on the ratio between internal and external associations; on the other hand, the progression of sound reactions illustrates the increasing disturbance of attention, which reaches its maximum in the second external distraction experiment. Fatigue, which admittedly in this case was not very great, produced no change in type. The state of drowsiness caused a disturbance of attention which far surpassed the effect of the second external distraction. The subject experiences intense morning drowsiness after mental work at night, and it is difficult to wake him up completely. These reactions were obtained while the subject lay in bed and was only partially awake. The subject had been warned beforehand. The two experiments were carried out on two different days with an interval of about a week. As the figures show, the type is an

THE ASSOCIATIONS OF NORMAL SUBJECTS

Subject 15. " 28 years of age, intelligent, very well educated

ASSOCIATIONS	NORMAL		DISTRACTION			DROWSI- NESS	
				External			
SPECIAL QUALITY							
Grouping	9	13	4	1	1	10.	2
Predicative relationship		16	1	0	2	2	5
Causal relationship	6		9	1	0	10.	
Co-existence	18	5	6	8	1	14. ¹	14
Identity Linguistic-motor forms	6	8	5	1	4	2.5	5
	54		5	0	2	53. ⁸	4
		5	6	4 ⁶	5		0
Word-completion		2		4	4	2.5	2
Sound			8		2		4
Rhyme	4	4		6		2.5	2
Indirect	2	2	2	2	2		0
Meaningless Failures				2	8	3. ⁸	2
Repetition of stimulus-word				2			
Egocentric reaction	1	-	3				
Perseveration	-	-	2	2			4
Repetition of reaction	5	5	2	6	2	6	9
Same grammatical form 73		47	47	54	4 ⁶		59
Same number of syllables 53		45	49	4 ⁶	4 ²		61
Alliteration	7	6	5	10	4	6	17
Consonance	15	23	16	24	20	3	3 ²
Same ending	19	15	9	18	18	4	33
Internal associations	15	29	23	20	16	20.	7
External associations	78	65	67	64	60	7 ⁴	59
Sound reactions	5	4	11	12	22	4	27
Number of associations	100	100	100	50	50	5	3 ²
							7 ⁸

• [To facilitate reference, all the cases are numbered serially in this paper. Originally, those in each category were numbered separately.]

excessively blunt one. Sound reactions are extraordinarily numerous, particularly the rhymes. The figures for verbal connection are very high. This reaction-type shows the reaction to the most primitive linguistic mechanisms in, as it were, complete isolation. Fatigue is entirely excluded in these experiments; there is merely a decrease of active attention normal towards the end of sleep. As far as we know, attention is completely extinguished in sleep. If one succeeded in obtaining a reaction from a sleeping (but not somnambulant) subject, sound reactions would be the only result. In our view absolute undeviating attention directed inwards would have the same result. We are in the happy position of being able to report on a case that proves this to be so.

¹⁶⁶ The subject N. was deeply disturbed by violent affects. Outwardly the main symptom was an almost complete lack of ability to concentrate. She kept the cause of her affects secret. In the experiment, to which she submitted out of scientific interest, she produced, apart from a few inexplicable (senseless) reactions, mainly sound and rhyme reactions.

¹⁶⁷ We should like to compare this case with a distraction experiment spread out over several days. Attention is completely bound up with the inner, emotionally charged complex,¹⁸ from which she cannot detach herself for comparatively unimportant incidents. Her attention is thus abnormally low for anything that does not concern the complex. We cannot of course judge how far this withdrawal is conscious. As the subject related, at the beginning of the experiment certain strongly charged ideas belonging to the complex were in her mind, which she constantly tried to suppress, because she feared they might betray themselves in the reaction. From the second third of the experiment onwards, only the feeling-tone of the complex persisted in consciousness, without these accompanying vivid ideas. The next things to occur to the subject were only sounds. The

¹⁸ By "emotionally charged complex" we mean the sum of ideas referring to a particular feeling-toned event. We shall always use the term "complex" in this sense in what follows. [In the present volume, "emotionally charged" is the translation adopted for German *afjektbetonte* and, as a rule, "feeling-toned" for *gefühlshbetonte*. Cf. vo!. 1, par. 168, n. 2a, and vo!. 3, "Psychology of Dementia Praecox," pars. 77 ff. (ch. 2).]

only made an impact by the sound and never by the sense.

168 These observations prove most clearly the dependence of sound reactions, particularly those of the blunt reaction type, on disturbance of attention. Now, how can we explain the normally blunt reaction-type? The subject was psychologically trained and took the greatest interest in the experiment. The blunt reaction-type would seem to be connected with the fact that many educated subjects regard the experiment as simply verbal; they see the experiment against a verbal background and thus they try to respond to the stimulus-word by the first word to occur, without considering the meaning of the stimulus-word. They do so because it seems obvious to them that an isolated stimulus-word cannot have any special significance. This is how we explain the great predominance of verbal and sound associations. All those subjects who let themselves be influenced by the meaning rather than by the mere word tend to form internal associations. The meaning that different people give to the stimulus-word will vary. In our experience there are two main types of people; (1) The subject tries to do justice to the meaning as objectively as possible; therefore in his reaction he produces some general or special association of objective significance; the reaction is usually a co-ordinating relationship. (2) The subject endeavours to designate in a telling way the object named by the stimulus-word, which he vividly pictures. To state something about the stimulus-word, the subject uses the predicate. The reaction is therefore in most cases a predicative relationship.

169 On these grounds the blunt reaction-type of certain educated subjects should not be considered as the result of some disturbance of attention but as an "attitude phenomenon" (Bleuler). By the term "attitude phenomenon" we understand with Bleuler the emergence of an apparently abnormal reaction type through intentional preference for a certain mode of reaction. The mode is not, however, as must be stressed, chosen arbitrarily but motivated by the particular psychology of the subject. The more intense the attitude to the sound-effect of the stimulus-word, the blunter the reaction-type must become, for, by specially directed attention, the subject will stress

and put in the foreground all the more primitive associations that are repressed in the normal act of speech. Thus a very paradoxical picture can be created by the numerical presentation of the results of the experiment; we can understand it only on the grounds we have given. The following case will illustrate this

17
o

Subject 16. Here we find again a strikingly blunt reaction-type in the experiment under normal conditions, which is illustrated particularly by the large number of sound reactions. The blunting is considerably increased in the experiment with internal distraction; on the other hand, in the experiment with external distraction a striking "improvement" of reaction appears, the number of internal associations far exceeding that for the experiment under normal conditions. The "improvement" is quite clearly demonstrated by the decrease and eventual disappearance of the sound reactions.

17¹

This particular result is unique in our experiments and needs discussion. We have already mentioned the present subject in discussing subject 4 of the group of educated women, who presented a similar picture; we then assumed that suppressed affect was the cause of the blunt reaction-type. **In** this connection the very satisfying findings presented above in the discussion of subject 15 of the group of educated men should also be mentioned. The recent very strong affect that took complete possession of this subject was the direct cause of the preponderance of sound reactions. The affect in this case was repressed, inasmuch as it did not manifest itself directly in the reaction but only indirectly through a splitting of attention. One must assume a similar psychological situation also for subject 4 of the group of educated women and so explain the blunt type.

The fact that subject 4 of the group of educated women and subject 16 in the group of educated men are of the same type is perhaps fortuitous.

17²

Affect is probably completely out of the question in subject 16. We must therefore look for another cause for the blunt type: we find it in the attitude phenomenon. Subject 16 is thoroughly trained psychologically and at the same time has extraordinary powers of concentration. The subject had from the first directed his attention towards the sound of the stimulus-

THE ASSOCIATIONS OF NORMAL SUBJECTS

Subject 16. 47 years of age, intelligent, very well educated

ASSOCIATIONS	NORMAL		D[ISTRACTION			
				External		
SPECIAL QUALITY						
		"				
		-				
Grouping	16	[5	12	20	20	10.2
Predicative relationship	6	5	6	12	2	8
Causal relationship	-	-	-	4	2	
Co-existence		6	8			
	4			14	8	5
Identity	6	8	2	10	10	6
Linguistic-motor forms	5[	45	3 ⁸	28	58	3 ⁸
Word-completion	2	1	-	-	-	2
Sound	8	10	24	6	-	24
Rhyme	1	3	-	-	-	2
Indirect	6	6	10	4		
Meaningless Failures						
Repetition of stimulus-word	-	-	-	2		
Egocentric reaction	-					5
Perseveration		-		-	-	
Repetition of reaction	3	13	8	4	6	10
Same grammatical form	75	63	62	7 ⁰	74	58
Same number of syllables	4 ⁸	37	4 ²	4 ⁸	56	4 ¹
Alliteration	25	22	3 ⁸	16	6	28
Consonance	25	23	3 ⁸	24	16	23
Same ending	14	12	10	10	12	10
Internal associations	22	20	18	3 ⁶	24	18
External associations	61	59	4 ⁸	52	7 ⁶	49
Sound reactions	1 [	14	24	6	-	28
Number of associations	100	100	50	50	50	7 ⁸

word and consequently reproduced the first association to occur. These can only be primitive verbal connections and sounds, if our presuppositions on associations closest to the perception of the stimulus-word are at all correct. **In** this way the abnormally blunt type in the experiment under normal conditions can be explained without difficulty.

173 The blunting increases in the internal distraction experiments. The subject carried out this experiment in a model way; concentration on the D (distraction) phenomenon was excellent, as was the reporting of it. We therefore have no reason, in this case, not to assume distraction of attention. Thus the blunt type of reaction in this experiment is to be attributed to decrease of attention. It springs from a root different from the one in the experiment under normal conditions; consequently it is not an attitude-phenomenon.

174 External distraction has a disturbing effect on the attention of most subjects and therefore causes blunting. **In** the present case the effect appears to be the opposite. The normal state of this case is characterized by the attitude phenomenon; attention is directed exclusively to the linguistic aspect. Now this attitude is disturbed by external distraction and the subject now has a different relation to the stimulus-word; i.e., the exclusive observation of the sound is disturbed and thus the production of the nearest primitive association is prevented. If the associations that are always repressed under normal conditions sink back into repression, then the next ones to follow must be the associations conditioned by the meaning of the stimulusword; i.e., the number of sound-reactions must fall and the number of internal associations must rise. That is the case here.

175 The figures for fatigue show a remarkable agreement with those for internal distraction. Judging from external demeanour one could diagnose quite severe fatigue. This was actually not the case. The fatigue was by no means abnormally severe but merely a relatively slight evening fatigue which, according to the subject's account, did not noticeably influence the reaction.

17⁶ Here again we have an attitude phenomenon and met a disturbance of attention. That the attitude was apparently more intense in this state can perhaps be deduced from the fact that the subject, who is a "motor" type, is when slightly fatigued liable to motor excitation. Speech motility of course also plays

sweat twice. Apart from these there are the following perseverations:

- | | | | |
|------------|-----|-------------|----------|
| 1. stove | war | 4. water | to bathe |
| 2. to walk | m | 5. to dance | to sweat |
| 3. (- | hot | | |

179 *Subject 18.* The subject, a doctor, 36 years old, felt indisposed during the experiment under normal conditions. The experiment with external distraction could not be carried out because of illness. The hundred associations carried out in "fatigue" were obtained after an eventful night without sleep.

180 Internal distraction and fatigue show a striking agreement: a most definite decrease of internal associations, increase in external and particularly in sound associations and word-completion, an increase in the "same number of syllables" group, while the figures for the same grammatical form remained on the whole uninfluenced. In the first hundred in the experiment under normal conditions, there is a preponderance of internal over external associations (47: 43); in the second hundred the relationship is reversed (30: 59). The constant increase of wordcompletion and sound reactions in the experiment with internal distraction is nicely demonstrated if they are counted separately in each third of the hundred associations. We find:

- 1st third: 2 word-completions, 6 sound reactions
 2nd third: 5 word-completions, 7 sound reactions
 3rd third: 9 word-completions, 9 sound reactions

181 The predicates are already on the decrease in the second hundred of the experiment under normal conditions, even more so with internal distraction; they disappear completely in fatigue. Rhymes do not become prominent till the fatigue experiment; we only find two under internal distraction and none in the experiment under normal conditions.

CONSTELLA nONS AND COMPLEXES

182 In subject 18 we meet a relatively large number of associations that can be explained only by reference to individual experiences from the recent past or present, e.g., *ring / garden*: at the time of the experiment a gold ring had been found in the garden of the establishment where the subject worked and its owner had not been found.

THE ASSOCIATIONS OF NORMAL SUBJECTS

Subject 18. 36 years of age

ASSOCIATIONS	NORMAL			
SPECIAL QUALITY				
Grouping	24	1	7	4
Predicative relationship	2	4		
Causal relationship	3	1	11	
		3		
Co-existence	15	13	5	9
Identity Linguistic-motor forms	28	8	3 ¹	20
		39		
Word-completion			16	1
Sound	2	4	20	6
Rhyme			2	2
				7
Indirect	7	6	7	8
Meaningless Failures				
Repetition of stimulus-word				
Egocentric reaction				
Perseveration Repetition of reaction	3			2
	2			
Same grammatical form	4	57	45	4
Same number of syllables	2	3 ⁰	4	7
Alliteration	33	2	7	5
Consonance	15	2	3 ²	3
Same ending	18	2	4	2
	6	7	1	6
Internal associations	47	1 ^b	16	39
		5		21
External associations	4	59		29
	3		3 ⁶	
Sound reactions	3	4		58
			3 ⁸	
Number of associations	10	10	10	10
	0	0	0	0

¹⁸₃ Or *clothes* / *Stapfer*. A patient by the name of Stapfer, who was in the care of this particular colleague, worried him greatly because, for example, he ordered clothes and afterwards always found so much to criticize in them that he finally would not wear the garment; there then followed much unpleasantness with the tailor and other suppliers.

¹⁸₄ Or *pencil* / *Kohinoor*. Our colleague had at the time of the experiment just learned about the useful properties of this brand of pencil.

¹⁸₅ Or *murderer* / *Kaufmann*. Our colleague had at this time to give an opinion of a defendant by the name of Kaufmann, who had committed murder when intoxicated.

¹⁸₆ This type of association is caused by definite constellations (Ziehen), referring to relatively new, subjective, possibly emotionally charged experiences.¹⁹

¹⁸₇ In some subjects (e.g., subjects 25 and 27, uneducated women) we find none at all or only very few. Such individuals react throughout entirely objectively and betray practically nothing personal in the associations. For example, they associate *river* / *stream*; *school-boy* / *girl*; *table* / *floor*; *lamp* / *oil*; *mountain* / *valley*; *to kiss* / *to laugh*; *to plunder* / *to catch*; *to beat* / *to bite*; *prison* / *punishment*; etc.

¹⁸₈ Admittedly other subjects also make objective associations; from time to time there are among them associations which, in spite of their objectivity, allow conclusions about the subject, although they do not in the least betray his inner personality. It will not be difficult, for instance, to recognize the male nurse from the following compilation of associations (subject 35, uneducated men): *to fetch* / *to run*; *to stink* / *foul air*; *to inform* / *report*; *prison* / *asylum*; *ill* / *melancholic*; *errand* / *to run*; *freedom* / *convalescence*; *consciousness* / *to drink* or *sobriety*, etc.

¹⁸₉ Nevertheless the constellation plays only a very indirect role in these associations.

¹⁹₀ Then there are subjects—that is to say, associations—in which not the momentary constellations but the individual experiences predominate (e.g., subject 19, educated men):

¹⁹ We know, of course, that no reaction is fortuitous, but that each one, even the most objective, is caused by definite constellations. It makes, however, a great difference whether, e.g., *murderer* is associated with *Meier* and thus points to a

<i>Lake (See)</i>	<i>Untersee</i> (the subject had from time to time been to that lake)
<i>father</i>	<i>grandfather</i> (the subject still has a grandfather)
<i>mountain</i>	<i>Gliirnisch</i> (the subject had been to that mountain once, without the journey having had any special meaning for him)
<i>hair</i>	<i>hair-lotion</i> (the subject occasionally prepares a hair-lotion in the dispensary for the patients)
	<i>Susskind</i> ²⁰ (proper name of someone not at all important to the subject)
<i>sweet (Suss)</i>	<i>tobacco fields</i> (fortuitous memory of a journey from Basel to Heidelberg)
<i>potato</i>	<i>Brazil</i> (the subject had several times drunk Brazilian coffee)
¹⁹¹ <i>'coffe</i> <i>e</i>	These are mainly subjective reminiscences. Going a step

further, we encounter the constellations *sensu strictiori* that we first mentioned when discussing subject 18 in the group of educated men. Individuals with many constellations usually also have many reminiscences (e.g., subjects 18 and 19, educated men).

¹⁹² A separate group of constellations arises in some individuals through the influence of the immediate surroundings in which the experiment is carried out. The reaction-words (*carpet*) (*flowers*) (*ink-pot*) (*calendar*) (*books*) (*pen-holder*) (*landscape*) (*telePhone*) (*wallPaper*) (*curtain*) (*mirror*) (*sofa*, etc., usually refer to objects in the consulting-room even if they are associated with a quite suitable stimulus-word. The subject does not necessarily need to see the objects but only to know that they are in the room (see subject 25, uneducated women).

¹⁹³ From pathology-in normal, imbecilic, hysterical stupidity-quite pronounced cases of this type of association are known to us.²¹

¹⁹⁴ If the stimulus-word evokes a subjective emotionally stressed

definite murderer, or *murderer* is associated with *criminal* which expresses a general thought. This difference we stress by using the designation "constellation." ²⁰ [*Stisskind*, literally 'sweet child.']

²¹ See lung, "On Simulated Insanity."

image with the corresponding reaction then we get a special type of constellation-association-namely, the egocentric (as in Part I). In subject 4 [educated women] we find only a few, e.g., *Piano / horrible* (the subject had to put up with the tinkling of her not exactly musical neighbour). Or *to be lazy / glorious*; the egocentricity of this reaction is readily understandable for a busy person who is looking forward to approaching holidays.

195 In some cases an egocentric reaction can be directly replaced by a missing reaction, a failure (see definition in Part I). It is not true that there is no reaction at all, but through a conscious or unconscious inhibition the reaction-word does not get as far as being spoken. This is probably not the origin of all failures, but certainly of the majority.

19⁶ Girls, for example, fail with stimulus-words bordering on sexual themes, e.g., *to love) to kiss) to stroke) to choose) fidelity*, etc. Often it does not actually come to a "failure" but the association *to love / brother* takes a relatively long reaction-time, so that the experimenter after some experience soon discovers who is concealed behind the innocent-seeming brother.

197 The associations *wedding / unhaPPiness) to kiss / never*, and others of subject 19, educated men, have an analogous significance; the subject was at that time in a state of "suspense and anxious longing."²²

19⁸ Now it is possible that an emotionally charged complex of ideas becomes so predominant in an individual and has such a profound influence that it forms a large number of constellations, failures, and reactions with long reaction-time, all referring to this complex of ideas. Subjects 19, 20, 21, and 22 of the group of educated men will give us an opportunity to return to this special form of constellation; the majority of complexes operative in the association experiments relate to direct or transposed sexuality. In the work on the associations of hysterics we shall return to the effect of the complex.

199 In subject 18 of this group, we can show, besides many reminiscences, fifteen constellations in the first hundred under normal conditions, four in the second hundred, one under internal distraction, and twelve in fatigue. In the experiment un-

22 [Well-known phrase, *Hangen und Bangen*, from one of Schiller's poems.] 82

der normal conditions it is often the names of definite people, e.g., *clothes* / *StaPler*; *keeper* / *Baum* (Baum is the name of a particular keeper); *tooth* (*Zahn*) / *Goschenen* (the subject had a discussion in Goschenen about the poet Zahn).

200 The constellation also expresses itself through proper names with subject 19 of this group. When the constellations are on the increase owing to fatigue (e.g., subject 18, educated men) they nearly always consist of the reaction in the form of a proper name; the reaction is associated to the stimulus-word also through similarity of sound (e.g., the internal connection of *clothes* / *Stapler* in contrast to the purely sound connection *Stahl* [*steel*] / *StaPler*).

201 *Subject Ig.* Physician, 25 years old. Fatigue was defined as the condition of the subject at ten o'clock in the evening after a full working day.

202 The ratio between internal and external associations is not unambiguous in the different experiments. The maximum of external associations, 61 per cent, is found in fatigue but it is only a little larger than the figure in the first hundred under normal conditions, 57 per cent. This maximum of external associations corresponds to a minimum of sound reactions.

203 Internal distraction proves stronger than external. The first fifty associations with external distraction were obtained with a metronome beat of 60, the second fifty with a beat of 100, and the last eighty-five associations with a beat of 108. Internal distraction corresponds to a maximum in the columns for sound reactions, same number of syllables, same grammatical form, alliteration, and consonance.

204 In external distraction the sound associations decrease progressively and the indirect associations rise progressively, a proportion that we shall often meet again in distraction experiments. In the last third of the experiments with internal distraction the subject became uninterested, as if hypnoidal. At this point the number and intensity of visual images decreased, while the sound associations increased, as follows:

1st third: 3 sound associations
 2nd third: 6 sound associations
 3rd third: 18 sound associations

I. STUDIES IN WORD ASSOCIATION

Subject Ig. Physician, 25 years of age

ASSOCIATIONS	NORMAL		DISTRACTION				
	11	11	11	11	11	11	
SPECIAL QUALITY	11	11	11	11	11	11	11
	11	11	11	11	11	11	11
	11	11	11	11	11	11	11
	11	11	11	11	11	11	11
	11	11	11	11	11	11	11
	11	11	11	11	11	11	11
Grouping	19	27	11	20	20	20	20
Predicative relationship	9	20	10	12	6	10	13
Causal relationship	—	1	2	—	—	2	1
Co-existence	11	13	8	2	2	6	5
Identity	5	10	7	—	2	12	6
Linguistic-motor forms	4 ¹	17	3 ⁰	34	3 ²	4 ⁰	50
Word-completion	3	—	—	—	2	1	1
Sound	6	6	27	20	14	5	1
Rhyme	—	—	1	—	—	1	—
Indirect	6	5	6	12	12	18	—
Meaningless	—	1	1	—	10	—	1
Failures	—	—	—	—	—	—	—
Repetition of stimulus-word	—	—	—	—	—	—	—
Egocentric reaction	—	—	2	2	8	—	—
Perseveration	—	4	—	2	2	—	1
Repetition of reaction	3	2	3	4	8	21	8
Same grammatical form	60	59	66	52	52	50	50
Same number of syllables	28	27	50	4 ⁶	4 ⁶	3 ⁶	37
Alliteration	14	14	3 ⁸	3 ⁶	18	15	8
Consonance	3 ⁰	23	43	28	3 ⁰	20	20
Same ending	11	9	11	4	4	9	6
Internal associations	28	4 ⁸	23	3 ²	26	12	34
External associations	57	4 ⁰	45	3 ⁶	3 ⁶	58	61
		6	28		16	7	

The number of perseverations fluctuates within the normal

limits. We give as example:

fidelity perjury

once **S** merry (*fidel*)

The origin of this perseveration is obvious. *Fidel* is on the one hand a sound association of *fide le*, the latter being a translation of "faithful." Here is another example:

fruit	Thurgau
false	Falk (falcon)

The family gets its fruit from Thurgau, from a Mr. Falk. Falk is a sound association to the second stimulus-word and in co-existence with the first. And, for instance,

I
son __ Isaac

Stern is the name of a young Jewish lady. Isaac, the son of Abraham, is a fairly frequent though not a current association. The association to Stern is internal.

Alt	Uchtspringe
Freiheit (freedom)	at the Altmann

Alt is, as is well known, the director in Uchtspringe. Freiheit is the name of a peak near the Altmann, in the Santis area.²³

Thus we have here a perseveration of purely external nature.

206 With internal distraction we find in our subject an example of persistent perseveration of visual images appearing with the

reaction. The reaction-words are associated with the stimulus-word only by sound:

malt (*Malz*)
omnipotence (*Allmacht*)
spring (*Ouelle*)

painter (*Maler*)
Halma [a game]
the house at the
fountain

Visual image
brewery
a barrel of malt
in a district where
there was always
a strong smell of
malt, the subject
had often seen

07 After the first reaction, *malt / painter (Maler)*, the subject could not repeat his own reaction-word; he had forgotten it. While forming associations his attention was directed much more to visual associations than to verbal reaction. For similar reasons we find this forgetting of the stimulus or reaction-word much more frequently in pathological cases of emotional stupidity and hysteria.

COMPLEX-PHENOMENA AND THE UNCONSCIOUS

08 Going through the associations of our subject, only the experienced observer would notice the complex-phenomena which are very important in normal subjects as a basis of comparison with pathological ones, where complexes play a large role. Unfortunately reaction-times were not taken in the material of subject 19 now being used.

09 The material used here is derived not only from experiments on subject 19 used previously in our work but also from some earlier ones. What we recorded was the following (starred: not used in this work):

On Sept. 17	78 associations without fatigue- 78
Dec. 27	associations without fatigue-
Dec. 27	a further 78 associations in fatigue
Feb. 22 (foll. year)	156 associations in fatigue-
Aug. 19	200 associations without fatigue
Aug. 19	100 associations with internal distraction 185
Aug. 25	associations with external distraction

10 The subject had, during the time of the experiments, formed an attachment to a young woman. To make the experiments understandable it must also be mentioned that the young man had not yet outgrown adolescent internal conflict, and as he had had a strict Christian upbringing, his inclination for a Jewish girl worried him a great deal. Let us call her Alice Stern: we shall be keeping as near the truth as is necessary for the experiment. In the experiment on September 17 we find the following complex-constellations:

- | | |
|--------------|-------------------------------------|
| 1. wedding | misfortune |
| 2. come | come with me oh |
| 3. to suffer | heavens-yes! |
| 4. misery | who has not spent miserable nights? |

- | | |
|-------------|---|
| 5. to kiss | never |
| 6. game | sweet games will I play with you |
| 7. sofa | a particular chaise-longue (in the drawing-room of the young woman) |
| 8. to love | is useless |
| 9. fidelity | sweetheart |
| 10. wreath | bridal wreath (thought of with the appropriate melody) ²⁴ |
| 11. hope | Thou shalt in life (quotation, continuing "be with us loving and comforting") |

²¹¹ Numbers 1, 5, and 8 are disguised wishes, although the external form is a negation. Numbers 2, 4, 6, 10, and 11 are quotations or lines from songs; number 6 is the continuation of number 2, a quotation from the *Erlkönig*.

²¹² It is most noteworthy that in the other seventy-eight associations only one other quotation occurs, namely

to be compelled "no man can be compelled to be compelled"²⁵ and quotations are very rare in the associations of this subject. Thus the complex makes use of a mode of reaction that is not usual in this subject: in fact, it is characteristic that the subject had only (to his shame, it might be said) salvaged from the *Erlkönig* this small fragment, "Come with me, sweet games will I play with you" into conscious memory.²⁶ Of the *Jungfernkranz* (bridal wreath), too, he only knows the very small fragment of the text, "vVe shall weave a bridal wreath for you," although he knows the whole tune. vVe shall return later, in the work on hysterical associations, to the frequently quite unconscious and automatic emergence of tunes and quotations, often only in fragments. (Cf. a similar phenomenon in subject 26, uneducated women.)

²¹³ In the first experiment of December 27 the subject formed among others these associations:

- | | |
|--------|--|
| 1. it | "It, it, it, and it. It is a hard end" yes ... I |
| 2. you | |

²⁴ [The song "Wir winden dir den Jungfernkranz," from Weber's opera *Der Freischütz*.]

²⁵ [In German, *miissen* / "kein Mensch muss miissen." The quotation is from Lessing's *Nathan der Weise*.]

²⁶ [In the original, he misquotes even this fragment.]

- | | |
|--------------------------|--|
| 3. parting | is painful |
| 4. star (<i>Stern</i>) | hm! |
| 5. game | amusement (with long reaction-time) |
| 6. heart | (the subject asks to be allowed not to say the reaction; it would have been Stern) |

²¹⁴ The associations 1, 2, 3, 4, and 6 are self-explanatory after what has already been said. In 5 the long reaction-time, occurring suddenly, is suspicious.

²¹⁵ From the experiment of December 27 in fatigue, the following associations taken in their context are striking:

- | | |
|-----------------------------|--|
| 1. to kiss | yesterda |
| 2. to love | y |
| 3. already (<i>schon</i>) | yesterda |
| | y |
| | yesterday (the stimulus-word <i>tears</i> [<i>Triinen</i>] had preceded it; the subject thought he heard <i>schon</i> [beautiful]; we might have here a perseveration of the umlaut) |
| 4. miracle | |
| 5. to pray | yesterda |

²¹⁶ The reaction-times were usually quite short. The subject had the feeling that the reactions had taken him unawares. In the whole experiment no other reaction was repeated, except *kraut* twice (with *potato* and *sauer*). In the other experiments, too, repetitions are rare.

²¹⁷ All the stimulus-words quoted belong to those with a close connection with the complex "Stern." The stimulus-word *already* (*schon*) was understood as *beautiful* (*schon*), preceded by *tears* (*Triinen*). As we recall, examples 4 and 5 especially were reactions at that time most closely connected with the complex (religion!). *To kiss* and *yesterday* are not to be regarded as a recollection; their relationship was not of this nature. It cannot be said with any certainty whether the unconscious had permitted itself to use the reaction *gestern* (*yesterday*) symbolically on account of its second syllable, or whether this word has any connection with the fact that this experiment took place immediately after the Christmas holidays, during which the subject had been tremendously pleased by a small present from the young woman. But the fact that this word, and this word only, is so often repeated in the experiment as a reaction to

the complex stimulus-words is most striking. It replaces th, quotations of the previous experiment (in this experimen there is not a single one).

218 The experiment of February 22 of the following year took place in fatigue. The following associations are worthy of mention:

song Lore (a complex quotation; "Of all the girls, etc., like Lore best"; the vowel *o* occurs in the bisyllabi(real first name of the young woman; the two name! are very similar in sound)

sacrifice . _ dog (*Hund*) (apparently senseless reaction)

wedding ~ ram (*Hammel*)

-a perseveration of the reaction. In the combination *sacrifice* / mm / *wedding*, the complex certainly played a part; in this connection the perseveration in the experiment under normal conditions of August 19 is comprehensible:

to love ~ *Stern* (star) son
 { ~ Isaac!

219 One association is senseless: *rich* / *yesterday*; probably *yesterday* occurs as an association produced in embarrassment which has become stereotyped; it occurs again in this experiment in *a people* / *yesterday*. Here too one can only conjecture; perhaps the concept "Jews" is the link. The association *game* / *parents* can be explained as indirect; the link, which was unconscious, is the quotation: "My dear child, come away with me, beautiful games, etc." the significance of which we learned above. The following associations also occur:

inn	the Star (<i>Stern</i> ; the subject was aware of the complex here)	to part	hurt
		to cut	hurts
		to stroke	hurts
to kiss	together	to beat	hurts
to love	roses	to sing	hurts

220 The first four associations belong to the complex, the following are probably only stereotyped repetitions of "parting hurts." Here too the repetition must still be considered as the effect of the complex.

221 Otherwise only a few repetitions occur.

- 22 In the distraction experiments there is no manifestation of the complex.
- 23 *Subject 20.* In the second half of the experiment under normal conditions,
- (1) the internal associations increase from 49 per cent to 54 per cent, while the external decrease;
 - (2) the sound reactions increase from 2 per cent to 6 per cent;
 - (3) the perseverations from 6 per cent to 8 per cent;
 - (4) the egocentric reactions from 14 per cent to 27 per cent; (5) the constellations from 56 per cent to 73 per cent;
 - (6) the repetitions from 6 per cent to 15 per cent.
- 24 The following are well above average in number:
Internal associations,

Subject 20. Science teacher, 25 years of age

ASSOCIATIONS	NORMAL	ASSOCIATIONS	NORMAL
	—		—
	'o		'o
	'o		'o
SPECIAL QUALITY	o	SPECIAL QUALITY	o
	o		o
	'o		'o
	'o		'o
	o		o
	'o		'o
	'o		'o
Grouping	~	Egocentric reaction	o
Predicative relationship	—	Perseveration	o
Causal relationship	1 21	of reaction	o
	2 3 ²		o
Cv-existence	2	Same grammatical form	14 27
Identity Linguistic-motor forms	1 2	Same number of syllables	66 88
	5	Alliteration	64 86
	—	Consonance	28 15
Word-completion	2 19	Same ending	5 6
Sound	o		8 14
Rhyme	2 5	Internal associations	49 54
		External associations	35 21
Indirect			
Meaningless	1 5 10	Sound reactions	2 6
Failures	1 1	Number of associations	7 ⁸ 7 ⁸
Repetition of stimulus-word			

SUBJECTS perseverations,
egocentric associations,
failures,

and the predicates (v. infra, the section on averages).

225 The linguistic-motor reactions are roughly equal in both halves; there are no indirect associations.

226 The figures given above indicate that the subject reacts very subjectively and that by analogy a complex can be presumed in addition. The high number of constellations (56 per cent and 73 per cent) makes this very probable. On analysis, they predominantly refer to *school* and *bride*. The subject is an enthusiastic teacher; on the other hand the complex *bride) wedding*, etc., plays a preponderant role in his reactions, particularly in the second half, where the subjective phenomena are in any case more numerous.

227 In the first half:

26 per cent of the reactions refer to school, 21 per cent to the bride complex.

In the second half:

21 per cent of the reactions refer to school, 24 per cent to the bride complex.

228 In addition, two to three failures in the first half and the majority of failures in the second half refer to the bride complex, e.g., the failures after the stimulus-words *to stroke) ill) to suffer) to kiss*.

229 Apart from this, the complex is expressed less deviously than in the preceding subject; it is less repressed and does not fall back on song-quotations as with the former subject. Incidentally, *school* and *bride* are closely connected in subject 20, as he cherished the dream that he would soon be married and his wife would assume an important position in the institute.

230 Among the thirteen repetitions in the first half, the name of the institute occurs four times, an important event at the school twice, the name of the fiancée three times. In the second half, the name of the fiancée occurs seven times in the reactions, the word *child* twice, at which the subject thought of his future parenthood. The other repetitions mostly concern school matters; three times the subject was annoyed at the seemingly nonsensical stimulus-word and each time reacted angrily with "Rubbish! "

I. STUDIES IN WORD ASSOCIATION

23 1	The perseverations, with two exceptions, concern school and family affairs.
23 2	Finally, a few examples of these complex-associations:
grandmother	S. will be (S. is the name of his fiancée)
cross	I as a teacher, according to S.
(to come	written to S.
~ year	will marry (in two years)
| Sunday	S. comes
f to kiss	(subject will not react)
| naturally	(subject will not react)
to love	S.
tears	she cried (S.)
f fidelity	S.
lonce	S.
f hope	that we can marry
| small	child (I)
(to pray	shall I never (image of praying child)
I dear	child
| where?	in bed
I old	S
ring	at betrothal
to stroke	(will not react at first) S.
child	my future (one)
(sweet	a brand of chocolate, received from S.
to ride	M- , home of fiancée, where she used to ride
| friendly	S.'s family
| three	members of the family (there are three in S.'s family)

13 The bracketed stimulus-words followed each other immediately in the experiment.

13 With the increase of the subjective emotional content in the course of the experiment the value of the individual reactions also increases, as the figures show.

13 *Subject 217* In the second hundred reactions of the experiment under normal conditions we find a maximum of co-ordinations, predicative relations, of internal associations generally, while the external associations diminish greatly. This maximum also covers the perseverations and egocentric associations.

27 The reactions of this subject are given in detail in the section on Calculations of Averages, Complex-Constellation Type, pars. 429ff.

THE ASSOCIATIONS OF NORMAL SUBJECTS

Subject 21. Physician, 23 years of age

ASSOCIATIONS	NORMAL		DISTRACTION		
				External	
SPECIAL QUALITY					
Grouping	19	20	7	12	8
Predicative relationship	16	4 ²	26	20	14
Causal relationship	—	—	3	2	
Co-existence	24	5	10	3 ⁰	22
Identity	5	3	5	10	4
Linguistic-motor forms	29	23	22	12	3 ⁸
Word-completion					
Sound	2	3	18	4	6
Rhyme					
Indirect	2	1	3	2	6
Meaningless	3	2	6	8	
Failure					
Repetition of stimulus-word					
Egocentric reaction	4	19	2	—	2
Perseveration	4	4 ⁰	5	4	10
Repetition of reaction	8	8	8	4	4
Same grammatical form	58	26	3 ²	62	4 ²
Same number of syllables	34	22	35	50	52
Alliteration	12	8	3 ¹	12	10
Consonance	18	13	33	16	8
Same ending	6	5	2		
Internal associations	35	62	3 ⁶	34	22
External associations	58	3 ¹	37	52	64
Sound reactions			18		16
	2	4		4	
Number of associations	100	100	100	50	50

13⁶ In comparison with the average figures for educated men, the predicates in the second hundred, the total of internal associations generally, as well as the perseverations and egocentric reactions, are high above average, in the following ratio:

Predicates	4 ² : 19.7
Internal associations generally	62 : 36.7
Perseverations	4 ⁰ : 2.4
Egocentric reactions	19 : 2.8

while the remaining figures deviate little from the average. With the fifteenth stimulus-word of the second hundred (*to kiss*)' the complex-reactions begin, at first still interspersed with others; then the complex persists through twenty-six associations, then again with interruptions, disappearing again towards the end of the second hundred. Thus altogether we find a maximum of So per cent of complex-constellations in the second hundred of the experiment under normal conditions; 13 per cent in the first hundred; under internal distraction S' under external 8. We have already found an increase of complexreactions in the second hundred of the experiment under normal conditions with subject 20, educated men. The appearance of the complex, in this case conjured up by an appropriate stimulus-word *to kiss*, causes a big increase of internal associations, probably due to the intense stimulation of attention. That the manifestation of the complex corresponds to an increase of internal associations is a proof that our classification is to some extent valid and natural. The stronger the emotional stress of the stimulus-word is for the individual and the more attention is devoted to that stimulus-word, the more the number of internal associations rises. This phenomenon is the exact opposite of the distraction phenomenon. Attention is improved because of the invasion of an emotional complex, which absorbs the whole personality, because the attention is directed more to the significance of the stimulus-word.

37 If attention is distracted from the experiment not by external distraction but by an emotionally charged complex, as for example in subject 18 quoted above (experiment after sleepless, eventful night) who was under the influence of strong emotion, then we see the opposite of the phenomena that we have just described in subject 21: internal associations decrease

and the result is very similar to an experiment with internal or external distraction.

23⁸ Thus in the second hundred, strong emotionally charged complexes were more manifest and perseverated more; there is, in contrast to the phenomenon usually appearing in the second hundred, an increase instead of a decrease of internal association, predicates, etc. That there are, among the stimuluswords of the second hundred, in the experiment under normal conditions, rather more words that stimulate slightly emotionally charged ideas is of no consequence in this case or in that of subject 20 of this group, because the complex manifests itself even with stimulus-words that are seemingly of no special significance.

23⁹ It is noteworthy that in complex-constellations the reactions readily come in the form of sentences, in other associations only rarely.

24⁰ In distraction the complex no longer plays a role. In internal distraction we find a maximum of sound reactions (18), which is somewhat above the average for educated men.

24¹ In the first group of external distraction experiments we find in the reactions a maximum of "same grammatical form" (62) and "same number of syllables" (So); in internal distraction, on the other hand, a maximum of alliterations (31) and consonance (33 per cent).

24² *Subject 22.*

Internal associations. Decrease in the second hundred of the experiment under normal conditions, which is much more marked under distraction.

External associations. Increase in the second hundred and under distraction. Most predicates decrease mainly in the second hundred, as do the constellations.

Linguistic-motor forms. Increase in the second hundred and in the second half of the distraction experiments; there we find a maximum of linguistic-motor forms.

Repetitions and failures. Most frequent in the second hundred of the experiment under normal conditions; in addition, under distraction there is an increase of same grammatical form, same number of syllables, alliteration, consonance, and same ending.

24³ In the second part of the distraction experiments there is an

I. STUDIES IN WORD ASSOCIATION

Subject 22. Chemist, about 24 years of age

ASSOCIATIONS	NORMAL		DISTRACTION	
				External
SPECIAL QUALITY				
Grouping	2	1	24	1
Predicative relationship	1	8	2	6
Causal relationship	20	1		1
	2	4		0
Co-existence	1	12	1	16
Identity	8	19	6	10
Linguistic-motor forms	5		2	4
	2	3 ²	4	4
Word-completion	6		2	
Sound			8 ²	
Rhyme	2	2	4	
	1			
Indirect	2			2
Meaningless				
Failures	2	9		
Repetition of stimulus-word		1		
Egocentric reaction	3	5	2	2
Perseveration Repetition	2			4
of reaction	11	1	8	2
		2		
Same grammatical form	3	5	8	7
Same number of syllables	7	4	6	0
Alliteration	3	3	5	4
Consonance	5	4	8	2
Same ending	7	5	8	8
	7	11	24	12
Internal associations	49	38	24	28
		4		
External associations	4	5	68	7
	9	2		0
Sound reactions	3	2	6	
Number of associations	10	10	50	50
	0	0		

THE ASSOCIATIONS OF NORMAL SUBJECTS improvement of

reaction (perhaps due to getting used to distraction); slight increase of internal associations and predicates, absence of sound reactions, slight increase of constellations, slight decrease of same grammatical form and of same number of syllables, consonance, and same ending; on the other hand, increase of linguistic-motor forms and thereby of external associations. Perseverations also occur here most frequently.

244 The constellations are nearly all conditioned by love or the subject's profession. There occur:

In the 1st hundred, normal conditions	In the 2nd hundred, normal conditions	In the 1st half of distraction	In the 2nd half of distraction	44%	20%	6%	14%
---------------------------------------	---------------------------------------	--------------------------------	--------------------------------	-----	-----	----	-----

245 The following perseverations, caused by a complex, are worthy of note:

lady	of the heart
1. shoul?er	blade
to twme	entwine (the subject pictures an erotic situation)
square (<i>Platz</i>)	Town Hall
lawn	<i>Platz</i> (this perseveration is not fortuitous either; a definite story, with erotic significance for the subject, is linked with the Town Hall square)

2-16 Failures appear in two forms in subject 22: sometimes the verbal reaction fails and in its place there is a vivid visual image, for example, or a vivid emotionally charged sensation, which the subject subsequently describes.

247 In the other group there are inhibitions because certain erotic memories emerge.

2-18 Under distraction no failures occur. The egocentric reactions predominate in the experiment under normal conditions and refer mainly to erotic subjects.

249 Of the repeated reaction-words only *bright*, *good*, and *beautiful* occur more than twice.

25^o *The complex*. The erotic complex rules a large number of reactions-a total of thirty in the experiment under normal

conditions, and ten in the second half under distraction (15 per cent under normal conditions and 20 per cent in the second half under distraction are demonstrable). In the first half, where distraction is more complete, we find none. The complex is hardly suppressed; on the contrary, it is manifest.

25¹ The progressive decrease of sound reactions in the course of the external distraction experiments and the increase of indirect associations is in keeping with our assumptions. (See "Averages.")

25² *Subject 23.* The figures show a very slight distraction-phenomenon. The proportion of internal and external associations changes very little in the distraction experiment, so that the variation in the results of the two experiments in fatigue are greater than between normal conditions and distraction. On the other hand the sound associations increase under distraction, as with subject 19 of this group; in both there are fewer sound reactions in fatigue.

253 The associations in fatigue were obtained from both subjects under very similar conditions (normal fatigue after a doctor's working day, 10 o'clock in the evening), while a sleepless night, with heavy psychic demands due to emotion, preceded the associations in fatigue of subject 18 of this group. Here we find in fatigue an increase of sound reactions.

254 The negligible difference caused by distraction may in subject 23 be connected with the fact that the number of internal associations is already fairly low in the experiment under normal conditions (24, that is 26 per cent instead of 36.7 per cent, as in the average of educated men) and the number of external ones fairly high (72, that is 69 per cent instead of 52.7 per cent, the average of educated men). The number of internal associations in the experiment under normal conditions is roughly the same as the average number of internal associations under distraction (in educated men).

255 The effect of fatigue is visible in the first fatigue experiment but not in the second.

25⁶ The figures for alliteration and consonance in distraction have perceptibly risen, as with subjects 18 and 22 of this group.

257 The number of repetitions is throughout above the mean; there are relatively many words that are repeated twice but

THE ASSOCIATIONS OF NORMAL SUBJECTS

Subject 23. Physician, 25 years of age

ASSOCIATIONS	NORMAL		DISTRACTION		FATIGUE		
				External			
SPECIAL QUALITY							
Grouping	9	9	1	1	8	1	1
Predicative relationship	1		1	2		3	3
Causal relationship	4	1	8	1	1	6	2
	1	7		6	6		0
Co-existence	24	7		8	1	7	12
Identity	5		8	2	4	9	5
Linguistic-motor forms	43	1		56	1	61	49
		9			0		
Word-completion		43	5		4		
Sound		3	5 ²	6	2 ²		
Rhyme			4				
Indirect	2				4		
Meaningless			2		4		
Failures					4		
Repetition of stimulus-word -							
Egocentric reaction	3	3					
Perseveration	5			2		1	4
Repetition of reaction	1	1	2	2	1	1	4
	6	5			0	1	
Same grammatical form			2	1		8	1
Same number of syllables	57	51	4	4	5	67	89
Alliteration	4 ₂	4 ₂	7	2	0	45	4 ⁸
Consonance	8		45	3 ²	2	20	11
Same ending		16	2	22	8	21	14
	1	0	0	2	2	1	1
	4	0	2	6	8	2	0
Internal associations	2	1	8	28	34	1	
	4	0	1	0	14	9	34
External associations	7	6	2	6	6	77	
	2	9	6	6	6		6
Sound reactions		3		6	2		
			3				6
Number of associations	100	100	100	50	5	15 ⁰	15 ⁶
			6		0		

only very few that are often repeated. **In** almost all experiments we find (*pleasant*) *unPleasant*) (*gladly*) *unwillingly*) (*friendly*), and similar words among the repetitions. We shall not examine the individual cases of repetition and perseveration any further here, because they do not point towards such obviously emotionally charged ideas as in the earlier cases; nevertheless, these do not entirely lack this background.

25⁸ The constellations are few and far between. Here too we find a decrease of sound associations at the same time as an increase of indirect associations in the second part of external distraction.

GENERAL REMARKS ON THE GROUP OF EDUCATED MEN

259 We had at our disposal nine subjects, whose ages ranged from 23 to 47, with altogether 3,793 associations. With five subjects, the experiments were carried out with internal as well as external distraction; in one case only with internal distraction, and in one case only with external distraction; in two cases no distraction experiment took place. With five subjects, associations in fatigue were also worked over, with one subject associations in a state of drowsiness. All the subjects in this group have had academic education. Six of them are physicians, one a medical student, one a grammar-school teacher, and one a chemist. All are German-Swiss.

260 Only one subject is of the predicative type (No. 17). Unfortunately we could not carry out a distraction experiment on him.

261 The experiment with internal distraction was successful in four cases; the sharp increase of sound reactions is most characteristic, the decrease of internal with the increase of external associations is less prominent. **In** one case (16) the result was unexpected, in another (23) there was no definite result; the subject had a minimum of internal and a maximum of external associations already in the experiment under normal conditions.

262 External distraction was clearly successful in two cases; in two cases the success was very moderate, in one case (23), on the other hand, no definite effect was noted. **In** general the effect of internal distraction is more intense than that of external. These particular subjects always succeeded in fulfilling the experimental conditions for internal distraction.

²⁶₃ The associations obtained in fatigue give a result similar to that of distraction in three out of the five cases. **In** one case (18) it is particularly clear; but it is possible that perhaps fatigue was not, or not solely, responsible for that, as the subject had had a particularly exciting experience during the sleepless night and probably was still very much distracted by it during the experiment.

²⁶₄ The association experiment in drowsiness with subject 15 also gave a result similar to that of a distraction experiment.

²⁶₅ **In** four subjects (19, 20, 21, 22) we find in the course of the experiment, particularly under normal conditions, extensive complex phenomena. **In** the first three (19, 20, 21), we see that the internal associations increase in the second hundred of the experiment under normal conditions and the external associations decrease, i.e., the opposite of what one would expect. At the same time we find an increase in the complex-constellations. **In** the distraction experiment the complex-constellations usually decrease or disappear.

²⁶⁶ The subject need not be conscious of the complex phenomena and they often do not emerge till the association results are statistically worked over and grouped. Thus, lesser complex-phenomena may also be found in subjects without this distinct complex-type, e.g., in subject 18 (see below, the examples of association-types given in detail) or in subject 16, where in plotting a curve of reaction-times, several emotionally charged associations from long ago appeared. Practically every lengthening of reaction-time, even within quite normal limits (of which the subject is not aware), signifies, as far as we know at present, that the particular stimulus-word has touched upon a feeling-toned complex. We shall describe these findings in a later communication.

III. UNEDUCATED WOMEN

*Eight subjects with 2400 associations*²⁸

²⁶⁷ *Subject 24.* The associations of this subject are given in detail among the examples of association types (see below). As in

²⁸ For technical reasons the experiment with internal distraction could not be carried out with any of the uneducated subjects.

1. STUDIES IN WORD ASSOCIATION

*Subject 24. Nurse, 18 years of age, Swiss, secondaryschool
education*

ASSOCIATIONS	NORMAL		DISTRACTION	
				External
SPECIAL QUALITY				
Grouping	2	20	16	••
Predicative relationship	3	3	20	. 14
Causal relationship	2	7		: 22
	3			~ 0 ~
Co-existence	28	1	3 ⁸	3
Identity		4	2	0
Linguistic-motor forms	23	5	14	2
		2		3 ⁰
Word-completion		3		
Sound			6	2
Rhyme				
Indirect			2	2
Meaningless				
Failures				
Repetition of stimulus-word				
Egocentric reaction	3			
Perseveration			4	4
Repetition of reaction	1	9	1	2
			4	
Same grammatical form	8	53	68	58
Same number of syllables	0	4	4 ⁸	4 ⁶
Alliteration	3 ⁶	4	4	12
Consonance	16	7	12	8
Same ending	15	1	10	
	5	1		8
Internal associations		5 ⁶	3 ⁶	3 ⁶
	4 ⁸	8		
External associations	52	4 ²		6
			5	2
Sound reactions			4	2
Number of associations	100	100	50	50

subjects generally, we find relatively more internal reactions and fewer linguistic-motor forms than in educated subjects. The increase of internal associations, particularly of predicates in the second hundred of the experiment under normal conditions, may be attributed to the predominance of personal participation after the subject had grown used to the experiment. We have already met this phenomenon several times.

268 Although distraction was successful, it was not exactly striking. External associations increased, sound and indirect associations, which are quite absent under normal conditions, occurred. Strikingly enough, perseverations are also more numerous.

269 Distraction had little effect, for several reasons: the subject has relatively many predicative reactions without actually belonging to the predicative type; the latter, however, is distinguished by a weaker distraction-phenomenon. The subject often found it difficult to divide her attention and to react simultaneously to the metronome and the stimulus-word. Secondly, the experiments with uneducated women gave us the impression that these found dividing their attention more difficult than did educated subjects. They are usually completely absorbed by the experiment and work with quite concentrated attention. The stronger the means of distraction, the more desperate their effort. Thirdly, we know that in this case the experiment had a very strong psychic effect on the subject. Emotions relating to the subject's complex, some of which were only recently assuaged, came to the fore and strongly affected the reaction. The experiment was a revival of a complex that had become somewhat latent. That is why we find a large number of obvious complex-reactions even in the distraction experiment, which as a rule is rarely the case.

27° The complex-phenomena require a short explanatory case history. The subject had a country background and became a nurse at seventeen, after brooding at home for a year upon the unhappy termination of a love-affair. Her irascible father did not want to know anything of the relationship and once there was a scene during which he cursed her because she had dared to contradict him. Facial burns, accompanied by great terror, and a tedious illness had revived this psychic pain through

brooding shortly before the associations were taken. The association experiment gave rise to a further exacerbation of this unhappy memory; the effect persisted for some time, a proof of how intense a reagent these experiments are, particularly with uneducated subjects, and with how strong an affinity an emotionally charged complex attracts and uses for itself as large a number of stimulus-words or stimulus-concepts as possible. Now, six months after the experiment, the subject has a more objective attitude towards the complex which, however, still strongly affects her. While then, in her explanation, she emphasized that she was bound to be unhappy because of her father's curse, she now no longer conceals the deeper erotic connections when she has to comment on her reactions. It is striking how vividly she still remembers every reaction she then gave.

27¹ The number of demonstrable complex-constellations is (in per centages):

	<i>1st half</i>	<i>2nd half</i>
Under normal conditions	15	21
With distraction	16	14

27² As already stated, we only rarely find complex-constellations under distraction and hardly ever to this extent. Naturally this interferes severely with distraction. The maximum of complex-constellations in the second hundred under normal conditions is, as in other cases, explicable by a difference of attitude, through becoming familiar with the experiment.

27³ Perhaps in order to be less obvious, perhaps because it takes less effort, the complex expresses intimate feelings by clichés such as quotations, words of songs, titles of stories, and such like. Quotations are frequently masks. We use them in everyday life, too, in this sense. One sings certain songs in certain moods, often because one does not want to express the thoughts that underlie the moods; so they become masked. Or the song, the quotation, is used to exaggerate a rudimentary feeling, perhaps to awake a spark of feeling by this exaggeration; one need only think of patriotic songs and poems to celebrate birthdays, special occasions, and festivals. Examples:

come to the meadow

The quotation comes from the story of the lazy school-boy who wants to tempt the hard-working one to play truant; the lazy one later becomes a tramp, the steady, hard-working school-boy a respected teacher. For the subject the quotation has a quite different background. In any case it is not without reason that the meadow occurs twice as a reaction in the experiment under normal conditions. In the orchard of her parents' house there is a beautiful tree surrounded by grass; here she often used to dream and, as she watched trains coming and going on the nearby railway-line, she would make fantastic travel plans. After the unhappy end of her love-affair the subject had a wishfulfilment dream: she was lying next to her beloved in the grass. She still thinks of this dream with pleasure. To the stimulus-word *dream* she immediately reacts with *Pleasure* and her eyes shine at the memory of that wish-dream. Further quotations:

at home it's nice

refers to a song, the meaning of which is clear. Further:

once I was happy

The subject once heard a wicked, stupid catatonic woman sing:

Once I was so happy,
But now no more,
Love, the magician, deceived me full sore.

In the next three associations she remains caught up in the complex:

once	I was happy
wonder	of love
blood	of expiation (thinks of her father's curse)
wreath	death (for months she thought of dying; she intentionally ate almost nothing for weeks so that she might become ill, and lost a lot of weight in the process. After the experiment, which revived the complex again-particularly after a visit home that she made soon afterwards-she started to eat very little even with us and to lose weight till the matter was discovered and the folly of her behaviour made clear to her).

274 On other occasions the subject quotes the titles of stories,
the content of which refers to her complex, e.g.:

seve brothers

"The Sevenⁿ Brothers" is the title of a story in which devoted
brother-love is rewarded. ²⁹ The association immediately following is:

ill my brother

275 The quotations, six in all, occur only in the experiment
under normal conditions (as with subject 19, educated men) and all
evidently refer to the complex.

276 We have already quoted two examples where the complex
entraps the subject in an idea. Others occur, e.g., this perseveration:

friendly --1 friendship
three ~ friends

The subject has an intense need for friendship; but there have always
been disappointments-her best friend married another girl.

277 Another example, from the experiment under distraction:

meadow the orchard
to bring the apples

278 We have here a direct perseveration not of the reaction but
of the image of the underlying situation. We shall in the course of the
work include these forms also in the concept of perseveration. The
connection between meadow and orchard is clear to us at once from
what has been said above (meadow!). The "apples" of course come
from the same orchard.

279 Of the four (8 per cent) perseverations in the distraction
experiment, there is only one that probably refers to the complex.

280 *Repetitions.* In the experiment under normal conditions,
seven reaction-words occur several times (two to five times); at least
thirteen of these seventeen words belong to the com-

²⁹ After the breaking off of her romance, her brother was the only person in whom the subject
confided.

plex. In the distraction experiments (one hundred reactions) there are altogether eight reaction-words that occur several times (two to three times). The ratio expressed as a percentage is also roughly the same as under normal conditions ($2 \times 8 = 16$). Of those, four (8 per cent) definitely refer to the complex.

²⁸¹ It is striking how often *human being* appears as a reaction; eight times in three hundred associations (normal conditions and distraction). There are seven reactions that certainly belong to the complex. *Human being* sometimes refers to a quite definite person, sometimes to the subject herself.

²⁸² Similarly we find the reaction *the person* several times used as a general term, with quite concrete meaning in reference to the complex, e.g.:

propriety	the person
bad	the person

²⁸³ The subject is thinking of a quite definite person, her friend, who plays an important part in the complex. She is not morally faultless-has, for instance, an illegitimate child. By the reaction *human being* she often means this same friend, who in her more frivolous life had more luck in love than the more serious subject, e.g.:

i~dolent	the human being
{Virtue	of human beings

In this example there was even a perseveration of the same reaction-word, from which can be gathered how strong is the emotional charge of this idea.

²⁸⁴ We often find the definite article used in the reaction as a disguise of the complex-constellation. Our subject, for example, used the article 26 times in the reactions under normal conditions; seventeen of these reactions definitely refer to the complex. The connection is less striking under distraction.

²⁸⁵ We find the phenomenon again in other subjects. To illustrate the complex-reactions here are some relevant examples:

decent	the person (see above)
to be careful	the person
bad	the person

to pray

1. STUDIES IN WORD ASSOCIATION

fwonder³⁰
| blood

the pious one (referring to herself; she prayed a great deal when most unhappy)
of love (referring to herself, also to expiation)
of expiation (she feels guilty towards her father;

omen

there is a perseverance of the external form of the reaction here)

of punishment (in the same way this reaction would be quite nonsensical grammatically and can only be explained by the assumption that we are probably dealing with the after-effect of the previous reaction form. This reaction is separated by several from the one before)

normal
meadow
w to
bring
mild
clever

the human being (a quite definite one) the orchard | (for explanations of these apples § associations see above)

fwilling

the father
the snake (quite definite people)

order

the school-boy | in these associations the subject the industrious ~ was particularly thinking of the worker

angry

| friend of her youth
the human being (means her father)

and so on.

286 In the distraction experiment the subject did not understand several stimulus-words, namely: *hatred) love) repentance) fall) pleasant) penny) glass) to hammer) entrance) ears) to inhibit.*

287 It soon transpired on analysis that the subject could not, or would not, understand the first series of quoted stimulus-words, owing to the half-conscious, half-unconscious effect of her complex. According to her, all these stimulus-words touched most intimately upon the complex that she was trying to suppress.

288 The stimulus-words of the second series were really not understood because of the acoustic disturbance of the metronome. The subject thus found a further method here of hiding her complex in an apparently unobtrusive way; it is adapted to the situation, for, as the second series of stimulus-words (which do not touch upon the complex) proves, it is easy not to understand stimulus-words, or to understand them wrongly, in

30 The braces to the left of the stimulus-words indicate that these immediately succeeded each other.

the constant noise of the metronome beats of the distraction experiment (to compensate for this, another stimulus-word was introduced into the experiment).

²⁸₉ This not wanting to understand corresponds to a repression of the complex that was to a greater or lesser extent conscious. There is no difference in principle from the cases (hysteria!) where not reacting or falsely reacting occurs involuntarily.

²⁹₀ Under complex-reactions we have a large group; that of masked complex-reactions. In our subject the masking, so far as we could discern it, was achieved by the following means:

1. By quotations (songs, book-titles, quotations from texts). 2. By the use of unobtrusive general concepts with a quite special meaning with reference to the sense of the complex.

3. By the addition of the article. The reaction thus receives an apparently even more objective appearance; it then appears like the practised reply of an elementary-school child.

4. By misunderstanding the stimulus-words that allude to the complex.

²⁹₁ Finally it must be reported that abnormally long reaction-times frequently occur in the complex-reactions; unfortunately, however, no systematic measurements were taken with this subject, so that we cannot develop this point further in the case before us.

²⁹₂ *Subject 25.* In the first place, the high figures for grouping and co-existence are striking, both under normal conditions and under distraction. Some of them are far above the mean values. On the other hand, the figure for predicative and linguistic-motor reactions is relatively small and below the mean, particularly in the case of the predicative reactions. The explanation of these figures is probably the extraordinarily objective, steady mode of reaction, which is apparently little disturbed by complexes.

²⁹₃ A few reactions with a rather long reaction-time are to be noted. In our experience reactions with a time of more than 5.⁰ seconds are generally suspect of referring to emotionally charged constellations.

²⁹₄ In this subject we find twelve associations with a reaction-time of more than five seconds under normal conditions, in the distraction experiment only three.

I. STUDIES IN WORD ASSOCIATION

Subject 25. Nurse, 22 years of age, South German, intelligent but not educated

ASSOCIATIONS	NORMAL		DISTRACTION	
			External	
SPECIAL QUALITY				
Grouping	3	3	1	2
Predicative relationship	3	4	8	2
Causal relationship	3	9	2	
Co-existence	3 ⁶	2	2 ⁴	4
Identity Linguistic-motor forms	6	5	8	34
	1	11	24	18
	5	1	2	
Word-completion		6	0	
Sound			2	
Rhyme		3		2
Indirect	4		2	
Meaningless Failures	3			
Repetition of stimulus-word				
Egocentric reaction				
Perseveration Repetition of reaction	5	8		
Same grammatical form	9	7 ⁸	9	88
Same number of syllables	1	56	2	4 ⁸
Alliteration	6	7	58	2
Consonance	7		2	1
Same ending	8	1	2	4
	7	8	2	1
Internal associations	3 ⁶	19	24	08
	2	4	2	
External associations	37	5	7	7 ⁰
		2	2	
Sound reactions		4	4	2
Number of associations	10	10	5	50
	0	0	0	

295 **In** the following examples with lengthened reaction-time, the lengthening is presumably to be interpreted as the effect of an erotic complex:

wedding	miss	6.8 ³¹
to kiss	to laugh	6.0
to love	gladly	5. ⁶
male nurse	wardrobe	8.0
dream	basket	6.
ripe	fruit	4
to bless	to	6.
	receive	6

29⁶ The subject usually reacts strongly to allusions of an erotic nature and also blushes easily. She admits herself that she was embarrassed at answering to the first three stimulus-words. She also found it awkward to say the word *nurse* which first occurred to her as an answer to the stimulus-word *male nurse*, obviously because she immediately thought of erotic relations. She searched in her surroundings and named the first object she saw in the room: *wardrobe*.

297 At the stimulus-word *dream*, an erotic thought prevented her from reacting. Instead of giving a reaction according to sense, the subject again let herself be distracted by externals, happened to see the waste-paper basket, and said *basket*. Thus a senseless reaction was given as a result of the complex. The reactions *riPe / fruit (Obst)* (the subject first thought of "fruit" [*Frucht*]) and *to bless / to receive* are obviously again examples of the same sexual embarrassment.³²

29⁸ Distraction by surrounding objects is, as far as we know from our experience in psychopathology, a phenomenon that must be interpreted in both cases as the effect of emotion.³³ **In** embarrassment or bewilderment, which are caused when the stimulus-word conjures up emotionally charged ideas that the subject consciously or unconsciously tries to repress, the subject lets herself be completely distracted by externals and verbally reacts by simply naming an object from her surroundings.

³¹ Reactions of between one and two seconds are considered normal. [All reaction-time data in this paper are in seconds.]

³² [German *Obst* is the equivalent of English 'fruit' in a collective sense. *Frucht* is the term for particular fruit but is also used in the phrase "the fruit of the womb."]

³³ Cf. "emotional stupidity"; Jung, "On Simulated Insanity."

We find this phenomenon very marked in certain hysterics, for example.

299 Of the sixteen reaction-words, from the experiment under normal conditions, that are repeated we call special attention to: *diligent* five times, *good* three times, *well-behaved* twice, *right* twice. The others are divided among very varied ideas. One can more or less see from these the strict morals of the subject. It is characteristic that these indications of subjectivity disappear under distraction.

300 In classifying, it was rather difficult always to draw the dividing line with certainty between grouping and co-existence. 301. Finally it can be said of the subject that she belongs to an objective reaction-type that is very little influenced by constellations, and which we find again in subject 27 of this group.

302 The following reactions might illustrate this general objective reaction-type of the subject.

soft	hard	to rinse	to wash		
youth	age	building	wall		
sorrow	worry	sleeve	dress	fidelity	obedience
window	glass	park	garden	to plunder	to catch
false	right	glass	iron	freedom	solitude
sweet	sour	couch	chair	regret	fear
wide	narrow	to paint	to varnish	stork	dove
honey	bee	star	moon	bike	car

303 The unusually high number of reactions with the same grammatical form runs parallel to the many groupings and coexistences and confirms what has just been stated.

304 Distraction is very obvious. There is a decrease of internal, an increase of external associations. We only find sound reactions in the second hundred of the experiment under normal conditions and under distraction; on the other hand, direct associations only in the first hundred, so that our assumed rule of reciprocity between indirect and sound associations would again be correct here.³⁴

305 It must, incidentally, be mentioned that the subject carried the experiments out with great enthusiasm and also made a great effort under distraction to do justice to the higher demands by devoting all her attention to the experiment.

³⁴ See below, Calculations of Averages, par. 405 (6).

- 3⁹⁶ *Subject 26.* The subject has a rather obvious tendency to make rhymes, which increased in the second half of the distraction experiment.
- 307 The usual distraction phenomenon did not appear, although the subject does not belong to the predicate type. Marking the beats was done with great irregularity. The predicates increase under distraction; the external associations, particularly the linguistic-motor reactions, decrease; only the sound reactions increase constantly.
- 3⁹⁸ Constellations are found mostly in the second hundred of the experiment under normal conditions and in the first half of the distraction experiment. The latter fact shows that the distraction experiment was after all partially successful; for, with the exception of subject 24 of this group, where the distraction experiment was equally unsatisfactory, the constellations disappeared almost completely under distraction in the other subjects.
- 309 We here describe individual examples: To the stimulus-word *lamp*, the subject did not react till 20.0 seconds later with *oil-lamp*. She had just before had the pleasant dream that instead of the 9 o'clock meal, which she rarely took, she was getting a new lamp in her room, which she wanted very much.
- 3¹⁰ window glass ID.O (thought of *vitrine* in between)

The subject thought of a large shop with beautiful glass cases. She had for some time been the private nurse of the wife of the owner of such a shop and was very attached to her former patient. The subject had learned the French expression *vitrine* for "glass case" from the sister of this patient. One can see how a particular thought occurring at the time is responsible for an apparently insignificant expression.

- 3¹¹ to strike 6 o'clock 2.0

The subject had carried out night duty in a ward, always having to get up at 6 o'clock in the evening.

- 3¹² to paint *peintre* 6.8

This reaction, with a lengthened reaction-time, refers to a year's stay in French Switzerland. The subject, then a young girl, was admired by a painter; he was also very keen to paint

*Subject 26. Nurse, 21 years of age, Swiss, secondary-
school education*

ASSOCIATIONS	NORMAL		DISTRACTION	
		"d	External	
SPECIAL QUALITY	"d "d 8 "c "	"d "j Ń S i "d c cc	6 q d.i ~	6 q d.i ~
Grouping	20	16	22	8
Predicative relationship	5	11	16	18
Causal relationship	1	1	2	
Co-existence	24	10	18	8
Identity	4	6	10	14
Linguistic-motor forms	43	47	24	3 ⁶
Word-completion	1	1	—	2
Sound	—	—	2	2
Rhyme	1	2	2	8
Indirect	—	5	2	2
Meaningless Failures	—	—	2	2
Repetition of stimulus-word				
Egocentric reaction	1	—	—	2
Perseveration	2	2	2	
Repetition of reaction	6	5	8	4
Same grammatical form	75	50	7 ⁶	60
Same number of syllables	4 ⁸	39	56	4 ⁶
Alliteration	9	8	6	2
Consonance	13	9	18	16
Same ending	13	"	12	20
Internal associations	26	28	4 ⁰	26
External associations	7 ¹	63	52	58
Sound reactions	2	3	4	12
Number of associations	100	100	50	50

her. In the reaction-word *peintre* there is, besides a masking of the constellation by a quite blunt association, a further constellation, in that the subject in this instance uses, together with the reminiscence of an erotic experience in French Switzerland, a French word. In the distraction experiment she produces the reaction

with the same constellation. The characteristically long reaction-times in both places are worthy of note.

This repetition is not a coincidence. The subject was celebrating her saint's day the day after the experiment under normal conditions took place. She was happy, for she wanted to go out, and she had been invited out for this day and would be receiving all the congratulations at home; among these she was also expecting a letter from her sweetheart.

The first is a quotation from Ernst Zahn's novel *Albin Indergand* (1901). It refers to a love-story and has the significance of a complex quotation for the subject, like the one we discussed in subject 19 in the group of educated men and subject 24 (uneducated women). The second is an analogous but original form. The subject was thinking of another nurse with whom she had had an argument the day before on the subject of "love," in which the other had maintained a much less idealistic attitude to the question than had the subject. The stimulus-word *poor* has become associated with the previous stimulus-word *rich* and the emotionally charged reaction connected with it, whereupon she became conscious of the contrast between her "ideal of love" and that of the other nurse. By *poor in virtue* she means the other nurse.

to despise

you think 2.2

The quotation is word for word as follows:

Perhaps you believed
 I should hate life, [Flee
 to the deserts, Because
 all dream buds
 Had not bloomed?] (Goethe, *Prometheus*)

The subject knows only the first two lines of this quotation, she had quite forgotten the part in brackets. At this, the subject vividly thought of the other nurse and her low views on the subject of "love." One sees from this how closely related expressions and quotations of this sort become associated with feeling-toned complexes, helping to create the infinitely copious unconscious verbal material used by feeling-toned complexes, which makes possible, for example, the poet's countless variations on one single thought.

³¹⁶ A further quotation:

finall	does not last for ever	5. ⁶
y	according to	2.0

agam refers to her love-complex. The reaction-time is strikingly long. The subject was thinking of the "brother of a woman friend," who turned out to be her sweetheart; she was anxiously awaiting news of whether he had accepted a certain post abroad, wishing he would not go.

³¹⁷ At the stimulus-word *to kiss* the subject reacted in a tone of surprise; "*To kiss-yes-I* cannot tell you that; we have just been talking about something." She meant the discussion with the other nurse, who said that kissing was something dirty. To the stimulus-word *time* the subject reacted:

time

The next reaction but one was

to reign	according to ...	3.8
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³¹⁸ At *to reign* an older nurse who was in charge of the whole department came to her mind. A trifling incident of about that time made the subject think: "everything." The stimulus-word *to reign* released this thought, which the subject could not reaction-word *according to* used almost immediately before, which had a

meaning when used with *time* but with *to reign* at the most only a remote one. Thus the gap in the reaction produced by the affect is filled by a reaction-word already used. A similar phenomenon was already observed in subject I9 in the group of educated men, who in an experiment under fatigue always reacted with *yesterday* to a series of stimulus-words that touched upon the complex.

to love in need of 4.⁰

is accompanied by a sudden change of facial expression. This phenomenon refers to her love-complex and is important for us because we find similar reaction-phenomena (changed facial expression, sudden lowering of voice) in the pathology of associations, where emotionally important complexes are concerned.

to choose advic

the subject thought that one must be very careful in one's choice of a husband; she thought that one ought to have good advice when having to make one's choice.

is based on a recent letter which the young man from Western Switzerland (*le peintre*) had written to her a short while before, and from which it transpired that he had not yet given up hope of winning her.

e 3.²

the subject put an unusual inflection; it refers to her own lovelife and must be put by the side of the reaction;

ink:
d not
with a change of facial expression.

"She regiments us in
utter; in its place appears the

is again a quotation. The text on which it is based runs as follows:

The girl came to the spider
And the spider said: Why so late?
I have been spinning threads for three hours
See how finely and delicately they are twisted!

The content of these lines is summarized by the stimulus-word *lazy*. Also the reaction is determined by sound in the stimuluswords *spat* (late) and *gedreht* (twisted). An obvious condensation (Freud) of the situation and apparent form into the word *trage* (*lazy*) has occurred in the subconscious; this is already proved by the fact that the reaction-time is quite short and therefore there can be no question of a conscious search for quotations. One also sees that the subconscious or unconscious likes to associate quotations or complexes, often in such a way that fragments of quotations and songs which happen to have been picked up, and the continuation of which the subject does not know, are directly connected with the complex. In our present case, for example, the subject does not know the poem by heart.

3²⁴ We still have to prove that behind this quotation there lies a feeling-toned thought.

3²⁵ The verse, taken from a school poem, corresponds to the feeling-toned situation at the time. The subject was then, as already mentioned, on night duty in a ward. She slept during the day. In the morning she was relieved by the nurse who was on day duty in the same ward; she had several times in the last few days been annoyed that this nurse relieved her so late; we find the expression of this in this reaction.

3²⁶ Behind the seemingly insignificant, quite impersonal reaction:

something important 1.2

is concealed the thought of the saint's day on the morrow.

3²⁷ To the stimulus-word *to woo* there was no reaction. The cause of this is once more the conversation with the other nurse about love. She recounted that she had permitted herself the joke of writing to an obscure marriage bureau, whereupon a

widower had been recommended to her by this bureau as a good match. This idea displeased the subject very much.

328 To the stimulus-word *doing* the subject reacts *and not doing* (10 secs.). Behind this superficial reaction the thought of the argument about love is once more concealed.

329 When a complex is hidden behind quotations or superficial reactions of this sort, the reaction-time is usually short. While in the so-called failures attention is quite absorbed by the complex that is to be suppressed (that is, hidden from consciousness or from the experimenter) here a division of attention takes place. One part is devoted to the verbal reaction and this then bears a very superficial (linguistic-motor, sound) character; the other part is occupied by the emotionally charged idea. This part is frequently repressed and does not clearly emerge to consciousness. This interpretation is also confirmed by the frequent observation that such quotations and superficial reactions are produced with the most indifferent expression in the world although the observer, for example, knows that they refer to a strong emotionally charged complex and are conditioned by it.

330 The main part of the emotionally charged complex becomes split off and repressed. At the same time the chain of ideas unfolding in consciousness contains as representative of the complex only a quotation, for instance; this appears after a short reaction-time and indicates to the expert that under this cover an important complex is exerting its influence in the subconscious.

331 In other cases, where the affect is already shown in the quality of the reaction (intonation, expression), this split does not take place; the reaction becomes more difficult and the reaction-time lengthened (see the example *to love / in need of*; 4.⁰).

332 In the distraction experiment we find in subject 26, in the group of uneducated women, among the few reaction-words (*bicycle, Zurich, clear, sad*) that are repeated several times, two in which a complex is probably the cause of the repetition.

333 About the reactions

bike	whee	tram	bicycl
	l		e

the subject afterwards explained that her sweetheart cycled a lot, which immediately came to her mind when she heard the stimulus-words. The reactions

fire Zurich station Zurich

remind her that in the discussion about love she had defended the town of Zurich and its inhabitants against the other nurse. The reactions

moved sad
mild sad

are connected with incidents in her family. In the reactions

sin world 0.8
remorse death 1.2

a recent accident was on her mind, in which a patient managed to drink some Lysol from an instrument dish. There were no serious consequences but the incident had happened in the ward in which the subject was on duty and had left her with a very unpleasant impression and a great feeling of guilt; hence also the perseveration in the above reactions.

334 *Subject 27.* The result of the experiment has the greatest similarity with that of subject 25 of this group. Admittedly the distraction phenomenon is not so marked (the subject gave her whole attention to both experiments). Reactions from the sound group are completely absent and the number of linguistic-motor forms is very small. The co-existences show high figures. The predicates are few, egocentric reactions absent, which indicates a very objective grasp of the stimulus-words. The figures for the same grammatical form of the stimulusword and reaction are strikingly high, as in case 25 of this group. Thus our subject also belongs to the same quite objective reaction-type without demonstrable constellations. Many associations have lengthened reaction-times, without our having a retrospective explanation for it. We do not possess a more detailed analysis.

335 *Subject 28.* The predicates are relatively few (in the experiment under normal conditions, for example, only 8.5 per cent instead of 20.4 per cent, the average for uneducated women). The groupings, too, are below average in the experiments

THE ASSOCIATIONS OF NORMAL SUBJECTS

*Subjects 27 and 28. Nurses, 23 and 28 years of age, Swiss,
elementary-school education*

ASSOCIATIONS	SUBJECT 27				SUBJECT 28			
	NORMAL		DISTRACTION		NORMAL		DISTRACTION	
			External				External	
SPECIAL QUALITY								
Grouping	4 ⁶	4 ⁶	54	2	2	3 ²	1	16
Predicative relationship	4	2		6	1 ⁹	8	4	6
Causal relationship	1	3		6			4	
Co-existence	30	15	18	3	3 ²	1	1	12
Identity	4	13	16	2	6	5	4	8
Linguistic-motor forms	14	18	12	1	8	3	8	1
				8			2	4 ⁸
				18	o	3 ²	5	
Word-completion								
Sound						2	o	8
Rhyme							2	
							2	
Indirect		2						2
Meaningless								
Failures							2	
Repetition of stimulus-word -								
Egocentric reaction								
Perseveration								2
Repetition of reaction	8	5	6	4	10	9	o	
Same grammatical form	85	86	96	9 ^o	7 ^o		6	7 ²
Same number of syllables	60	53	58	56	5	6	8	o
Alliteration	11	6	8	28	16	9	4 ⁸	4
Consonance	15	7	10	24	1	4	2	2
Same ending	25	17	12		4	3	8	2
					1	19	3	8
In ternal associations	5 1	51	54	3 ²	3 ¹	4	1	3 ⁶
						21	8	2
External associations	48	4 ⁶	4 ⁶	6	6	1	2	2
				8	8	55	7 ⁶	6
Sound reactions						4		
						2	4	8
Number of associations 100		100	50	5 ^o	10 ^o	100	5 ^o	5 ^o

under normal conditions and under distraction; the linguisticmotor reactions, on the other hand, are above average for uneducated women (the latter is 24 per cent under normal conditions and 28.8 per cent under external distraction). On the whole, we are confronted by a case with relatively few internal and many external associations.

33⁶ Although, or rather because, the general reaction-type appears somewhat superficial, the distraction experiment was successful, considering that uneducated women with many predicatives are usually more difficult to distract. Even if the external associations are no more numerous in the second part of the distraction experiment than in the first hundred under normal conditions, the internal associations have definitely decreased, while the sound reactions have increased.

337 **In** the second hundred under normal conditions we have an increase of internal associations. At the same time, we find (as so often) an increase of constellations, which are probably, as many cases show, the cause of this shift. (The fact that among the stimulus-words of the second hundred there are more than in the first hundred of the kind likely to awaken emotionally charged concepts may have an influence here.) **In** the first hundred under normal conditions six constellations, in the second hundred under normal conditions ten, in the distraction experiment two can be demonstrated. **In** the distraction experiment they are much less frequent. We have here almost exclusively complex-constellations.

33⁸ The complex is linked to a romance with an unhappy ending. The subject was disloyally deserted by her lover after a long relationship.

339 The long reaction-times (mostly more than five seconds) are almost exclusively confined to these complex-constellations. Examples:

male nurse	hospital orderly	11.4	(the lover was a male nurse)
heart	stomach	6.4	
to stroke	to love	5. ⁶	
to part	to go	5. ⁶	
dear	angry	8.8	
freedom	imprisoned	6.0	
to despise	respected	18.4	
band	to tear up	5. ²	
false	falsehood	7. ²	

- 34^o The subject did not really want to give an account of the few remaining constellations and long reaction-times, which cannot easily be recognized as belonging to the complex; they are therefore all the more suspect.
- 34¹ Here again we see the specific way in which the complex is manifested, i.e., the lengthened reaction-times. (This does not mean that these do not also occur in other cases, e.g., with rather difficult, unfamiliar stimulus-words.)
- 34² We have already found lengthened reaction-times as complex-phenomena (subjects 26 and 27 of this group); here they are almost exclusively complex-characteristics. There is a transition to the so-called "failures," where there is no verbal reaction at all.
- 343 The repetition of reaction-words is almost exclusively limited to the experiment under normal conditions and concerns sixteen different words; the majority of them designate things from the everyday life of a nurse.
- 344 *Subject 29.* A glance at the ratio of the predicate to the groupings tells us that the subject must be classed as a predicate type. **In** keeping with the rule for the predicate type we find no clear effect of distraction. Sound reactions and indirect associations only occur in the first part of distraction. Egocentric reactions are well represented and evenly distributed. The highest number of internal and the smallest number of external associations occur again in the second hundred of the experiment under normal conditions. There we also see a maximum of failures (7), which are nearly all caused by a complex. Unfortunately the subject never gave us an exact explanation and her retiring character induced us not to insist on one. The subject only confessed that memories of particular events in her family were largely behind the failures and the lengthened reaction-times. **In** a few instances unusual stimulus-words were responsible.
- 345 *Subject 30.* Distraction was clearly successful; it is mainly characterized by a decrease of groupings and increase of linguistic-motor forms; the number of predicates, although fairly numerous, is somewhat more stable. The largest number of perseverations occurs under distraction, particularly in the second hundred of the distraction experiment. There are no egocentric reactions. From the type of reactions it is not clear

1. STUDIES IN WORD ASSOCIATION

Subjects 29 and 30. Nurses, 18 and 27 years of age, Swiss, elementary school education

ASSOCIATIONS	SUBJECT 29				SUBJECT 30			
	NORMAL		DISTRACTION		NORMAL		DISTRACTION	
			External				External	
SPECIAL QUALITY	5	5	1	1	5	5	1	1
Grouping	2	19	14	12	1	3 ⁰	4	8
Predicative relationship	2	45	50	4 ⁸	9	3 ²	3 ⁶	
Causal relationship	2				3 ²	1		1
	7							6
Co-existence	3 ¹	1	1	12	2	1	1	6
Identity Linguistic-motor forms	2	4	6	1	6	2 ⁴	0	2
	1	4	6	1	2	1	6	6
	6	3	1	0	18	8	6	6
Word-completion		1	8	1			3 ⁶	6
Sound		1		8				
Rhyme			2					2
Indirect			4					
Meaningless							4	
Failures		7				3		
Repetition of stimulus-word -							4	
Egocentric reaction				2				
Perseveration Repetition of reaction	3	2	2	2				
	7	1	2		2		8	1
	1	1	1	6	14	9	1	4
	3	1	4				8	
Same grammatical form Same number of syllables	5	2	28	32	3 ¹ 52	3	3 ⁸	6 ⁴
Alliteration	0	9	4 ⁸	53	6 13	5	20	0
Consonance	37	9	6	6	15	43	2	14
Same ending	6	24		4	6	9	8	3 ⁰
	9	3	1			12	34	3 ⁰
		5	2			11	2	2
Internal associations	5	62	2	60	53	63	4	24
	0	5	64	60	53	63	0	24
External associations	49	28	3 ⁰	4 ⁰ 4 ⁶		34	5	7
							2	4
Sound reactions			2					2
Number of associations	100	100	50	50	100	100	5	50

whether constellations or complexes play a part in the associations of the subject or not. It is easier to draw some conclusions from the reaction-times occurring, for example, after provocative stimulus-words, e.g.,

to kiss	morning kiss	8.
to remember	letter	14.
bad	(failure)	0
rascal	without means	12.

34⁶ But we lack a detailed psychological analysis in this case.

In the distraction experiment, repetitions of the form of the reaction occur; mainly we find reactions in the form of a whole sentence, e.g.,

sin	man sins
repentance	man repents
love	people love
strong	man is strong
hatred	people hate, etc.

347 Strikingly long reaction-times do not occur here; whether the repetition of form, particularly the re occurrence of the word *man*, indicates similar complex-phenomena to those we found in subject 24 of this group cannot be established.

34⁸ Seen from outside the associations of our subject make a very objective impression, without many subjective constellations. The rather variable and often strikingly long reactiontimes, however, indicate that, behind the apparently objective reactions, complex-constellations are probably to be found after all. For practical reasons it was not possible in all cases to carry out a thorough psychological analysis, as could fortunately be done with a number of subjects.

349 *Subject 3 i.* The reactions are characterized by the great predominance of predicates, which make up the majority of the large number of internal associations. There is a definite inclination towards value judgments, which, however, do not have an expressly subjective (egocentric) character. The reactions betray a strong involvement with the experiment and with the meaning of the stimulus-word. In this way, in spite of a certain reticence and reserve, the more intimate content does emerge rather clearly. The subject is a very capable and practical housemaid, very religious. Occasionally she thinks of

Subject JI. Maid, about 27 years of age, Swiss, elementary school education, fairly intelligent

ASSOCIATIONS	NORMAL		DISTRACTION	
			External	
SPECIAL QUALITY	~ r	~ C	rI	rI
	II	I	II	II
	III	or	III	or
Grouping	10	13	10	20
Predicative relationship	4 ⁸	3 ²	37	3 ²
Causal relationship	—	—	—	2
Co-existence	II	4	14	4
Identity	2	5	2	2
Linguistic-motor forms	23	4 ²	25	3 ²
Word-completion	—	2	2	2
Sound	—	—	—	2
Rhyme	—	—	2	—
Indirect	—	—	2	—
Meaningless Failures	6	I	6	4
Repetition of stimulus-word	—	—	—	—
Egocentric reaction	—	—	2	—
Perseveration	—	—	—	—
Repetition of reaction	15	15	8	2
Same grammatical form	3 ⁸	3 ⁸	34	4 ⁰
Same number of syllables	4 ²	3 ⁶	44	54
Alliteration	3	II	6	8
Consonance	II	15	10	8
Same ending	6	8	4	6
Internal associations	58	45	47	54
External associations	3 ⁶	51	4 ¹	3 ⁸
Sound reactions	—	2	4	4
Number of associations	100	100	5 ⁰	5 ⁰

marriage. In the reactions under normal conditions the following reactions are repeated:

practical	twice	good	3 times
house	twice	beautiful	4 times
room	twice	wonderful	3 times
church	twice	man (husband)	3 times
God	twice	child	5 times

35° Shortly before the associations were obtained the subject was attacked by a large dog, which greatly frightened her.

35! The reaction *dog* was repeated four times. Once the subject showed a strong perseveration with the image of the dog.

{ to growl dog
 knot the knots (lumps) on the paws of the dog

35² The reaction *wolf* is also repeated twice. To the stimulus-word *cunning* the subject reacts with *wolf*, volunteering that actually *fox* had occurred to her first. These reactions and repetitions dearly show feeling-toned complexes and therefore a strong personal participation.

353 The distraction experiment, which incidentatly was carried out very inadequately, had no effect at all. Thus we have here the same behaviour as in the predicate types described above.

354 The failures, numerous with this subject, are distributed as follows: Of the seven failures under normal conditions, five concern emotionally charged stimulus-words such as *heart*, *custom*, *flatterer*, *faithful*, *rich*, *revenge*, etc. In the two series of experiments under distraction, the failures (ten in the one and five in the other) concern 8 per cent of emotionally charged stimulus-words in the one and 4 per cent in the other—a further proof that the majority of failures can be attributed to emotional causes.

SUMMARY

355 In the group of uneducated women we have eight subjects, with ages ranging from 18 to 28, and altogether 2,400 associations. From each subject we have two hundred associations under normal conditions and one hundred under external distraction.

35⁶ Most of the subjects are fairly intelligent. More than half

have attended secondary as well as primary schools. Seven subjects usually speak the Swiss dialect, only one speaks a South German dialect, which is more like standard German. Seven subjects are nurses, one is a maid. Two subjects react as predicate types; with neither was the distraction experiment successful. With a third subject, who gave a good number of predicates without actually belonging to the predicate type, the distraction experiment also failed; partly, no doubt, because the subject, in order not to let her attention be distracted, did not always make the strokes to the beat of the metronome at the stimuluswords. The distraction experiment was only partly successful with a subject with many groupings and no constellations. She almost doubled her effort in the distraction experiment, in order to pay attention to the stimulus-words as well as to the metronome beats.

357 With the remaining four subjects the distraction experiment was successful, although in general these subjects also strained their powers in the distraction experiment and made considerably more effort than in the experiment under normal conditions, because they found it more difficult than the educated subjects to divide their attention. On the whole the uneducated women were the group least able to divide their attention. The sound associations play a much smaller role as distraction phenomena than in the groups of educated subjects. Two subjects are of a purely objective type with few predicates, practically no constellations and strikingly many reaction-words with the same number of syllables as the stimulus-word. **In** two other subjects (24 and 26), complex-phenomena in various forms are predominant. **In** three subjects an increase of internal and a decrease of external associations can be observed in the second hundred of the experiment under normal conditions; it usually appeared that the complex-phenomena were also more obvious in the second hundred under normal conditions, while they diminish in number under distraction. **In** the marked cases, e.g., subject 24, the manifestation of the complex in the second hundred of the experiment under normal conditions is certainly not dependent on the increase of emotionally charged stimulus-words. It also appears with stimulus-words that for other people do not have this property at all.

IV. UNEDUCATED MEN

35⁸ **In** the group of uneducated men we tabulate only a summary for the first six cases; the columns omitted are of no special interest. For the group of linguistic-motor forms, we have obtained the following mean values, from which none of the six subjects deviates significantly: experiment under normal conditions, first hundred 27, second hundred 30; external distraction, first half 22, second half 34. Definite complex-constellations are hardly demonstrable, and in almost all cases detailed analyses are lacking.

359 *Subject 32.* The external associations predominate over the internal but not to the same degree as in the educated subjects. The effect of distraction is clear: in the second hundred of the experiment under normal conditions we see the number of internal associations fall and the external ones rise somewhat. The figures for failures and egocentric reactions (4, 8, 6, 4) are strikingly high; they exceed the mean for these reaction-forms. **In** the absence of a more detailed analysis it is not really possible to find the significance of the failures in each association. There are practically no definite constellation-associations; neither do the reaction-times-apart from the few failures-betray any complex-constellation. They vary within narrow limits, 0.6 to 2.6 seconds.

360 *Subject 33.* Predominance of external associations, as in the preceding case. **In** the second hundred of the experiment under normal conditions, an increase of internal and decrease of external associations appears. We have been able to explain this phenomenon where we met it in other groups up to now, almost without exception, by the fact that the feeling-toned association-complexes emerge more clearly. Probably this is the case here too; yet the constellation-associations are here not very obvious and we possess only a fragmentary analysis. The sum of reaction-times in the second hundred is greater than in the first; the longer reaction-times are more numerous. **In** the second hundred there occurs significantly the reaction *family / alone*, 4.4 secs., the longest reaction-time that occurs with this subject.

361 The young man is engaged to a nurse. A series of reactions

with somewhat longer reaction-times are probably determined by this thought-complex.

³⁶² We find the most marked distraction phenomena in the first part of the distraction experiment, where we also find six sound associations.

³⁶³ We find indications of constellations in our subject in single reactions referring to military service.

pupil	soldier
faithful	soldier
row	rank

Others refer, with fairly great probability, to his engagement and his fiancée:

dear	to trust	1.6
hope wreath	at last	1.6
fidelity	ring	3. ²
everywhere	to let go	2.
family	alone	4
to part	alone	?
	to come together	4.4

³⁶⁴ These reaction-times, which are rather ^{1.6} long in relation to the other associations, support this interpretation. We find practically no quotations or the like in this or in the preceding subject.

³⁶⁵ *Subject 3-1.* The distraction experiment was not very successful; nevertheless it must be taken into consideration that the use of associations belonging to the sound and residual groups is more frequent in the distraction experiment than under normal conditions; the egocentric reactions disappeared in the distraction experiment, a phenomenon that may be regarded more or less as the effect of distraction. No constellation- and complex-associations are manifest.

³⁶⁶ *Subject 35.* The subject can just be included in the predicate type. A certain effect of distraction can nevertheless be noted. We see the internal associations decrease noticeably in our table and a definite increase of external associations only in the second part of the distraction experiment; on the other hand there is a maximum of sound reactions in the first part of the distraction experiment. Perseverations and egocentric reactions are completely absent. No constellation-associations are

THE ASSOCIATIONS OF NORMAL SUBJECTS

Subjects 32-37. Male nurses: (1) 20 years of age, Swiss, elementary-school education, fairly well read; (2) 25, South German, elementary-school education; (3) 54, secondary-school education, intelligent, rather neurasthenic; (4) 37, elementary-school education; (5) 30; (6) 36, secondary-school education

ASSOCIATIONS	SUBJECT 32				SUBJECT 33				SUBJECT 34			
	NORMAL DISTRACTION				NORMAL DISTRACTION				NORMAL DISTRACTION			
SPECIAL QUALITY	External				External				External			
Grouping	34	12	16	16	32	37	24	20	5	22	10	12
Predicate	12	28	18	10	4	2	8	17	16	12	30	
Internal associations	49	4 ¹	34	26	33	4 ²	26	28	23	38	22	42
External associations	50	51	62		60	64	53	64	66	75	59	56
Sound reactions					2	1	6		4	2		
Remaining group		8	2	14		4	4	6	2	2	18	8
Number of associations	100	100	50		50	100	100	50	SUBJECT 35	50	100	100
ASSOCIATIONS	SUBJECT 35				SUBJECT 36				SUBJECT 37			
Grouping	15	15	22	31	10	32	16	18	30			22
Predicate	28	20			16	3	5		2	9	11	6
Internal associations	49	4 ⁶	44		26	35	21		14	56	4 ⁰	3 ⁸
External associations	4 ⁸	4 ⁸	4 ⁶		68	63	78	68	80	40	56	56
Sound reactions			4					8	4			2
Remaining group	2	5	6	6	1-6				2	3	3	6
Number of associations	100	100	50		50	100	100	50	50	100	100	50

evident. We quoted this case (one of the preceding cases from this group could also have been taken) in our discussion on constellations and complexes (see subject 18, educated men) as an example for those cases in which we find the first constellations and/or subjective reminiscences.

³⁶⁷ *Subject 36.* The internal associations diminish in number in this case as in the first few cases of this group. The predicates especially are very few. Define effects of distraction: the internal associations decrease both in the second hundred of the experiment under normal conditions and in the distraction experiment, particularly in the second part. Sound reactions, rhymes, and indirect and senseless reactions are numerous in the distraction experiment, particularly in the first part. In the second part they diminish again somewhat, but on the other hand the decrease of internal and increase of external associations is most marked. The figures for the same grammatical form are, as in the next case and in nos. 25 and 27 in the group of uneducated women, strikingly high (86 in the first hundred under normal conditions, 44 in the second hundred; 88 in each of the two halves of the distraction experiment). In keeping with this finding, egocentric associations are absent and the constellation-associations completely recede into the background and cannot be clearly recognized, as in the cases quoted.

³⁶⁸ In the second part of the distraction experiment there appears a certain amount of repetition, probably in embarrassment and as a distraction phenomenon:

17. ³⁵ door	castle (or lock)
55. hall	castle hall
57. bridge 69.	castle bridge (drawbridge)
shield 81.	castle shield (or lockplate)
cellar 87.	cellar-door
corridor	door

³⁶⁹ *Subject 37.* Among the fairly abundant internal associations there are mainly groupings, while the predicates are not particularly numerous. The linguistic-motor forms are relatively few. A glance at the ratio of internal to external associations shows at once that the distraction experiment was successful;

³⁵ The numbers refer to the order of the stimulus-words on the form; they are given only to show at what intervals these repetitions occur.

in fact the numbers obtained in the second hundred of the experiment under normal conditions foreshadowed it.

37° Our subject is like subject 36 of this group, and subjects 27 and 25 of the group of uneducated women, in the marked prominence of groupings and the figures for the same grammatical form the decrease of predicative relationships and the almost complete absence of egocentric reactions and constellation-associations. We have here an objective balanced reactiontype.

37¹ This case is distinguished from the others by the predominance of subordinations and definitions within the groupings, while the other three subjects mentioned previously produced more actual co-ordinations.

<i>Stimulus-word</i>	<i>Subject</i> 25	<i>Subject</i> 27	<i>Subject</i> 3 ⁶	<i>Subject</i> 37
	(Uneducated women)		(Uneducated men)	
Sunday	Tuesday	Monday	Monday	holiday
schoolboy	girl	teacher	teacher	boy
head	foot	arm	neck	part of human being
ink	pen	pen	pencil	writing material
bread	meat	cheese	flour	food
lamp	oil	candle	light	object in a room
tree	chair (?)	bush	bush	plant
wood	coal	coal	coal	fuel
slate-pencil	pen	pen	blackboard	school implement
fruit	plum	apple	vegetable	fruits
helmet	glove	sword	cuirassier	head-covering

37² *Subject 38.* The subject may perhaps be included in the predicate types, although the predicates do not predominate greatly in the second hundred. Strikingly many co-existences. No reactions in the sound group. In the residual group the number of failures is noteworthy. The maximum (five) occurs in the second hundred of the experiment under normal conditions. The sudden occurrence of 6 per cent of repetitions of the stimulus-word in the second part of the distraction experiment is surprising. We also find 2 per cent of perseverations there. In the second hundred of the experiment under normal conditions the number of internal associations rises and that of external associations falls, as we have already found several

I. STUDIES IN WORD ASSOCIATION

Subject 38.

17 years of age, technical-school boy, fairly intelligent, nervous

ASSOCIATIONS	NORMAL		DISTRACTION	
			External	
SPECIAL QUALITY	S	C	6	C
Grouping	13	22	26	12
Predicative relationship	35	26	12	14
Causal relationship				
Co-existence	26	10	22	12
Identity	3	2	14	8
Linguistic-motor forms	22	34	22	44
Word-completion				
Sound				
Rhyme				
Indirect				
Meaningless				
Failures	1	5	4	4
Repetition of stimulus-word	—		—	6
Egocentric reaction	2			
Perseveration	—		—	2
Repetition of reaction	12	5		
Same grammatical form	44	4 ⁸	82	64
Same number of syllables	3 ²	3 ⁰	4 ⁰	4 ⁰
Alliteration	12	15	12	16
Consonance	17	18	26	22
Same ending	2	13	10	14
Internal associations	4 ⁸	49	3 ⁸	26
External associations	51	4 ⁶	58	64
Sound reactions				
Number of associations	100	100	50	50

times in connection with the emergence of complex-constellations. In spite of the predicate type, the distraction experiment was successful. The number of internal associations decreased and that of external associations increased more and more. The predicates in particular diminish noticeably in the distraction experiment.

373 The exact figure for new constellations cannot be given; nevertheless a series of constellations exists, besides an enormous quantity of reminiscences from subjects taught at a grammar school. Individual associations with very long reactiontimes are striking, e.g.:

exercise-book	squared	7.4
book	interesting	10.1
obstinate	the enemy	17.2
to stroke	<i>caresser</i> (French)	6.4
evil	devil	10.4
wicked	devil	28.0
to come	the yellow peril	8.4
to kiss	Oberon	6.8
to love	mother	13. ⁰
dear	mother	g.0
strange	a poem	11.0
to disgust	dirty	6.8

374 In the distraction experiment the reactions with strikingly long reaction-times are very few. Probably a more detailed analysis would have found one or more complexes behind these reactions. Eroticism, school, and fear of a small operation were probably the decisive reasons for the lengthening of the reaction-times.

SUMMARY

375 In the group of uneducated men we have seven subjects and 2,086 associations. All subjects are fairly intelligent but with the exception of subject 37, who has received a secondary-school education, and subject 38, who is attending a technical school, they have all only had elementary-school education. Four subjects are German Swiss, speaking the ordinary dialect; one subject is South German but has long been resident in Switzerland, and the Swiss dialect therefore came quite naturally to him. Only one subject speaks the Swabian dialect, which

approximates more closely to standard German. One subject, the technical school boy, speaks standard German at home.

37⁶ Two subjects may be considered to be predicate types; as in most subjects of this type, distraction was not really successful in the first case, but it was in the second. With one subject, who produced relatively few internal and many external associations in the experiment under normal conditions, distraction was also not very successful. In all other subjects the effect of distraction was obvious (in all subjects of this group only external distraction was used).

37⁷ Sound associations as signs of distraction never occur to the same extent as with the educated subjects.

37⁸ Two subjects (~6 and 37 of this group) belong to a type having very many groupings, few predicates, and many reactions with the same grammatical form; they are distinguished at the same time by the paucity of egocentric reactions and constellations. We also meet this type in the group of uneducated women (subjects 25 and 27). For the rest, the whole group of uneducated men is distinguished by the fact that constellations and complexes are few in number and can only be guessed at; this does not mean, however, that, within narrow limits, the fluctuations of the reaction-times do not betray the workings of complexes. Quotations and similar reactions suggesting a complex were found only rarely in this group, an exception being the youngest of the group, the technical school boy. He reacted with many subjective reminiscences and a number of constellations, which may in part be interpreted as complex constellations.

37⁹ In subjects 33, ~4, and 38 we find an increase of internal associations in the second hundred of the experiment under normal conditions. Whether this can always be explained by the effects of complexes cannot be ascertained with certainty in all cases.

3⁸⁰ In general the uneducated men are distinguished from the uneducated women in our experiments in that subjectivity and feelings are less prominent. This difference hardly exists in the educated subjects. Among the educated men there are as many subjective types who react strongly with feeling as there are among the women; the educated men have more feminine characteristics in this respect than the uneducated.

^{3⁸¹} Finally, it may be permissible to point out once more that an overwhelming number of the complexes we have discovered in our subjects are erotic. In view of the great part played by love and sexuality in human life, this is not surprising.

B. CALCULATIONS OF AVERAGES

I. Experiment under Normal Conditions

^{3⁸²} Having discussed the individual subjects, we still have to study the interrelations of the groups of reactions. In the individuals the proportions of these is markedly variable, as a glance at the previous tables shows. Besides the individual causes, one of the main reasons for these variations is the intensity of concentration, the effect of which we have already mentioned several times. The fact that some individuals tend to react with internal associations and others with external ones is primarily a question of attention. Everyone gifted with speech has all the different qualities of association at his command: which quality of association he expresses depends in the main only on the degree of attention devoted to the stimulus-word. Where our distraction experiment was successful that is, where the conditions of the experiment were carried out in the way intended by the experimenter-the identical unequivocal phenomenon appeared: the external associations and sound reactions increased at the expense of internal associations. The type of reaction shifted towards the accustomed and canalized and thus to the mechanical, concrete and verbal connections. With increasing distraction the effect of the "law of frequency" increases, ideas that are often spatially or temporally related being evoked. The less an idea is focussed upon, the more the valency of associated, mainly linguistic, elements increases, the threshold is lowered and these elements are therefore produced again.

^{3⁸³} We do not wish to discuss here the different psychological theories of attention. We regard attention as a state occurring in association-complexes and ultimately characterized by muscular tension, which provides the psychophysical basis for the complex. The stabilizing of the idea in the field of consciousness seems to be the aim of the physical echo. It is probably through the somatic connection that the idea, or the "feeling"

replacing it, is kept in focus. It becomes a "directional idea" (or a "directional feeling"). From it result two types of effect: (1) ideas promoting all associated ideas, particularly those associated with direction,

(2) ideas inhibiting all ideas not associated, particularly those not associated with direction.

384 If the intensity of concentration is raised for a non-associated idea, then the directional idea is correspondingly shifted from focus, i.e., it loses intensity. Its impact decreases correspondingly: thus the difference in the threshold value of all other associations becomes smaller. The directional selection becomes more difficult and is increasingly subject to the effect of the law of frequency, i.e., all those associations which, through practice and habit, form the largest component of consciousness come to the fore. The law of frequency now assumes the role previously played by the directional idea. As regards our experiment, this means that ideas already automatized and condensed in language assist the subject in his effort to comprehend the meaning of the stimulus-word and to work it over.

385 In the act of apperception and the further working on the stimulus-word, all these purely linguistic connections are suppressed, so that in part they manifest themselves only very faintly and vaguely and in part they remain completely unconscious. If the linguistic connections enter the field of consciousness, the higher associations are pushed into the background; some of them faintly reverberate and some remain unconscious (according to Wundt "unnoticed"). (It is possible that they are not even formed, but this is difficult to prove.) In linguistic mechanisms, however, the process has not yet reached its lowest level; mere repetition of the sound reaction is suppressed during the mechanical linguistic reaction. If, by further lowering of attention, we remove the linguistic mechanisms, which in most cases still possess some meaning, the sound reactions come to the fore; these represent the lowest level of linguistic reaction and therefore remain constantly below the threshold of consciousness in everyday life. In the process of development of the child's speech, sound reactions, as is well known, still play a fairly important part; later they are increasingly suppressed and usually enter into the uncon-

scious, from which they can under normal conditions be brought up only with a certain effort.

^{3⁸⁶} We have deliberately discussed only the effect of distraction on linguistic functions. We note in addition that the law of frequency also applies to the selection of internal images. It struck us how often old childish memories cropped up, even with quite everyday objects, in the state of internal distraction (N.B. decidedly more frequently than in the normal state).

^{3⁸⁷} In the individual accounts we pointed out the similarity between the distraction phenomenon and manic reaction. The reactions under distraction are in no way different from manic reactions as found by Aschaffenburg and observed by us in many manic associations. Liepmann,³⁶ who in a recently published monograph explains *flight of ideas* as a result of a disturbance of attention, reached a similar view to ours. Considerations such as Liepmann makes in his work have for some time pointed directions in our experimental work. The results of our experiments confirm Liepmann's views. As regards the psychological mechanism of flight of ideas, our views are completely in agreement with Liepmann. 'Ve therefore refer to his monograph.

^{3⁸⁸} Aschaffenburg has introduced us to another reaction-type similar to the manic, the fatigue type. Other investigations, carried out under Kraepelin's direction, report analogous results under the influence of alcohol. Aschaffenburg considers, as is well known, motor excitation responsible for the occurrence of sound reactions. An obvious objection to this interpretation is that the conditions described are to a high degree characterized by disturbance of attention. It has been proved by our experiments that sound reactions are, one might say exclusively, caused by disturbance of attention. The motor excitation is a probably inessential side-effect which, at the most, could be the cause of the disturbance of attention. The latter seems to be the case in fatigue and alcoholism. In manic flight of ideas another factor must certainly also be considered as a cause of disturbance of attention, the specific excitation, the psychological nature of which is still quite obscure to us.

³⁶ Liepmann, *Vber Ideenflucht, Begriffsbestimmung lund psychologische Analyse* (19⁰⁴).

Disturbance of attention due to motor excitation in fatigue and alcoholism could in our view be interpreted thus: the physical correlates of the attention phenomenon, the muscular tensions, become under the influence of motor excitation shorter and more variable. The psychophysical basis of accentuated ideas thus reaches a degree of instability that is represented psychically as a weakness of the directional idea. According to Liepmann's principles, from this weakness of the directional idea flight of ideas must result, which in the association experiment appears as sound reactions, etc. It is possible that in acoustic linguistic experiments motor excitation, which is of course also transmitted to the linguistic-motor system, furthers the release of the mechanical reaction; but it is never its sole cause.

38⁹ From this we may expect the occurrence of a blunt reaction-type or a sound reaction wherever there is a disturbance of attention; conversely we may suspect a disturbance of attention where sound reactions occur.

39⁰ This fact appears to us of great diagnostic value; it is, moreover, an essential condition for the understanding of the reactions generally.

39¹ Because of the relatively great variations in the individual figures, a general survey of our figures is difficult; we have therefore compiled tables in which the arithmetical means of certain groups have been calculated in percentages to make comparison easier. We realize that a calculation of averages from figures of such diversity is a somewhat hazardous undertaking. Even if the quantitative relation of the individual groups to each other is somewhat variable, we are nevertheless convinced that at least the main figures, that is, those for internal and external associations and for sound reactions, do present a true picture of the mode of reaction. The quantitative interrelation of certain special groups, e.g., particularly of co-existences, is partly subject to certain sources of error that are caused by the selection of stimulus-words. It is certainly clear that, where nouns only are used, reactions show ratios rather different from those brought about by mixed stimuluswords. Nevertheless our relative figures retain their value, as all subjects were given the same set of stimulus-words.

39² We have classified our material according to different cri-

teria; first of all the question of the relation of educated to uneducated subjects interested us. Aschaffenburg has found, as is well known, a relatively strong predominance of external over internal associations in his educated subjects. On the other hand, Ranschburg and Balint have found a marked predominance of internal associations in uneducated subjects. See herewith Tables A and B for the first and second hundred of normal associations.

393 Our uneducated subjects were almost all male and female nurses of the hospital. We must now confess that this selection of uneducated subjects is not a particularly good one, for among the nursing staff there are many individuals who are above the low average level of education. It might be better to substitute the term "half-educated" for "uneducated." The level of education and intelligence of the male subjects is in general somewhat above that of the female subjects.

394 The female subjects show a relatively high number of internal associations; strangely enough the number of internal associations rises considerably in the second half of the experiment, the predicates particularly showing an increase. In addition there is an increase in the residual group and in the sound reactions. There is probably a connection between the increase of predicates and of linguistic-motor forms and the decrease of correspondence of grammatical forms. The figures for linguistic connections are very high.

395 The male subjects show in general a blunter reaction-type than the female subjects. The second hundred does not differ significantly from the first, only the figures for indirect associations and for consonances show a rather striking increase.

396 The increase of failures in the second hundred of both groups may perhaps be attributed to the unfortunate coincidence that the number of feeling-toned stimulus-words is somewhat greater in the second hundred than in the first. As we have seen, the failures mainly coincide with feeling-toned stimuluswords. It is noteworthy that the men produce a larger number of egocentric reactions than the women, as well as a definitely smaller number of predicates.

397 The egocentric reactions, i.e., the influence of personal wishes and values, is probably connected with the number of perseverations; this is somewhat higher for the women than for 14¹

*A. The First and Second Hundred of Normal Associations:
Uneducated*

SPECIAL QUALITY	WOMEN		MEN	
	1St Hundred	2nd Hundred	1St Hundred	2nd Hundred
Grouping	24. ² }	26.2}	2S2}	21. ⁵ }
Predicative relationship	18.8 44.0	22.0 49.3	15.4 41.7	16.8 39.4
Causal relationship	1.0	1.1	1.1	1.1
Co-existence	27. ² 1	13. ⁶ }	21.71	13. ⁰ 1
Identity Linguistic-motor forms	3.3 ~S2.8 22.3)	6.8 46.1	7. ⁸ ~SS.7 26.2)	1.2.2 ~SS.7 3 ⁰ .5)
Word-completion	0 ² }	0.0)	- 1 J	∴S}
Sound	- 0.3	0.3 ~1.4	~.7 J 0.7	0.6
Rhyme	0.1	0.6)		0.1
Indirect	0.6	0.81	0.5	1.21
Jfeaningless	1	0.2	0.11	0.21
Failures	0.3	~ 2.6	0.11	2.2 [3. ⁶
Repetition of stimulus-word	~2J 2.1	6j	0.8 [1.4	-)
Egocentric reactions	0.8	0.	-)	
Perseveration	1.5	8	2.0	1.5
Repetition of reaction	10.2	0.6	1.0	0.4
		8.	14. ¹	10.5
Same grammatical form	63.2	58.7	60.1	5 ⁸ .4
Same number of syllables	49.9	4 ² .2	41.1	37. ⁰
Alliteration	10.2	8.7	9. ⁰ 1	9. ⁰
Consonance	12.3	12.2	1.1	14. ⁰
Same ending	1 1.7	11.0	16.4	16.2
Number of associations	800	800	7 ⁰⁰	7 ⁰⁰
Number of subjects		8		7

the men but alters in accordance with the decrease of egocentric judgments, a finding that will be confirmed in the future. vVe attribute this to the fact that it is mainly feeling-toned reactions that have a tendency towards perseveration, as we have already frequently pointed out in the individual accounts.

³⁹ With the educated subjects, in the first place one is struck by the generally blunter reaction-type. The subjects are nearly 142

*B. The First and Second Hundred of Normal Associations:
Educated*

SPECIAL QUALITY	WOMEN		MEN	
	1St Hundred	2nd Hundred	1St Hundred	2nd Hundred
Grouping	111	14.0 ¹ 18.6		
Predicative relationship	21.8 ~36.9	~33.2 0.6)	16.1}	16.5 ⁵ } 22.2 39.5
Causal relationship	1.7)		17.3 34.0 ⁰	0.8
			0.6	
Co-existence			18.21	
Identity Linguistic-motor forms	16.5 ⁵ } 2.7 ⁷ Si-2 3.8 ⁰	11.2} } 6.7 5 ⁸ .9 41.0	3.2 ~56.6 35.2 ²)	7.5 ⁵ } 8.3 49.0 ⁰ 33.2 ²
Word-completion	1.0}	2.01	1.1}	u1
Sound	0.3 2.1	1.9~ 4.	1.5 3.3	2.3 ~ 4.0
Rhyme	0.8	0.6) 5	0.7	0.6)
Indirect		1.0 ¹	2.8	2.21
Meaningless	0.91	0.11	1	1.2
Failures	0.1 2.	0.9 2.	0.7	2.6 6.1
Repetition of stimulus-word	1.9 9	~ 4	1	|
	-	|	1.7 ↑ 5.2 ²	0.1)
Egocentric reactions	2.7	0.4)	3.6 ⁶)	2.6
Perseveration	0.8	0.5	3.1 ¹	1.8
Repetition of reaction	8.0	6.5	7.	7.6 ⁶
Same grammatical form	53.9	54.0	5	
Same number of syllables	43.9	39.2 ²	5.2 ¹	4.6 ¹
Alliteration	9.0	7.8	37.0 ⁰	3.2 ⁶
Consonance	14.6 ⁶	15.2 ²	9.2 ²	8.8
Same ending	9.8	11.3	15.1 ¹	16.2
			8.2	8.8
Number of associations	1100	1100	800	800
Number of subjects		11		8

all highly educated people: the women too, with few exceptions, are of a high level of education.

399 The difference between male and female subjects is not considerable in the first three groups, with the exception of a slight preponderance of internal associations in the men (in which groupings particularly play a part). On the other hand, considerable differences appear in the residual group, in which

the high figures for indirect associations in the men are particularly striking, being more than twice those of the women. The average of sound reactions in the men is somewhat higher than in the women. The inverse relationship of indirect association and sound reactions, which was previously suspected, is indicated here too:

	WOMEN		MEN	
	1St hundred	2nd hundred	1St hundred	2nd hundred
Sound reactions	2.9	2.4	5. ²	6.1
Indirect association	0.9	1.0	2.S	2.2

We shall discuss this phenomenon in the discussion of distraction averages.

400 Here also the egocentric reactions of the men exceed those of the women. The number of perseverations corresponds to that of egocentric reactions, as in the uneducated subjects—a further proof of the largely affective nature of perseverations (N.B. only in the experiments under normal conditions).

401 The difference between educated and uneducated subjects can be best made clear by putting the average figures of both groups side by side (Table C).

402 The educated subjects show a clearly blunter reaction-type than the uneducated. The difference is best expressed by stating: **In** contrast to the uneducated subjects the educated subjects show a distraction phenomenon.

403 If we suppose the figures for the uneducated subjects are those of a subject under normal conditions, then the figures for the educated subjects bear the same relation to them as those of a distraction experiment. The sound reactions and the figures for the residual group are proportionately increased, as we have repeatedly seen in the individual accounts.

404 What is the origin of this difference? One cannot assume that the educated subjects in effect think more "bluntly" than the uneducated; that would be nonsense. One can merely assume that in the experiment they thought more "bluntly" than the uneducated subjects. This appears to us really to be the case, and it seems that from this the explanation of the reactiontype can be deduced.

C. Averages for Educated and Uneducated Subjects

SPECIAL QUALITY	EDUCATED	UNEDUCATED
Grouping	15 ⁰ }	24 ² }
Predicative relationship	19.3 35. ^s	IS.2 43.4
Causal relationship	0.9	1.0
Co-existence	13'3}	IS.S}
Identity	5. ² 55.3	7.5 5 ² .4
Linguistic-motor forms	3 ⁶ . ^s	26.1
Word-completion	1.3}	O.I}
Sound	1.5 3.4	0.3 0.5
Rhyme	0.6	0.4
Indirect	17f	07}
Meaningless	0.5	0.1
Failures	1.7 4.0	
Repetition of stimulus-word	0.1 J	~'4 2.2
Egocentric reaction	2.4	1.1
Perseveration	1.5	0.S
Repetition of reaction	7.3	10.9
Same grammatical form	51.5	59. ²
Same number of syllables	3 ^s . ²	4 ² .5
Alliteration	S.7	9.3
Consonance	10.2	12.3
Same ending	9.5	13. ^s
Number of associations	3 ⁵⁰⁰	3 ⁰⁰⁰
Number of subjects	19	15

4⁹⁵ As proof for this assumption the following points may be considered:

(1) The agreement in grammatical form and number of syllables of the stimulus-word and reaction is clearly higher in the uneducated subjects. This fact seems to indicate that the uneducated subject sticks more closely to the stimulus-word or is more influenced by it than the educated subject.

(2) The number of meaningless reactions is considerably smaller in the uneducated subject. He has better control over himself or he pays more attention to his reaction.

(3) The uneducated subject surpasses the educated mainly in the number of groupings: i.e., he makes a greater effort to do justice to the meaning of the stimulus-word than the educated subject does.

(4) The uneducated subject surpasses the educated in the number of co-existences, which are mainly made up of spatial concepts, i.e., the uneducated subject makes an effort to imagine clearly the object named by the stimulus-word, and he naturally must associate that which is co-existent with it. The educated subject, on the other hand, has fewer co-existences, as he limits himself to connecting linguistic forms.

(5) The uneducated subject has roughly half as many egocentric reactions as the educated. This fact indicates that he lets himself go much less and exposes undisguised subjective wishes and valuations much less. He makes an effort to achieve as objective as possible an interpretation of the stimulus-word.

(6) One of the main proofs is the almost sevenfold greater number of sound reactions in educated subjects. **In** this laziness is most clearly revealed. The subject who is intensely attentive produces practically no sound associations.³⁷

⁴⁰⁶ For these reasons we regard it as proved that the difference between educated and uneducated reaction-types, as far as it is expressed in these figures, is merely a functional one and only has the significance of an attention phenomenon.

⁴⁰⁷ If we may estimate the degree of attention from the figures for sound reactions, the residual group and the linguistic-motor forms, then the uneducated women achieve the highest degree of attention and the educated men the lowest. This fact becomes evident if we examine the groups divided according to sex with respect to these points of view.

⁴⁰⁸ What is the origin of this difference of attention³⁸ between educated and uneducated subjects? Various factors must be considered:

(1) The uneducated subject is unused to an experiment of this kind. Naturally, it seems stranger and more difficult to him than to the educated subject, who is much more capable of understanding the significance of the experiment and who must

³⁷ With the exception, of course, of people with specific dispositions.

³⁸ By this we mean a difference of attention only in the quantitative sense, not by any means a qualitative difference.

from the first feel more at home than the uneducated in an intellectual activity. The stimulation of the uneducated subject by the experiment is therefore greater and more general, which is why more effort is made in reacting.

(2) Words without any sentence connection are called out to the subject. Under normal circumstances, if one calls anything out to someone it is, as a rule, a command or a question. The uneducated subject, in contrast to the educated, is not used to dealing with individual words outside the sentence connection, particularly if he has never learned a foreign language from books. Thus the stimulus-word contains something strange for the uneducated subject. Under the influence of habit he interprets it instinctively as a question, with the intensity of attention necessary for producing an appropriate answer. The stimulus-word is mostly something to the uneducated subject for which he constructs for himself some interrogative connection, to which he then replies.³⁹

(3) The uneducated subject knows words only, so to speak, related to a sentence, particularly when they appear as an auditory phenomenon. **In** the context of a sentence the words always have a meaning; the uneducated subject therefore knows the word less as mere "word" or verbal sign but much more as meaning. Therefore the uneducated subject grasps the semantic value of a single word only in a fictitious sentence-context, while to the educated the stimulus-word usually remains merely "word" without specific semantic value.⁴⁰

409 Summarizing, we can say that the uneducated subject shows, in keeping with his lower degree of education, a narrower interpretation of the experiment, particularly of the stimulusword called out to him, than the educated subject whose approach to the matter is much cooler and more businesslike. **In** other words: the uneducated subject shows a certain tendency

³⁹ One can say that in general the more uneducated and unintelligent a subject is, the more he interprets the stimulus-word as a question. This is shown most clearly in idiots, who, with few exceptions, always interpret the stimulus-word as a question and then give a definition or an explanation of it in the reaction. ⁴⁰ Incidentally, educated subjects have the same experience with words of a language that they have never read in print or writing. When stimulus-words are called out in dialect, the educated subjects sometimes have difficulty in understanding the words, because they are used to hearing dialect words only in a sentence-connection.

I. STUDIES IN WORD ASSOCIATION

to assimilate the stimulus-word in the form of a question, because it is most usual for called-out verbal sounds to have the connotation of questions.

⁴¹⁰ This attitude to the stimulus-word becomes more evident in certain pathological cases, where the association experiment is nothing but a 2 X 200 sentence-long conversation on a feeling-toned theme. From these observations one can readily deduce that the uneducated subject pays greater attention because the meaning of the stimulus-word influences him more than it does the educated subject.

⁴¹¹ The difference between educated and uneducated subjects is in the contrast of their interpretations of the stimulus-word. This principle of differentiation allows us to discern two groups, even if vaguely delineated. This distinction, however, is such a general one that it does not take into account other essential differences in the reaction-types. We have therefore made an effort to find other more subtle principles of classification. We asked ourselves whether there are other general factors that influence the reaction, apart from the attention phenomenon.

⁴¹² One principal factor is the individual character. The difference in interpretation discussed above is an intellectual or associative disposition, which may be the same in individuals of widely varying character. As regards characters, the state of affairs is different. From our experiments two easily recognizable types emerge:

(1) A type in whose reactions subjective, often feeling-toned experiences are used.

(2) A type whose reactions show an objective, impersonal tone.

⁴¹³ The former type exhibits reminiscences of a personal kind that often show a very strong feeling-tone. The latter type couples words with words and concepts with concepts, but the personal plays a quite subordinate role in the reaction. This type can be called objective.

⁴¹⁴ The first type can be divided into three groups.

(a) The stimulus-image emanating from the stimulus-word acts principally through its feeling-tone. Usually the feeling-tone of the stimulus-image excites a whole complex of memories belonging to it. The reaction then is inherent in the con-

stellation of this complex. In practice a subject of this type, at least in an extreme case, can easily be distinguished from the others. We call this type the complex-constellation type.

(β) The image evoked by the stimulus-word is a personal memory usually taken from everyday life. The reaction contains this image or is at least distinctly constellated by it. We call this type the simple constellation type.⁴¹

(γ) The image evoked by the stimulus-word acts through one or other of its associated attributes (partly the sensory aspects of the image, partly feeling-tones). Presumably the stimulus-image appears in strong relief; now one, now another characteristic comes to the fore and thus, in conjunction with other features, determines the reaction; thus it usually contains a predicate of the object designated by the stimulus-word. We call this type the predicate type.

⁴¹⁵ The common factor in the types described under (a), (β), and (γ), as opposed to the objective type (2), is a marked stress of that part of the reaction that is individual, personal, and independent of the stimulus-word. Thus we can say that the difference between type 1 and type 2 is the egocentricity of attitude.

⁴¹⁶ The points presented make clear the general psychological laws that rule our experiment. This does not by any means reveal all the roots from which complications in the reactions originate.

⁴¹⁷ As regards the egocentric attitude, we have tacitly presupposed that the reaction is a more or less clear symbol of internal processes. As long as we know that the subject is speaking freely we can let this assumption prevail *cum grana salis*. The picture of reactions, however, changes at once when the egocentric attitude conduces to feeling-toned complexes, which the subject does not wish to betray.⁴² This occurs particularly in the

⁴¹ We stress here once more that by this classification we intend to mark only the clear and obvious differences in the mode of reaction. We know very well that basically every subject belongs in fact to, for example, the complex-constellation type, as no reaction is fortuitous but irrevocably conditioned by the psychological past of the subject. What we wish to clarify by our classification is the degree of subjective dependence in so far as it is clearly expressed in the reactions.

⁴² This not-wanting-to-betray is, as we have become convinced from numerous experiments, by no means always a conscious not-wanting but quite often an

complex-constellation type. For instance, the stimulus-word raises the complex of an unhappy love that is being kept as secret as possible. If the subject reacted according to his internal images, then he would exteriorize that part of the complex in the reaction through which it could be betrayed. The concealing of an emotion is always characterized by a quite particular attitude, a particular state of feeling. Without conscious censure, the emerging part of the complex is suppressed by the feeling of being directed not to betray, which is present in consciousness and from which specially attuned inhibitions arise. Of course the process of suppression may take place at a considerably more conscious level (or more unconscious, as in hysteria!). Instead of the suppressed complex-image another association fitting in with the feeling of being directed is put in its place and exteriorized.

⁴¹⁸ Thus the true inner association is concealed and the secret kept. It may be extraordinarily difficult for the experimenter, who does not enjoy the complete confidence of the subject, to decide in certain cases whether anything was concealed or not. The decision may perhaps be impossible with people who are capable of controlling themselves to a high degree. **In** most cases, however, the subjects betray themselves after a short time. According to the laws discussed previously, there must be certain phenomena that betray the suppressed complex. We shall here disregard the lengthening of reaction-time,⁴³ which occurs with great regularity.

⁴⁹ The suppression is betrayed:

(1) By an unusual and suspicious phrasing of the reaction that cannot be explained by the stimulus-word alone, but the peculiar character of which is bound to have been constellated by an X. Occasionally this X can be deduced directly from the peculiarly forced character of the reaction. Such reactions frequently occur in the form of sentences.

(2) By the attention phenomenon. A subject who interprets the stimulus-word as a question and therefore produces a series of highly potent associations suddenly, in the absence of ex-

unconscious inhibition, which in most cases also causes a lengthening of the reaction-time.

⁴³ A later paper will report on the variation of the reaction-times. [See *infra*.]

ternal disturbance, reacts with a sound or some other striking) superficial association. This result is suspicious; an internal disturbance or an internal distraction must have occurred. The subject may give no information. With a similar stimulus-word the phenomenon is repeated. We are now practically sure that there is something behind this. This suspicion has never proved unjustified. A complex has suddenly emerged, has attracted some of the attention to itself; meanwhile the reaction is produced and, owing to the disturbance of attention, it can be only a superficial one.

(3) By a failure. The emerging complex absorbs all attention so that the reaction either is forgotten or, owing to the absence of all associations, cannot take place.

(4) By perseveration. In this case the critical reaction may be quite unobtrusive but the subsequent one has an abnormal character, in which the preceding reaction takes over the role of the constellation X. The perseverating factor is the emotion stimulated by the preceding association"

(5) By assimilation of the stimulus-word. The stimulus-word is interpreted for no apparent reason in a particular, rare sense or is misunderstood in a striking way according to a feeling-toned conscious idea.⁴⁵

⁴²⁰ The above points are the main criteria of a concealed complex.⁴⁶

⁴²¹ We have purposely devoted so much attention to the dis-

⁴⁴ A subject whose inner life is strongly affected by an unpleasant financial matter reacts within normal time to *ill* with *poor* and in the following reaction, *Stolz* ('pride') / *Bolz* ('alTow'), with lengthened reaction-time. For no obvious reason the association is a senseless rhyme. Sound associations and rhymes occur in this subject only at "critical" points. *Poor* has a quite special emotional significance for this subject; attention remains attached to the constellated complex, which results in a disturbance of the succeeding reaction because of internal distraction.

⁴⁵ The subject already quoted in the preceding footnote reacts to *Pity* with *poor ones* (*poor* has a particular feeling-tone). The succeeding association is *yellow (gelb)* / *much*. It is another perseveration of the financial complex, *gelb* being immediately assimilated as *Geld* (money), although the subject has long been familiar with all the stimulus-words on our list.

⁴⁶ In some subjects the repetitions also have a certain significance as the indirect expression of the complex. (We have pointed this out several times in the relevant section.) Certain words that are more or less closely associated with the complex, or that indirectly replace it, are frequently repeated.

cussion of these subtler psychological phenomena because the affective processes, the traces of which we pursued with the greatest possible care in normal reactions, play the most prominent role in the pathological reactions, as we shall show in detail later. What might perhaps be put to one side as a subtlety in a normal reaction will be revealed as the most significant factor in a pathological reaction. For the present we place great value on the realization that the reactions are an extraordinarily sensitive test for affective processes in particular and the individual response of the subject in general.

4²² To illustrate our discussion we present associations of the six main types [1 (a), (b); 2 (a), (b-i), (b-ii), (c)].

1. OBJECTIVE TYPE

4²³ (a) Reactions of a subject whose attitude is essentially objective. At the same time the interpretation of the stimulusword as a question is in the background. There is a tendency merely to put words next to each other, partly in accordance with the law of similarity, partly according to current verbal connections (subject 15, educated men).

Christmas	Easter	ring	finger
Sunday	Monday	tooth	time
winter	spring	window	frame
lake (or sea)	ocean	frog	leg
pupil	teacher	sweet	sour
father	mother	to ride	to travel
table	leg	friendly	painful
heil ^d	scarf	to cut	knife
ink	pen	crown	realm
needle	holder to	rough	-ian (ruffian)
bread	earn	prison	detention
lamp	shade	to part	to avoid
tree	clearing	(<i>scheiden</i>)	(<i>meiden</i>)
mountain	green	ill	weak song
dream	froth (<i>Schaum</i>)	aIr	to salt
(<i>Traum</i>)		potato	armchair
exercise-book	knife	to be lazy	to drink
paper	cutter	coffee	to bring
book	to read to	sacrifice	feast
school	attend to	wedding	father
to sing	write	grandmother	

THE ASSOCIATIONS OF NORMAL SUBJECTS

bad	naughty	dark	light
to clap	hands	heart (<i>Hen.</i>)	pain (<i>Schmerz</i> ;
year	month	bird	nest
to threaten	fist	white	black
long	narrow	game	card
rich	poor	Kaiser	Wilhelm
sufferin	JOY	moon	light
g eye	tooth	to beat	to throw
youth	game	to light	house
	At the Sign of	star	shooting cat
Inn	the Bloody	to stroke	magnificent
	{ Bone	grand	dog
family	scandal	child	to lie
misery	sorrow	sofa wild	animal
to pay	to note	tears	to shed
attention		loyalty	German
fist (<i>Faust</i>)	Goethe	once (<i>einmal</i>)	never (<i>keinmal</i>)
people	rebellion	wonder blood	of wonders
murderer	blood	wreath	vengeance
everywhere	I am at home	to choose	athlete
to calculate	to measure	right	choice
to kiss	mouth	to have to	might
ripe	fruit		no man must
bond	of love		have to ⁴⁸ does
ground	found		not let
play	of waves	hope	one perish
Journey	to Canossa		my (<i>mein</i>)
to quarrel	fight		fai thlessness
blue	red	small (<i>klein</i>)	pain (<i>Schmerz</i>)
flower	calyx	unjust	unknown
cherry	stone	world (<i>Welt</i>)	to write
institution	male nurse	strange	dog
piano	to play	slate-pencil	-stick
oven	town ⁴⁷	to growl	to eat
to walk	to go	knob	fox
to cook	to eat	fruit	ornament
water	to drink	false	straw
to dance	music	helmet	painfully
cat	mouse	hay	(<i>peinlich</i>)
dozen	by the (dozen)	cleanly	
		(<i>reinlich</i>)	

⁴⁷ [*Oven* stands for the German *Olen*, the German name of Buda, the si town of Pest (Hungary). *O/en* really means ·oven.']

⁴⁸ [Cf. *supra*, par. 212, n. 15.]

to surmise	W (name of acquaintance who formulated a certain hypothesis)	trap (<i>Falle</i>)	rope (<i>Strick</i>) (<i>Fallstrick</i> , 'snare')
head	blood and wounds	to be revolted resin neck steep	gruesome to stick to wring mountain
at home	it's nice	swmg	to swing
hedge	rose	to fetch	to bring
indolent	lazy	skull	formatio
vmegar	sour	to use	n
hot	cold	stamp	to be able to
		to sing	<i>timbre</i>

⁴²⁴ The subject is a doctor, as several technical medical terms, such as *needle-holder* and *skull-formation*, indicate. We do not include those reactions constellated by the profession in the "constellations" in the narrower sense in which we interpret these. Such reactions are not subjective; they belong not only to the individual, but more or less to a whole profession, The only subjective constellation is *to surmise* / *W*.

⁴²⁵ (b) Reactions of a subject whose approach is objective and to whom the meaning of the stimulus-word is much more important than to the preceding subject. The tendency is to give as correct a reaction as possible (subject 27, group of uneducated women):

table	chair	hoop	to rejoice
head	arm	tooth	ring
ink	pen	window	mouth
nt:edle	thread	frog	floor
bread	cheese	flower	stork
lamp	candle	cherry	grass
tree	bush	institution	peach
mountain	valley	plano	school
hair	thread	fern	violin
wood	coal	to walk	rose-bush
salt	flour	water	to jump
dream	sleep	to dance	wine
exercise-book	book	dozen	to sing
paper	material	heart	ten
book	newspaper	bird	warm
school	church		cat

to swim	to go	people	household
game	to sing		(<i>family is implied</i>)
Kaiser	king		robber
moon	stars to	murderer	here
to beat	bite	everywhere	to flatter
obstinate	gentle	to kiss	good
to light	to extinguish	bad	bitter (<i>sweet</i>
star	sun	ripe	is implied)
to	to beat		material
stroke	wonderful	band	floor
great	woman	ground	to jump
child	to travel	walk	to make it up
to ride	cross	to quarrel	chair
friendly	hammer	sofa	to hate
file	helmet	to love	tame
crown	oil	wild	to laugh
to paint	you're welcome	tears	better
thanks	fine	to spare	nature human
rough	to taste	wonder	being flowers
to stink	dungeon	blood	to meet
prison	to join	wreath to	wrong
to separate	healthy	choose	voluntary
ill	bread	right	peace
potato	to catch	force	JOY
trap	to taste	revenge	to believe
to	to work	hope	imprisoned
disgust	milk	to pray	nation
to be	saviour	freedom	at home
lazy	funeral	world	to bite
coffee	satisfied	strange	rope
victim	civilian	to growl	true
wedding	to sing	knot	sword
angry	to beat	false	tray
soldier	polite	helmet	grass
to clap	level	plate	clean
to threaten	healthy	hay	to doubt
behaviour	age	pure	arm
to fall	hotel	to surmise	away
to	husband	head	wine
suffer	to hear	at home	pitch
youth		vinegar	to throw
inn		resin	
family	hand	swing	
to pay			
attention			
fist			

4²⁶ The subject is a nurse from our hospital. Subjective factors are entirely absent from the reactions. Her manner is extraordinarily objective and calm. In contrast to the preceding subject it must be noted that here the meaning of the stimulus-word is the decisive factor, which is expressed in many contrasting ways.

2. EGOCENTRIC ATTITUDE

(a) Simple-constellation type

4²⁷ Reactions of a subject in whose reactions numerous subjective experiences are used. The attitude is egocentric in so far as subjective memories prevail (subject 18, educated men).

father	anxious (the subject is the father of a newborn child)	to sing	Miss B. (name of a singer who was at the hospital just at that time)
head	sour (<i>red/litmus</i> is implied)	ring	hospital gardens (a ring was at that time found in the garden of the hospital)
ink	bread-factory		Goschenen (the writer, Zahn, lives in Goschenen)
bread	smells	tooth	opening
lamp	F. (name of an acquaintance connected with a certain experience) Dtlberg	(<i>Zahn</i>)	tree-frog
tree			rose
mountain		window	JUICY
(<i>Be. rg</i>) hair		frog	R. (a certain hospital for feeble-minded children)
salt	falling out Rheinfelden (where there are salt works) ebony	flower	B. (name of a particular nurse)
wood	R. (name of a colleague who was occupied with dream-analyses at this time)	cherry	tape-worm
dream		hospital	Pest ⁴⁹
	fraud (paper in the sense of documents in evidence about a case of fraud)	male nurse	Lessing (a famous quotation from Lessing is implied)
paper	letter (<i>Buch-stabe</i> , 'letter of the alphabet') Kohinoor (the subject uses this brand)	fern	thirst
book	S. (name of the place where the subject went to school)	oven	pregnancy (this constellation is explained by earlier comments)
pencil		to be obliged to	male nurse (Klein is the name of a nurse) church
school		revenge	
		hope	
		small	
		(<i>Klein</i>) to	
		pray	

49 [See n. 47.]

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liberty	statue (the subject had been in America and particularly admired :New York)	row	M. (name of someone who had made a joke referring to the word "row")
un just	to imprison (constellation from daily intercourse with querulous patients)	to walk	L. (name of patient who often went for walks)
to be lazy	wonderful	to cook	cooking lessons
coffee	Mocha	water	supply
sacrifice	L. (name of an ailing painter who had a predilection for painting sacrificial scenes) without alcohol (the subject is a teetotaler) dead	to dance	concert-hall (the hall in which the dances at the hospital are held) room (the subject is an enthusiastic amateur photographer) failure
wedding		dark	paws (<i>claws</i> is to be interpolated)
grand-mother		heart	L. (name of a patient who often used the swimming pool) malaria (a patient named Weiss suffered from malaria)
wicked	R. (name of a patient with a moral defect)	bird	
to need	B. (name of a colleague) and day	to swim	
year	threatener (<i>Drohweber</i> , nickname of a patient who frequently uttered threats)	white (<i>Weiss</i>)	Halma (which was at that time played in the wards)
to threaten	dough (<i>Teig</i>)	game	shorthand (<i>to write</i> is to be interpolated; the subject was keenly occupied with shorthand)
sour (<i>sauer</i>)	(<i>Sauerteig</i> , 'dough')	thirteen	cushion
youth	Munich (newspaper <i>Youth</i>)		Basel (a student friend of subject from Basel went under the name of "Tausig," the dialect form of <i>tausend</i> (thousand). The stimulus-word was of course called out in standard German but assimilated in the dialect form by the subject)
family	day		ball
sorrow	sorrowful		sonny (the subject is the father of a new-born son)
to pay	association-experiment (momentary constellation)	sofa	
attention	R. (name of a patient) <i>Folk-Psychology</i> by Wundt (a work that had recently been ordered by the hospital)	thousand	
nature	G. (name of a murderer who was just then in the hospital for examination)		
folk			
murderer			
everywhere	superman (<i>iibera ll</i>) (<i>ubermensch</i>)		
to	slide-rule		
calculate		to love	son

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wild	dentist ("Wild" is the name of a dentist)	at home (<i>daheim</i>)	newspaper (called <i>Daheim</i>)
tears	vale	vinegar	home-made
war	turmoil	trap throat	mousetrap
faithful	little dog	to strike	epiglottis
once	shorthand again (see above)		(name of a doctor who had been struck by a patient)
miracle	Lourdes	star	C. (Stern, 'star,' is the name of a patient in Ward C)
blood	English (in England the word must not be said) and duty and soil	to stroke	kitten
right	thing (<i>Zeug</i>) (<i>Spielzeug</i> , 'toy')	grand (<i>gross-artig</i>)	Grossman (name of patient who was included merely as a sound-association)
ground	W. (name of a patient who had injured his arm)	sweet	bananas (cf. the reaction <i>wood/ebony</i> . The subject had recently given some lectures on travels in Africa)
game	Grotto in Capri		
(<i>Spiel</i>)	stranger bulldog		
arm	East Swiss (memory of his student years)	friendly	H. (name of an acquaintance)
	to steal	to float	S. (name of a famous airman)
blue	trap		occiput
strange	house (Helmhaus, a public building in Zurich)	skull	A.I (Rau is the name of a patient in Ward A.I)
to growl	hunger	rough (<i>rau</i>)	male nurse
knot	Heustrich (name of a spa)	to report	police-barracks (the police in Zurich)
fruit	park (the raspberries in the hospital garden)	prison	
false		to separate	sulphuric acid diabetes
helmet		ill	
misery			
hay (<i>heu</i>)			
raspberry			

4²⁸ This type is characterized by the emergence of numerous subjective experiences, mostly of recent origin and belonging for the most part to the field of everyday activities. **It** goes without saying that, in spite of the objective character of the constellations, some also occur that belong to a feeling-toned complex. These are, however, relatively rare in comparison with the others and are in some cases well concealed. The recently experienced joy of fatherhood has an after-effect in several reactions: *father / anxious hope / pregnancy son / sonny*. This feeling-toned diminutive seems to us echoed in the somewhat striking reactions: *to stroke / kitten fidelity / little dog*.

(b) Complex-constellation type

4²⁹ (i) Reactions of a subject in whose reactions a feeling-toned complex appears quite openly. The meaning of the stimulusword is brought into relation with the complex (subject 21, educated men).

wood	pile	friendly	very nice
dream	studies (simple constellation)	crown	queen
exercise-book	pen	rough	table
paper	line	to stink	pooh!
pencil	big	shrill	hurt
school	bank		to separate W. (name of a mental patient whose marriage ended in divorce)
to sing	choir	potato	broth
ring	on the finger	to be lazy	nice
tooth	teeth	cross	I am not
window	frame	come	with me to the
frog	hops		theatre X (a certain theatre)
flower	stem ⁵⁰		
hospital	big	year	19 ⁰⁴
piano	I cannot play	family	V. (subject's own family)
male nurse	B. (name of a certain male nurse)	to take care	I should
stove	wood	finally	it will end
to walk	a long way	folk	worth much
to dance	hotel F. (a certain hotel where there was dancing)	slate-pencil	she is a teacher
dark	room	to growl	poodle
heart	red	knob	knob-stick
bird	feathers	false	blonde (a "lady," who is false and blonde, to be interpolated)
to swim	movement		
game	children	helmet	fire brigade
Kaiser	Wilhelm	clothes	woman's skirt
to hit	to beat	softly	she comes along
to set fire to	S. (name of an incendiary)	gallantly	up the stairs
star (Stern)	Miss Stern (an actual person)	plate	on the table
grand child	ah!	misery	she cries
child	children	hay	in it lies a farmer
dark red	again ah!	raspberry	in the wood
to ride	riding track	at home	in D. (home of the sweetheart)

50 [The German word *Blumenstock* (literally, 'flowerstick') is mainly used for a tree-shaped potted plant such as a fuchsia.]

murderer in C (a certain insane murderer in Ward C in the hospital) everywhere K. is (the name of a mobile catatonic)	wonder (miracle)	would have to happen
I cannot	blood	she is anaemic
	wreath	on the coffin
	to choose	another
to	to part	I need not
calculate	right	she is not
to kiss	to have to	I do not have to
	force	I do not use on her oh
	revenge	no!
natural	hope small	I do not know
bad	to pray	oh no! perhaps
time	dear	she was to me
ripe	wool	a woman's dress
row	old	perhaps
ground	freedom	she could have
game	un just	I was not
poor	world	wide
to quarrel	strange	that she is now
sofa	hedge	fence
to love	lazy	sometimes (i.e., some- times she is lazy)
son		a woman
		love
	to woo hot	yes, in the focus of
	conscious-	consciousness
	ness	sour
wild	vinegar	into it
	trap	yes, so-so
	to disgust	there is therefore none
	riot	hair
tears	resin	(Haare)
	(Harz)	yes, fine and gallant
	to dress	
protection	up	
war	omen	
faith		bad
once		

43° A strong feeling-toned complex is characteristic of this mode of reaction. The stimulus-word is assimilated as a question; the experiment therefore bears the imprint of a conversation in which the subject has only a rather dim awareness of the current situation. This explains the somewhat abnormal character of a conversation of this type. The mode of reaction can be explained by a very strong psychological sensitivity. The relatively numerous interjections and the egocentric references, not only within the complex, also point towards this. The sub-

ject's egocentricity emerges clearly throughout. He is mentally entirely sound and would at other times probably have presented a much more objective type. The abnormal character of the reaction is to be attributed merely to the temporary but prevailing emotion. One could generalize and say that this abnormal state, caused by the affect, is the prototype of the hysterical reaction .

43¹ (ii) Subject 24 of the group of uneducated women is a good example of a complex appearing in a disguised form. We refer to the associations already given in detail in the relevant section.

(c) *Predicate type*

43² Reactions of a subject who judges the object of the stimulus-word from a personal point of view (subject 7, educated women).

lake	beautiful nature	moon	beautiful
schoolboy	diligent	to beat	unnecessary
father	something wonderful, good, holy	to light	an art, till one managed it
needle	work	to sing	beautiful
bread	best food	ring	something silly
lamp	work	tooth	glad not to have any more
tree	something beautiful		something unnecessary
mountain	terrible, climbing is nicer	frog	JOY
hair	head-dress	flower	good fruit
salt	strengthens food	cherry	narrow
wood	fire	hospital	mainly laborious
dream	many experiences	piano	respect
exercise- book	much work for the children	male	
paper	blessed, because we write on it	nurse	beautiful wood
book	JOY	fern	lovely in cold winter
school	JOY	stove	one sometimes must laborious
dozen	straight, order	to walk	lovely
dark	horrible	to cook	gladly when one is young
heart	beats	to dance	sneak
bird	lovely, to fly	cat	magnificent
to swim	lovely	star	pompous
white	hard, bright	grand	gift of God
game	to enjoy	child	pleasant
thirteen	clumsy	sweet	dangerous
		to ride	

friendly	duty	to stink	sometimes, alley
crown	unnecessary	shrill ill	to hurt
rough	weather		to hurt

433 The characteristic of this mode of reaction is an unusually strong personal participation, which leads to a constant evaluation of the object, usually with reference to herself.

II. Sex Differences in the Experiment under Normal Conditions

434 We have considered our individual figures from the point of view of the sex difference and calculated their averages (see Table D).

D. Sex Differences in the Experiment under Normal Conditions

SPECIAL QUALITY	MEN	WOMEN
Grouping	19.8t	1g.41
Predicative relationship	17.9 38.6	20. ³)4 ⁰ .7
Causal relationship	o.gJ	1.0
Co-existence	15 ⁰ }	17. ¹ 1
Identity	7. ⁸ 54. ⁰	4. ⁸ j53. ⁶
Linguistic-motor forms	31.2	31.7
Word-completion	05}	o. gl
Sound	1.2 2.0	0.6) 2.0
Rhyme	0.3	0.5
Indirect	1.6 ₁	0.81
Meaningless	0.51	0.11
Failures	1.8,3,9	1.4 ~ 2.4
Repetition of stimulus-word	o J	0.1 J
Egocentric reaction	2.2	1.3
Perseveration	1.5	0.8
Repetition of reaction	9.9	8.2
Same grammatical form	54.3	5 ⁶ .4
Same number of syllables	37. ⁰	43.7
Alliteration	g.1	8.g
Consonance	14. ⁰	13.5
Same ending	12.4	10.9
Total associations	3 ⁰⁰⁰ 0	3 ⁸⁰⁰ 0

435 **In** considering the figures, one is struck by the slightness of the difference between the two sexes. With few exceptions the figures essentially tally; in any case, the definite numerical differences that separate the group of educated from the uneducated are absent. **In** the men the type is somewhat blunter than in the women; the men have rather more sound associations, also more indirect associations; these phenomena may be connected with the blunter type. The larger number of egocentric reactions and perseverations seems, according to earlier investigations, to depend on the men's more uninhibited behaviour. The difference in the figures for coincidence of grammatical form and number of syllables is analogous to the corresponding difference between educated and uneducated subjects, and may be attributed to the fact that in our male subjects, particularly in the uneducated ones, the level of education is higher than in the corresponding women subjects. From the figures of the experiment under normal conditions nothing typical of feminine psychology emerges, which does not mean that no differences exist. Our method of investigation is obviously far too crude to discover subtle differences of this sort.

III. Averages of the Distraction Experiments

43⁶ We give in Tables E and F a compilation of the average figures from the distraction experiments. To facilitate comparison we are putting the average for experiments under normal conditions alongside.

437 The figures for the distraction experiments show a progressively blunter type of reaction than those obtained under normal conditions. The main difference is quite unequivocal. The internal associations decrease under distraction as opposed to the external associations and sound reactions, both of which increase.

43⁸ Looking at the figures for internal associations, we see that the women in this group have higher figures than the men. The lowest figures are for men. The objection that the women start with a higher number of internal associations under normal conditions applies only to uneducated women. Educated women show a somewhat blunter reaction-type, under normal conditions, than educated men. The fact that the number of

1. STUDIES IN WORD ASSOCIATION

E-1. Averages in the Distraction Experiments: Uneducated Women

SPECIAL QUALITY	NORMA L	EXTERNAL DISTRACTION	
		60 Met.	100 Met.
Grouping	25 ² }	19 ⁰ }	15 ⁷ }
Predicative relationship	20.4 4 ^{6.6}	20.6 40.3	19.9 35.2
Causal relationship	1.0	0.7	0.5
Co-existence	20 ⁴ }		18.51
Identity Linguistic-motor forms	5.0 49.4 24.0	18.2) 9.7 5 ^{2.2} 24.3	9.2 ~6J.0 33.3)
Word-completion	0 ³ }		0.51
Sound	0.1 0.7	0 ² }	2.0 ~ 3.7
Rhyme	0.3	1.7 } 2. 1.0 9	1.2)
Indirect			0.7 1
Meaningless	0 ⁷ }	1	0.2
Failures	0.2	62.5	0 ^{5,1.4}
Repetition of stimulus-word	1.4	47.5 3. 11. 4 0	0)
Egocentric reaction	0	18.5	0.
Perseveration Repetition of reaction	0.5	11.7	5 2.5 3.0
Same grammatical form	1.0	0	
Same number of syllables	9.5	7	62.2
Alliteration	5 ^{8.9}	1	44.7
Consonance	4 ^{6.0}	0	11.2
Same ending	5.4		15. 7
Associations Total	12.2	0	16.0
{Subjects	11.3		4 ⁰⁰ S
		5	
		0	
		5	
		2	
		0	
		S	
		.	
		5	

THE ASSOCIATIONS OF NORMAL SUBJECTS

E-2. Averages in the Distraction Experiments: Uneducated Men

SPECIAL QUALITY	NORMAL	EXTERNAL DISTRACTION	
		60 Met.	100 Met.
Grouping			
Predicative relationship	23 ³ } 16.1 40.5	20 ^S } 1-.0 30.S	14 ^S } I-.S 27.6
Causal relationship	1.1		
Co-existence			12.51
Identity Linguistic-motor forms	17 ³ } 10.0 55.6 2S.3	19 ¹ } 17.4 5 ^S .5 22.0	15. ¹ ~63.3 35.7)
Word-completion			
Sound		~'4 }	~.S }
Rhyme	~.6 } 0.6	3. ¹ J.7	1.0 0.2
Indirect			1. ¹
Meaningless	0 ^S }	3-41 1.1	2.2, 7. ⁶
Failures	0.1 2-4	1. ⁴ , 6.4	
Repetition of stimulus-word	1.5 0	0.5)	2.0)
Egocentric reaction		0	0
Perseveration Repetition of reaction	J.7 0.7 12.3	0. 5 5. ¹	0 4. ⁰
Same grammatical form			64.5
Same number of syllables	59.5	67.7	4. ^S .2
Alliteration	39. ⁰	45.7	12.4
Consonance	9. ²	S.0	IS.S
Same ending	12.5	23.4	IS.2
Associations Total	16,3	14.3	
{ Subjects	14 ⁰ 7	35 ⁰ 7	35 ⁰ 7

internal associations does not fall as low in women as in men means that the women were less adaptable to the purposes of the experiment than were the men. Comparing the minus differences of the internal associations clearly shows the smaller interest of the women.

439 The remaining differences are unfortunately not equally apparent, as they are divided into three groups, the content of which is of varying psychological valency. Therefore the number of internal associations is the best simple measure of the degree of distraction. The differences for the men show a cer-

	Internal Distraction	External Distraction	<u>UNEDUCATED</u> External Distraction
Women	-5.5	-2.5	-5.5
Men	-12.3	-11.5	-11.3
	<i>Minus difference</i>	<i>of internal associations</i>	¹⁶⁵

tain agreement, while the minus difference of uneducated women is greater than that of educated women, which would indicate better adaptation of the uneducated women to the experiment.

EDUCATED

1. STUDIES IN WORD ASSOCIATION

F-I. Averages in the Distraction Experiments: Educated Women

SPECIAL QUALITY	NORMAL	INTERNAL DISTRACTION		EXTERNAL DISTRACTION	
		60 Met.	100 Met.	60 Met.	100 Met.
Grouping					
Predicative relationship	13.7}	14. ⁰ }			
Causal relationship	20.2 35.0	15. ⁰ 29.5	11.7}		
	1.1	0.5	21.2 33.6	19. ⁰ 30.7	
Co-existence			0.7	0.7	
Identity Linguistic-motor forms	13. ⁸ }	10 ⁰ }			
	4.7 5. ⁸ ⁰	4.3 44. ⁸	12. ⁷ }		
	39.5	3 ⁰ .5	10.5 48.9	9.0 16.0	
				39. ⁰	
		4 ⁵ }			
		5.1 11.6	3. ⁰ }		
		2.0	5.5 10.2		
			1.7		
				25.7	
Word-completion	1.5}	1.6}	1.0}	2.2}	
Sound	1.1	0.5}	1.2}	6.5 9. ²	
Rhyme	0.7 3.	1.1 3. ⁸	2.0 5.	0.5	
Indirect		0.6	1.5	7	
Meaningless	0.9}			0.2}	
Failures	0.1			1.5	
Repetition of stimulus-word	1.4 2.			1.5 3.9	
	0.2 6			0.7	
Egocentric reaction					
Perseveration	2.1	1.	1.2	1.0	
Repetition of reaction	0.6	0	2.2	1.7	
	7. ²	1.	6.5	5. ⁰	
Same grammatical form Same number of syllables		0			
	53.9	3.	54. ⁰	53. ⁰	

⁴⁴ Admittedly the plus differences in the group of sound reactions again show a more significant increase in educated women than in uneducated:

Alliteration	41.5	5	47.7	43.
Consonance	8.4		11.7	5
Same ending	14.9	59. ⁰	19. ⁰	12.
	10.5	45.5	11.7	5
Associations Total		11.1		20.6
{Subjects	2200	19.3	4 ⁰	13. ⁰
	11	11.8	8	
				4 ⁰⁰
		5 ⁰⁰		8
		6		

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F-2. Averages in the Distraction Experiments: Educated Men

SPECIAL QUALITY	NORMAL	INTERNAL DISTRACTION	EXTERNAL DISTRACTION	
			60 Met.	100 Met.
Grouping	16.3}	8.6}		
Predicative relationship	19.7 3 ⁶ .7	15. ⁰ 24.4	15. ⁶	10.8}
Causal relationship	0.7	0.8	12.0 28.0	10.4 21.8
Co-existence			0.4	0.6
Identity Linguistic-motor forms	12.8}	6.1}	12.8}	12 ⁰ }
	5.7 5 ² .7	4.5 49. ²	9. ² 57.2	6.6 61.4
	34. ²	3 ⁸ .6		4 ² .8
			1.2}	
			8.0 9.6	
			0.4	
			35. ²	
Word-completion	1.1}	4.3}		2.6}
Sound	1.9 3. ⁶	15.8 20.7		3.8 8.2
Rhyme	0.6	0.6	5. ²	1.8
Indirect				6 ² .
Meaningless	2 ⁵ }	4 ⁵ }	3 ² }	1.8
Failures	0.9			0 8.0
Repetition of stimulus-word	2.1 5.	1.6 6.1 0	2.0	0 J
	0	0 0		
Egocentric reaction	2.8	1.1	0.8	1.6
Perseveration Repetition of reaction	2.4	1.6	2.0	3. ⁰
	7.5	3. ⁸	6.8	6.2
Same grammatical form Same number of syllables	49. ¹	5 ⁰ .5	59. ²	51.8
Alliteration	35. ⁰	44. ⁶	4 ⁶ .4	41.0
Consonance	9. ⁰	27.3	17. ⁶	13. ²
Same ending	15. ⁶	33.3	23. ⁶	20.6
	8.5	8.	11.2	10.0
T { Associations		3		
otal Subjects	1600			435
	8	55 ⁰	5	5
		6		

Uneducated women

Educated women

Plus difference of
sound reactions

2.6

8,3 and 6.4

44¹ The cause of this contradiction might be that the educated women's attitude to the experiment was considerably more variable than that of the uneducated female subjects. Both 166

groups carry out the instructions of the experiment, the making of strokes and the simultaneous reaction, with somewhat more difficulty than the men. If one compares, for example, the differences of educated men and women in the internal distraction experiment, one is immediately struck by the more complete effect of distraction in the men. The only essential difference between the two female groups is perhaps that educated women are capable at least at times of dividing their attention.

442 It seems to us now that we have here a certain difference in the mode of reaction of men and women, a difference that can be determined quantitatively. As, however, with the limited material, sources of error are not excluded, we offer these observations for further discussion.

443 The figures in the individual groups of the scheme show certain variations that need discussion. While the co-ordinations decrease fairly evenly, with distraction, the predicates under distraction present a somewhat different aspect in men and in women.

	<u>EDUCATED</u> Exter	UNEDUCATED
	nal Distraction	External Distraction
Women	-0.2	-0.6
Men	-8.5	-0
	<i>Minus difference of the predicates</i>	

444 The table shows that under distraction the predicates decrease to a lesser degree in women than in men. Here let us remember that in the discussion of the predicate type we stated the hypothesis of the primary, sensory vividness of the stimulus images, which invites predicates. This psychological peculiarity shows itself, of course, in a state of attempted division of attention; this will hinder the experiment in that, in the absence of active concentration, the primarily vivid images absorb the interest and thereby bar or impede the division of attention as planned in the experiment. We shall see this phenomenon quite clearly in the result of the distraction experiment of the predicate type, to which we are referring. There are relatively very many predicate types among the women, which is probably the reason for the apparent prevalence of the predicate. **In** contrast to the decrease of internal associations there is an increase of external associations, in so far as this is not influenced by a stronger rise of sound reactions. The three groups do not participate equally in the increase of external associations. We even notice that the number of coexistences shows rather a tendency to decrease. We tabulate the differences again here:

	UNEDUCATED		EDUCATED	
	Men	Women	Men	Women
Differnce	-1.5	-2.0	-3.4	-0.4
	<i>between normal experiment and with distraction</i>			
	<i>reference to coexistences</i>			

445 They are all, contrary to expectation, minus differences.

This shows that the coexistences cannot be held responsible for the increase of external associations. Remembering the discussion where we explained that coexistences frequently arose owing to the effort of vividly imagining the object of the stimulus-word, then the decrease under distraction is comprehensible; coexistence is to some extent a step towards internal association and therefore plays a part in its decrease.

44⁶ The groups of identities and linguistic-motor forms in general show a rise-which is, however, affected by a big increase of sound reactions, causing, for example, in the group of educated women particularly, a decrease of the two groups. We explain these variations by the irregularity of distraction often mentioned. The quantitatively infrequent occurrence of word-completion in uneducated subjects is striking. We believe that inadequate verbal facility is responsible for this, particularly lack of practice in standard German. Experiments with uneducated Germans, viz., North Germans, might produce different figures. Sound associations are decidedly more frequent in educated subjects than in uneducated.

447 The indirect associations behave strangely. We have already indicated an inverse relationship of their increase with sound associations. **In** our averages one is first struck by a dependence on the degree of distraction.

	UNEDUCATED		EDUCATED	
	Women	Men	Women	Men
Normal conditions	0.7	0.8	0.9	2.5
Distraction	0.9	2.4	0.9	4.6

44⁸ These figures show that uneducated subjects produce fewer indirect associations on the average under normal conditions than do the educated and that women produce fewer than men. Under distraction the women's aversion to indirect associations is shown even more clearly. While a quite definite increase is shown in the men, the average figure for educated women under normal conditions remains the same, and in uneducated women only a quite insignificant increase occurs. Thus, in this respect, a significant difference between the sexes must exist, the nature of which is at present unknown to us. The nature of indirect associations, discussed above (predominantly sound reactions as intermediate links), makes a

dependence on distraction readily comprehensible. Thus with the increase of sound reactions we could expect an increase also of indirect associations. For the sake of clarity we briefly repeat the relevant figures here:

	UNEDUCATED				EDUCATED			
	Women		Men		Women		Men	
	S.R.	Ind.	S.R.	Ind.	S.R.	Ind.	S.R.	Ind.
Normal conditions	0.7	0.7	0.6	0.8	3.3	0.6	3.6	2.5
External distraction I	2.6	1.2	3.1	3.4	10.2	1.0	6.6	3.2
External distraction II	3.7	0.7	1.0	1.4	6.2	0.2	8.2	6.2
Internal Distraction (educated subject only)	-	-	-	-	1.6	1.6	20.7	4.5

449 Although the simultaneous increase of sound reactions and indirect associations under distraction, already mentioned above, is indicated in general in these figures, the parallelism of the two groups is in places somewhat unbelievable. If a parallel between the two groups really exists, one would expect that the maxima of indirect associations would sometimes coincide with the maxima of sound reactions. This is by no means the case. In considering, in the figures for the distraction experiments, the maxima of indirect associations, we see that the maxima only coincide in two cases. No corresponding increases of indirect associations coincide with the maxima of sound reactions. Thus no clear and simple connection in the form of a direct proportion exists. Neither do these figures provide easily recognizable clues to an inverted relationship. Only the group of educated men shows a co-incidence of a striking maximum of indirect associations with the minimum of sound reactions, which is nevertheless a noteworthy fact. In the female groups we see the indirect associations strikingly lagging behind the sound reactions. In the educated men a distinct increase of sound reactions, from 3.6 per cent under normal conditions to 20.7 per cent under distraction, corresponds to an increase of only 2 per cent of indirect associations, while their maximum coincides, as already stated, with

a minimum of sound reactions. This aspect of the indirect associations seems to indicate a certain interdependence of the two groups; we see this as an increased occurrence of indirect associations affecting mainly the group of sound reactions. Taking the group of sound reactions in relation to indirect associations, we get the following picture:

	UNEDUCATED				EDUCATED			
	Women		Men		Women		Men	
	S.R.	Ind.	S.R.	Ind.	S.R.	Ind.	S.R.	Ind.
External distraction I	1.7	1.2	1.4	1.4	5.5	1.0	8.0	3. ²
External distraction II	2.0	0.7	0.8	1.4	6.5	0.2	3.8	6.2

450 The pure sound associations show, with one exception, inverse relation between the two groups. The choice of sound associations for the purpose of the demonstration is not arbitrary, since they form the main part of the whole sound group; at the same time they are the associations that are suppressed under normal conditions (this does not apply to all rhymes, for example). It is just this fact, that the pure sound associations are repressed under normal conditions, that has the greatest significance for the explanation of the inverse relation. The unspoken and mostly quite unconscious intermediate links between indirect associations are in the majority of cases sound associations. Under normal conditions sound associations are continually opposed by inhibitions, as they are, as a rule, quite inexpedient in respect to the process of association and are therefore excluded. There will always be a certain tendency to suppress the sounds; the slighter the distraction of attention the stronger this tendency will be, but the greater the distraction is, the weaker it will be. With increasing distraction the reaction will be more and more influenced by sound, till finally only a sound is associated. Between the influence of sound and the sound association there comes a point where, although the sound association cannot conquer the inhibition it encounters, it does exclusively affect the sense of the following reaction by interrupting the connection between stimulus-word and reaction; it is immaterial whether the subconscious sound association is formed centripetally or centrifugally. The mediating

sound association, which almost reaches the threshold of reaction, leads to the formation of the indirect association. Of course the intermediate links need not necessarily always be sound associations; they need only invite enough inhibition to remain just below the threshold of reaction. Thus we interpret the indirect association as a symptom of repression of inferior associations, which almost reach the threshold of reaction.⁵¹ Using this interpretation the apparently inverse relation of sound association and indirect association can be easily understood: if the sound association predominates, one can conclude from this that the inhibition of sounds has not occurred; therefore repression and consequently indirect association are also prevented. If the number of sound associations decreases it is a sign that inhibition is increasing, thus providing the conditions for the occurrence of indirect associations. The indirect associations are therefore a transitional phenomenon which reaches an optimum at a certain degree of distraction. This also explains the increase apparently in proportion with the sound reaction and the subsequent decrease in inverse proportion after the critical point has been reached.⁵²

45¹ Claparede, who has worked on the question of indirect associations from another angle, believes that it is the "resultat du concours de plusieurs associations intermediaires, chacune trop faible pour etre consciente."⁵³ From the results of experiment we are in complete agreement with this interpretation. The tendency to form a meaningful association, which derives from the stimulus-concept, inhibits sound associations. Both

⁵¹ We note that the description of indirect associations at present deserves no greater value than that of a working hypothesis. We willingly offer our figures and our interpretations for further discussion in the hope that several research workers in cooperation might succeed in solving this question satisfactorily.

⁵² The occurrence of indirect associations under the influence of a distraction of attention has long been known from another source. The tangential naming of pictures in alcoholic delirium (Bonhoffer), in epileptic mania (Heilbronner), in certain catatonic and hysterical conditions, etc., is nothing but indirect association which is formed not, as in our experiment, through shift via sound similarity but through a shift via image similarity. Thus, in this case, it is a supplementary phenomenon of flight of ideas in the visual sphere and corresponds at all points to the phenomena we have shown in the acoustic-verbal sphere. [For Bonhoffer and Heilbronner, see Bibliography.]

⁵³ Cf. Claparde, *L'Association des idées* (1903), p. 140; and idem, "Association mediate dans l'evocation volontaire" (1904).

are too weak, however, to produce a reaction. If the sound association, not linked in meaning with the stimulus image, predominates, then the indirect association comes into being; otherwise it is a reaction that, although strongly influenced by sound, is nevertheless meaningful. Pieron's⁵⁴ interpretation, which states that the third link of the indirect association has greater interest for the individual than the intermediate link, does not fit in with the results of our experiment. Nevertheless there is something attractive about Pieron's view and it is valid for all those cases where {he external stimulus is unconsciously assimilated as a strongly charged complex, dominant in the subject's consciousness. (We shall discuss this further possibility of an indirect association in a later paper.) Pieron's view does not fit in with a vast number of the indirect associations of everyday life. From many examples we mention only one very instructive observation from our own experience. ⁵⁵ One of the present authors was smoking a cigar; suddenly it occurred to him that he had no more matches on him. He had a longish train journey before him and had put a good Havana cigar in his pocket in order to smoke it on the way. He now thought he would have to light the cigar from the one he was finishing. With that, the narrator was satisfied and dropped the train of thought. For about one minute, he looked out of the window at the landscape, which he observed attentively; suddenly he noticed himself saying involuntarily and quite softly:

"Bunau-Varilla." Bunau-Varilla is the name of a well-known Panamanian agitator in Paris. The observer had read the name several days before in the *Matin*. As this name appeared to him to be without any connection with the contents of consciousness, he immediately directed his attention to the name and observed what occurred to him in the process (Freud's method of spontaneous association). Immediately *Varinas* occurred to him, then *Manila*, almost simultaneously also *cigarillo*, and with it a vague feeling of a South American atmosphere; the next clear link was the Havana cigar and with it the memory that this cigar had provided the content of the penultimate thought-cycle. The intermediate links, *Varinas* and *Manila*,

⁵⁴ H. Pieron, "L'Association mediate" (19⁰³).

⁵⁵ [Cf. "The Psychology of Dementia Praecox," par. 110, where the example is given with slight differences.]

are brands of tobacco, both of which had the tone of something Spanish for the narrator; *cigarillo* is the Spanish word for cigarette; the observer had smoked cigarillos with Manila tobacco in a Spanish colony but not in South America. Nevertheless there was a faint "South American" echo about *cigarillo*. While the observer was looking out of the window he had not the slightest feeling of such a train of thought, his attention was completely concentrated on the landscape. The unconscious train of thought leading to the formation of "Bunau-Varilla" was: *Havana cigar / cigarillo* with Spanish-South American background / a travel memory with *Manila-cigarillo* / SpanishAmerican brand of tobacco *Varinas* / (*Varinas* and *Alanila* condensed by dream-mechanism into) *Varilla* / *Bunau-Varilla*. A sufficient reason for the subconscious pursuance of the thought of the cigar was that the observer had prepared himself not to miss lighting the Havana cigar from the end of the cigar still alight. According to Pieron, "Bunau-Varilla" would have to be the emotionally charged final link desired by the observer. This is what in fact it is not; it is merely a product of condensation formed by the competition between several very weak intermediate links (according to Claparede's interpretation). The mechanism is a linguistic-motor automatism such as occurs not infrequently in normal subjects (in certain hysterical subjects, it is true, far more often). The subconscious association-process takes place through similarities of image and sound; in fact all associations taking place in the subconscious, i.e., outside the range of attention, do so (with the exception of certain somnambulant processes). In connection with Jerusalem's⁵⁶ communication Wundt⁵¹ calls the intermediate link "unnoticed" in contrast to "unconscious," in which we can perceive not material objection but merely a verbal quibble. It is not surprising that Scripture⁵⁸ obtains doubtful results in his experiments on indirect associations, and Smith⁵⁹ and

⁵⁶ Jerusalem, "Ein Beispiel von Assoziation durch unbewusste Mittelglieder" (189²).

⁵¹ Wundt, "Sind die Mittelglieder einer mittelbaren Assoziation bewusst oder unbewusst?" (1892).

⁵⁸ Scripture, "Ober den assoziativen Verlauf der Vorstellungen" (1889). ⁵⁹

William Smith, *IUT FTage deT mittelbaTen Assoziation* (1894).

obtained no results, because their experiments were set in a way that did not favour the production of indirect associations. The best indirect associations are provided by careful self-observation in everyday life.⁶¹ Indirect verbal associations originate, as our experiment shows, mainly in distraction experiments.

45² Meaningless reactions show, as is to be expected, an increase under distraction.

453 The failures, the mainly emotive nature of which has already been frequently stressed in the individual descriptions, are conspicuously absent in the group of educated men under distraction. For the rest they present a constant pattern. We shall return to this group in the discussion of the average of the predicate type.

454 A state of affairs similar to that of meaningless reactions obtains in the repetition of the stimulus-word; it too increases under distraction.

455 We have combined the four last-mentioned groups to form the so-called residual group, with the original purpose of collecting the abnormal subsidiary phenomena of the association experiment into this group. From the number of this group we then hoped to obtain a certain co-efficient of the emotional state into which the subject was brought by the experiment. The decision to include the indirect associations also in this group was based on the assumption, in itself not improbable, that in indirect associations, because of their provenance from sound-shifts, we really have experiments that have failed. Naturally we interpreted the meaningless reactions, as well as the last two groups, as experiments that failed. In this interpre-

⁶⁰ Münsterberg, *BeitT(ige %UT expeTimentellen Psychologie*, IV (1892), p. 9. Münsterberg states emphatically: "Indirect associations through unconscious intermediate links do not exist." All that can be said is that there were none in his experiments.

⁶¹ There are several good examples of indirect associations in Cordes, "Experimentelle Untersuchungen liber Assoziationen" (1899), pp. 70, 71, 75. The supposition that the intermediate links of indirect associations are unconscious is for Cordes "a theoretical construction which it will never be possible to prove empirically, for unconscious psychic phenomena cannot be experienced." The author would in any case modify this apodictic statement if he were at all acquainted with the results of hypnotism.

tation we were supported by certain experiences in the pathological field—that is, the association phenomena in emotional stupidity,⁶² where the figures for this group rise considerably. It is true that the results of our experiments do not confirm the original assumption of the emotional nature of indirect associations. This does not hold in the other three groups. The nature of the emotion, however, must be defined more precisely for these three groups. Meaningless reactions and repeated stimulus-words originate according to our experience as a rule from stupefaction, which is produced by the way the experiment is set, while the majority of failures are based on emotion evoked through the awakening of feeling-toned complexes. Stupefaction, caused by the way the experiment is set, can in that case be completely excluded. The inclusion of failures in the residual group is therefore arguable. We have therefore substituted the non-committal designation "residual group" for "emotion group," the name we originally chose for this group. The summation of the figures for these groups was undertaken for clarity of arrangement, with full realization of its provisional and inadequate nature. Everyone who has done experimental work, particularly with such involved material, knows that one must pay dearly for one's experience and that one knows afterwards what one should have known before.

⁴⁵ The distribution under distraction of egocentric reactions (which to some extent represent a pointer to feeling-toned reactions) is best demonstrated by a tabulated survey of the differences from the results under normal conditions.

45⁸ With respect to perseverations, we have already several times proved a certain dependence on strong feeling-tones. As regards its frequent increase under distraction, we assumed the cause to be lack of association with distracted attention. Obviously various complicated conditions are involved here which we cannot separate beforehand. The following table of differences from normal conditions shows the effect of distraction on perseverations.

UNEDUCATED		EDUCATED	
Women	Men	Women	Men
+1.2	-0.	+1.1	-0.2

459 From these figures it appears that in men perseverations decrease under distraction, while in women they increase.

	UNEDUCATED		EDUCATED	
	Women	Men	Women	Men
No. of egocentric reactions under normal conditions	+0.5	+1.7	+2.1	+2.8
Difference under distraction	0.0	-1.7	-1.0	-1.6

457 These differences show that according to our material the minus differences of the men are greater than those of the women; thus that, although women do not betray greater egocentricity under normal conditions than men, they maintain it more firmly under distraction than men do.

62 See Jung, "On Simulated Insanity."

⁴⁶⁰ The number of egocentric reactions gives us a rough measure of how many feeling-toned references to the ego occur among the reactions;⁶³ the number of perseverations indicates something similar to us, but in a less direct form.

⁴⁶¹ As stated above, in women there is less effect of distraction on the reaction. From this one may conclude that female attention with respect to our experiment has proved less easy to divide. The smaller change in the number of egocentric reactions in women may be connected with this. If the number of egocentric reactions shows only a slight tendency to decrease, a similar tendency is to be expected in perseverations. These increase, however. We explain this by the fact that in the associationless vacuum artificially created by distraction feelingtoned contents of consciousness can persist more easily than otherwise. Why women in particular should have the tendency to perseverate under distraction we do not know. Perhaps it is connected with more intense feelings?

⁴⁶² That attention cannot easily be divided in women may be based on the following causes:

(1) We have already indicated that various individuals (predicate types) presumably have fundamentally much more vivid inner images than others. By "more vivid images," we mean such as have combined in themselves a greater intensity of attention or, in other words, such as appear simultaneously

⁶³ In women by no means all egocentric references emerge freely, for the simple reason that the experimenters are men.

with many other associations evoked by them. The larger an association-complex is, the more the "ego-complex" is also involved. It is therefore understandable that with the vividness of the inner images, not only does the number of internal predicates increase but also the number of subjective value judgments generally—that is, of egocentric reactions.

(2) The vividness of the inner image is by no means always a primary involuntary phenomenon but can also be an artificial one; the attention is purposely directed to it or, in other words, numerous new associations accompany an image that appears with few collateral associations. This process is stimulated by the image that appears; it is actually realized through another association-complex, which at the time fills consciousness. The vividness of the inner image is thus in one case primary and involuntary, in the other case secondary and willed. The latter form is then under the influence of another intellectual phenomenon present at the time.

(3) If the inner images are basically very vivid and plastic, i.e., if they occur from the first together with many collateral associations, they must always have a quite definite effect on attention and therefore make more difficult or hinder its division, according to the degree of vividness. This is, as we shall see, the case with the predicate type.

(4) If the inner images are under the influence of an already existing association-complex, artificially vivid or plastic, it then depends on the stability of this complex whether the dividing of attention will be possible or not.

(5) We have no reason to assume that the inner images are in general fundamentally more vivid in women than in men (otherwise all women would probably belong to the predicate type.) We have, however, reason to assume, as we have already demonstrated above, that the reactions of uneducated subjects, particularly of uneducated women, are based on a (quasi) intentionally produced vividness of the stimulus-image. The association-complex responsible for this is the special view that uneducated people take of the association experiment. As, under the influence of this dominating image, they interpret the stimulus-word mainly from the point of view of meaning, they must apply more attention to stimulus-image, thus necessarily yielding less to distraction, as our figures show. That it is par-

ticularly the uneducated women who yield least to distraction agrees with the fact that they are the most strongly under the influence of this particular interpretation of the experiment. That educated women also show a tendency to yield less than men to distraction cannot also be attributed to this particular interpretation of the experiment but must be related to the fact, already mentioned, that among our educated female subjects there are relatively many predicate types, who show practically no distraction phenomenon at all. We therefore give in Table G the average figures of the educated women who are not predicate types.

G. *Educated Women excluding Predicate Types*

SPECIAL QUALITY	NORMAL	EXTERNAL DISTRACTION	
		60 Metronome	100 Metronome
Grouping	15 ² }	13 ⁵ }	10.81
Predicative relationship	14.0 3 ⁰ .2	11.0 28.3	9.6t0. ⁸
Causal relationship	1.0	0.8	0.4
Co-existence	15 ³ }	12.4}	7. ² 1
Identity	4.8 62.6	11.2 50.4	8.8t ² . ⁸
Linguistic-motor forms	4 ² .5	26.8	4 ⁶ . ⁸
Word-completion	1.5}	4 ⁰ }	3. ⁶ 1
Sound	1.4 3.7	8.0 14.0	9.2t ³ . ²
Rhyme	0.8	2.0	0.4
Indirect	1. ⁰ 1	1. ² 1	~.61
Meaningless	0.1	2.0	
Failures	o.g 2.4	1.6 5.0	0. ⁴ 1 ³ . ²
Repetition of stimulus-word	0.4J	0.2)	I.2)
Egocentric reaction	0.3	0.4	1.6
Perseveration	0.7	2.4	°
Repetition of reaction	6.g	4. ⁸	3. ⁶
Same grammatical form	41.8	63. ²	4 ² .4
Same number of syllables	60.1	47. ⁶	57. ²
Alliteration	8.5	13. ²	15. ²
Consonance	14.7	21.2	24. ⁰
Same ending	12.6	15. ²	13. ²
T { Associations	1200	25°	25°
otal Subjects	6	5	5

4⁶³ From the figures of this table it immediately appears that it is not the case that the women's attention is less easily divided than the men's, but that it was the predicate type that strongly affected the average for educated women. Our figures show a definite distraction phenomenon that in no way lags behind that of the men.

4⁶⁴ Repetitions of the same reactions decrease with distraction; the reasons for this are easy to understand.

4⁶⁵ The numbers of verbal connections rise under distraction, thus expressing quantitatively the influence on the reaction in terms of external and mechanical factors. It is noteworthy that in uneducated subjects there is under normal conditions not only a greater agreement of grammatical form than in educated subjects but that the distraction experiment increases this even more intensely than in educated subjects, although in uneducated subjects the distraction phenomenon is less distinct. The following differences⁶⁴ clearly demonstrate this:

	Women	Men
Uneducated	+ 3.4	+6.6
Educated	+ 1.4	+4.7

4⁶⁶ The figure for the agreement of grammatical form does not only begin at a higher level in uneducated subjects but under distraction rises still higher than the corresponding figure for educated subjects. The reason for this probably lies in the fact that educated subjects have numerous current phrases at their command even under distraction.

4⁶⁷ The figures for agreement in number of syllables, aliteration, consonance, etc., need not be commented on.

4⁶⁸ The almost general decrease of figures for verbal connections in the second part of distraction is connected with the decrease of sound reactions. This change can be attributed to habituation, when the factors of very intense distraction gradually recede.

IV. Average of the Predicate Type under Normal Conditions and under Distraction

4⁶⁹ Tables H and I give the average figures for all those subjects whom we call "predicate types." We have included in this

⁶⁴ Difference between the figure for identical grammatical form under normal conditions and the average number of distraction experiments.

type all those subjects in whom the internal associations predominate over the group of linguistic-motor forms; the number of predicates is on an average more than twice the number of co-ordinations. Among the subjects used for the calculation of averages there are seven women and two men.⁶⁵

470 We have placed the average of all other types next to the predicate type for comparison. The difference is striking. The predicate type shows no change worthy of mention under distraction: the predicate type does not show divided attention, while all the other types show themselves accessible to disturbing stimuli, at least to some extent. This fact is extraordinarily strange.

47¹ As we have already indicated, we assume that the individuals belonging to the predicate type have basically more vivid images on which attention is already involuntarily fixed in the moment of their emergence (contrary to deliberately produced vividness). We have noticed in our material that among the reactions of the predicate type there are, besides numerous value judgments, also strikingly many predicates designating sensory properties of the object of the stimulus-word, particularly visual ones. Individual subjects reported at once that they sometimes received quite definite plastic images.⁶⁶ We based the theory of the predicate type on this observation.

47² An inner image is vivid if the associations immediately connected with it spring to mind. The nearest associations upon the image of a concrete object are the sensory aspects: the visual, the acoustic, the tactile, and the motor. A vivid image can be said to be in the state of being concentrated upon. The more vivid an image is, the stronger are the inhibitions emerging from it against everything not associated with it; the attention will therefore be all the less prone to be divided. That the distraction phenomenon is virtually absent in the predicate type we regard as proof of the correctness of our

⁶⁵ From the predicate-type class, containing three sub-groups, only one subject was used for calculation.

⁶⁶ These plastic images correspond roughly to Ziehen's individual images. We purposely did not ask about them during the experiment, to avoid directing attention to them by this suggestion. In many individuals only a slight effort of attention is needed to produce plastic images immediately. In this case only the vague and general verbal images are suppressed, which can happen half unconsciously with appropriate suggestion, particularly with unpractised subjects. ⁶⁷ That is, it concentrates attention upon itself.

H. *Averages of Predicate Types*

SPECIAL QUALITY	NORMAL	EXTERNAL DISTRACTION	
		60 Met.	100 Met.
Grouping	12.5}	14. ⁸ }	13. ¹ }
Predicative relationship	3 ^{2.1} 45.7	3 ^{1.2} 46.5	30.5 43. ⁸
Causal relationship	1.1	0.5	0.2
Co-existence	13.51	13.71	11.71
Identity	4. ¹ 48.6	8.0 _J ^{44.9}	8.5 49.3
Linguistic-motor forms	31.0	23. ²	29. ¹
Word-completion	0.8}	0.8}	0.21
Sound	0.3 1.5	1.4 3. ⁰	1.1 J 1.5
Rhyme	0.4	0.8	0.2
Indirect	∞ _f	1.71	0.21
Meaningless	~4 3. ²	0.2	1.11
Failures		2.5 4. ⁶	2.5 ~ 4. ⁶
Repetition of stimulus-word	o )	| 0.2)	| 0.8 J
Egocentric reaction	3. ⁶	1.7	1.4
Perseveration	0.8	1.1	1.1
Repetition of reaction	9.9	8.0	4. ⁸
Same grammatical form	4. ⁰ .7	43. ¹	45.4
Same number of syllables	37.3	44. ⁰	47.4
Alliteration	7.9	8.8	10.8
Consonance	12.9	15.4	14. ²
Same ending	6.7	7.7	11.1
T { Associations	179 ²	35 ⁰	35 ⁰
total Subjects	9	7	7

interpretation. The predicate type cannot divide his attention because his fundamentally vivid inner images make so much demand on his attention that inferior associations (which make up the distraction phenomenon) do not occur at all.

473 By means of our hypothesis all the peculiarities of the predicate type can now be explained.

(I) The large number of predicates. The subjects name a particularly striking characteristic of the inner image and 182

I. Averages of Non-Predicate Types

SPECIAL QUALITY	NORMAL	EXTERNAL DISTRACTION	
		60 Met.	100 Met.
Grouping	11.5 } ^{6.0}	18.0}	14.3}
Predicative relationship	13.5 3 ^{6.0}	11.3 29.9	10.8 25.4
Causal relationship	1.0	0.6	0.3
Co-existence	17 ² }	16.0}	12.2}
Identity	7.3 5 ^{8.2}	13.2 57.2	10.8 62.8
Linguistic-motor forms	33.7	28.0	39. ⁸
Word-com pletion	0.8}	1.3}	1.7}
Sound	1.1 2.5	4.7 7.5	4.2 7. ⁰
Rhyme	0.6	1.5	1.1
Indirect	7.5 }	11 }	7.1 }
Meaningless	0.3	1.2	1.3
Failures	1.0 2.9	0.8 5.1	0.8 4.7
Repetition of stimulus-word	0.1	0.9	0.7
Egocentric reaction	1.0	0.6	0.7
Perseveration	0.9	1.8	1.9
Repetition of reaction	8.5	6.5	4. ⁰
Same grammatical form	62.1	66.9	63. ⁸
Same number of syllables	4 ² .9	47.3	43.5
Alliteration	9.4	12.4	14. ¹
Consonance	14.4	22.4	20.8
Same ending	14. ⁰	15.4	16.6
T I { Associations	45 ⁸⁶	1000	1085
ota S b'			
u Jects	23	20	20

naturally use the predicate for this purpose. The large number of internal associations is mainly to be attributed to the number of predicates. The ratio of internal to external associations reminds us of that in uneducated subjects. The common factor, however, is only the degree of attention applied. The predicates are also retained under distraction, which we regard as clear proof of the involuntary nature of the plasticity of the image.

(2) The large number of egocentric reactions. The more vivid the image is, or the greater is the complex of associations present in consciousness, at any given moment, the more it is bound to stimulate and absorb into itself the associations making up the consciousness of the personality, in order by this synthesis to remain conscious. Thus a whole series of personal references must be added to the emerging complex of associations, which are then designated as particularly striking properties of the images and so become reactions. This is how egocentric reactions originate.

(3) The relatively large number of failures. These occur as a rule in reactions to the stimulation of a strong feeling-toned complex, which grips the attention so firmly that no further reaction can take place. It is quite feasible that in the predicate type more feeling-toned complexes are stimulated than in other types as a result of the more vivid images. It follows as an essential consequence of our assumptions that under distraction the failures show a tendency to increase. A certain amount of attention may be left over from what is fixed to the image, but if this is needed for an activity (marking the metronome-beats), then none is left for reacting; no decrease in the number of failures can result from this.

474 From the figures for the distraction experiment it emerges that the predicate type is not a fortuitous momentary attitude but constitutes an important psychological characteristic, which also obtains under different conditions.^{6B}

V. The Influence of the Grammatical Form of the Stimulus-word on the Reaction

475 As can easily be appreciated, the choice of stimulus-word with all its different properties is of some consequence. There is a whole series of stimulus-words that have predictable reactions. Thus, for instance, there is a large number of designations for concrete objects with which coexistent images are regularly associated, quite apart from many stimulus-words that call forth stereotyped word-connections, e.g., *to part / hurts' / to part / to avoid; blood / red*. For the quantitative

^{6B} By this we mean, of course, merely our experimental conditions. Under the influence of fatigue or alcohol the predicates would probably decrease; this, however, remains to be investigated.

ratios it is of considerable importance whether the stimulusword is a noun, adjective, or verb. A main factor will then be the frequency of the particular word-form. From a random selection in books one can say that language uses on average twice as many nouns as adjectives or verbs. Thus a noun used as a stimulus-word will, in accordance with the law of frequency, be "answered" more easily than all other word-forms. On the other hand, the lower frequency of verb and adjective will cause rather more difficulty in reaction, quite apart from the fact that, to most subjects, an adjective or a verb in the infinitive, standing outside the context of a sentence, appears more peculiar than a noun, particularly one that is the name of a concrete object, about which something can be said. We have made a comparative examination of this from the material of the experiments under normal conditions and have found the following average figures:

	REACTIONS TO VERBS					
	Noun	Adjective	Verb	ASSOCIATIONS		Sound
				Internal	External	
Educated men	63. ²	15. ⁸	20.6	4 ⁸ .4	41.6	7.4
Uneducated men	3 ² .7	21.7	45.5	49. ⁶	47.4	1.1
Educated women	45.7	19.4	34.7	55.5	39. ²	4.5
Uneducated women	5 ² . ⁸	14.4	3 ² . ⁶	69. ⁰	29. ⁶	0.3
Predicate type	54. ⁸	26.2	18.9	62.8	33.4	2.7
Non-predicate type	4 ⁶ .7	15. ⁰	3 ⁸ . ¹	5 ² .4	41.8	4. ²

	REACTIONS TO ADJECTIVES					
	Noun	Adjective	Verb	ASSOCIATIONS		Sound
				Internal	External	
Educated men	53. ¹	43. ⁶	2.9	43.5	45. ⁰	8.0
Uneducated men	3 ² .4	64. ⁸	2.7	44. ⁸	51.0	3.4
Educated women	39. ¹	5 ² . ⁶	7.4	43.3	45.4	3. ¹
Uneducated women	49.4	47.3	3. ⁰	60.8	37.3	1.1
Predicate type	64. ⁰	29.7	5. ²	64. ²	28.2	1.9
Non-predicate type	35.5	59.9	1	4 ² . ⁸	51.0	4.3

476 The number of agreements in grammatical form quoted among the individual figures shows that the stimulus-word and reaction do not by any means always agree in grammatical form. The above table shows the average figures, calculated as percentages, for the best-characterized group of our subjects.

We decided against giving the individual figures, to avoid a confusing accumulation. Also, the average figures show most clearly the characteristic variations with which we are essentially concerned.

477 It is striking that in the verb groups, with one exception, the reactions to verbs were mainly nouns; only the group of uneducated men reacted mainly to verbs with verbs. The educated men reacted mostly with nouns. These (strangely enough) have most in common with the uneducated women, while the educated women are closest to the uneducated men. It is clear from the beginning that the verbal law of frequency has great influence on the preference for this or that mode of reaction. It is therefore quite understandable that educated men, who in any case have a very blunt reaction type, should prefer the readier noun to the rarer verb; it is not so easily understandable that uneducated women should react in an apparently similar way and this needs detailed investigation.

47⁸ While, according to our observations, educated men usually append nouns to verbs, uneducated men make an effort to do justice to the meaning of the stimulus-word by reacting with a similar verb. A similar effort on the part of the educated women is somewhat less clear. This mode of reaction, the psychology of which we have discussed in detail, is conditioned, as is well known, by the effort to react mainly in accordance with the meaning of the stimulus-word. We have previously seen that uneducated women lead in this respect. Accordingly one would expect that uneducated women would react with an ever higher number of verbs than uneducated men. It must, however, be remembered at this point that the uneducated women's level of education is the lowest, that thus their verbal education and facility is also the lowest; consequently, reacting to verbs will be most difficult for this group, as verbs are even rarer for them than for the other group.⁶⁹ They are therefore dependent on nouns that can most easily be combined with verbs. The uneducated women's effort to produce a meaningful reaction determines the choice of a noun that is not merely joined to the verb but expresses, wherever possible, something significant about the meaning of the verb.

⁶⁹ The fact that the majority of the subjects are Swiss, and therefore working under the more difficult linguistic conditions, must be remembered here.

479 We have therefore carried out a further investigation to test this interpretation and to learn how great is the number of internal associations that are reactions to verbs. With these figures we are in a position to prove our interpretation. We have therefore placed next to the figures giving the preferred word-forms the figures showing the quality of the associations given in reaction to verbs. We give the appropriate figures once more together with those for the experiment under normal conditions for the groups mainly under consideration here.

EDUCATED MEN			
	Internal Associations	External Associations	Sound Reactions
Normal conditions		5 ^{2.7}	3. ⁶
Reactions to verbs	3 ^{6.7}	41.6	7.
Plus difference	4 ^{8.4} 11. 7		4

4⁸⁰ This table shows that the reaction-type when stimulus-words are verbs is considerably blunter than for the list of stimulus-words mainly composed of nouns. Thus it has been proved numerically that for educated men too there exist far fewer canalized connections between verb and verb than between noun and any of the three other parts of speech. Comparing the appropriate figures for uneducated women with these, we find confirmed our assertion that the nouns preferred by this group possess a higher quality.

UNEDUCATED WOMEN			
	Internal Associations	External Associations	Sound Reactions
Normal conditions	4 ^{6.6}	49.4	0.
Reactions to verbs	69. ⁰	29. ⁶	7
Plus difference	22.4		0. 3

4⁸¹ It becomes apparent from these figures that the vast majority of associations in reaction to verbs are highly significant and appropriate to the meaning of the stimulus-word. The sound reactions in the two groups quoted are also remarkable.

Their larger proportion under normal conditions in educated men shows how slight is the influence of the meaning of the stimulus-word. Conversely the decrease of the corresponding figures for uneducated women is characteristic of the increased influence of the meaning of the verbs. From the ratios of these figures it is permissible to conclude that, on account of their lower frequency and consequently the greater difficulty of reacting, the influence of verbs on attention is greater than that of nouns.

⁴⁸² The adjectives show, as a glance at the table demonstrates, a reaction analogous to verbs, except that in general they have rather less influence on the reaction-type. It may therefore be assumed that the reaction to adjectives generally encounters little difficulty.

⁴⁸³ The predicate type reacts to verbs predominantly with nouns, while on the average all non-predicate types react to verbs with twice as many verbs as the predicate type.⁷⁰ We examine again the quality of the associations with which the predicate type reacts to verbs:

	PREDICATE TYPE			NON-PREDICATE TYPE		
	Int. Assn.	Ext. Assn.	S.R.	Int. Assn.	Ext. Assn.	S.R.
Normal conditions	45.7	4 ^{8.6}	1.5	3 ^{6.6}	5 ^{8.2}	2.5
Reactions to verbs	62.8	33.4	2.7	52.4	41.8	4. ²
Plus difference	17.4			16.4		

⁴⁸⁴ As the plus differences show, the influence of the verbs is roughly the same in both cases; no plus difference of internal associations surpassing that found in the non-predicate type corresponds to the numerous nouns in the predicate type. Thus we have no reason to suppose that in the predicate type the verb has a greater influence on the attention, that is, that it presents greater difficulties in reaction. The predicate type shows no difference of attention in relation to the verb but only the difference that educated subjects in general display, namely, that they prefer the noun on account of its greater ⁷⁰ It must be noted here that of all the eleven predicate types used in these calculations only two are uneducated and of these only one is a woman.

familiarity. This is because in our predicate types the majority are educated subjects.

.t⁸⁵ The reaction of predicate types to adjectives is in contrast to our earlier findings. As the figures in the tables show, in the four groups first dealt with more adjectives are given as reactions to adjectives than verbs to verbs. In the predicate type, which is mainly distinguished by attributes in adjective nouns are given greater preference (as opposed to non-predicate form, the difference is only 10.8 per cent. On the other hand, types)-namely, 28.5 per cent more. This preference for nouns is caused by the predicate type's effort to react mainly in the form of attributes and not only, as our figures show, by reacting with a predicate but also, conversely, by discovering a noun for an adjectival stimulus-word.⁷¹ Let us now examine the proportions with reference to the quality of adjectival reactions.

	PREDICATE TYPE			NON-PREDICATE TYPE		
	Int. Assn.	Ext. Assn.	S.R.	Int. Assn.	Ext. Assn.	S.R.
Normal conditions	45.7	4 ^{8.6}	1.5	3 ^{6.0}	5 ^{8.2}	2.5
Reactions to adjectives	64. ²	28.2	3.9	4 ^{2.8}	51.0	4.3
Plus difference	18.5			6.8		

4⁸⁶ As these figures show, the large number of nouns in the predicate type is connected with a rise of internal associations. Thus we do not in this case have a mere juxtaposition of familiar nouns but constructions that, owing to the particular mental attitude of the subject, are matched to the stimulusword. This although, in view of the figures for the other groups, the juxtaposition of a similar adjective seems easier for them. The latter is clearly demonstrated by the small plus difference of internal associations in the adjectival reactions of the non-predicate type.

4⁸⁷ It also becomes clear from the figures for adjectival reactions that the predicate attitude is by no means fortuitous but

⁷¹ This can be explained from the psychology of the predicate type. The subjects of this type are distinguished by their particularly vivid images. Therefore, they always see the adjective as the property of a definite object, which they then name in their reactions.

corresponds to a quite definite psychological disposition, which is maintained even when other modes of reaction would be much easier than the predicate form.

SUMMARY

4⁸⁸ The associations show normal variation, principally under the influence of:

- (1) Attention (2) Education
- (3) The individual characteristics of the subject

4⁸⁹ (a) Decrease of attention owing to any internal or external factors causes a blunting of the reaction type, i.e., the internal or fully valent associations recede in favour of external associations or sound associations.

(b) Distraction of attention according to our experimental design caused, apart from the above-mentioned changes, an increase of indirect associations which must therefore be interpreted as distraction phenomena and can be derived as internal links from the competition of two weakly stressed (less valent) associations.

(c) Educated subjects have a blunter reaction-type on the average than uneducated. The difference can essentially be explained by a difference in the interpretation of the stimulusword.

(d) No essential differences emerged in the degree of division of attention by distraction between educated and uneducated subjects.

(e) The most considerable variations in associations are conditioned by individual differences.

49⁰ (1) As regards the effect of sex on the mode of reaction under normal conditions no clear differences emerge from the average figures. Only in the distraction experiment does the peculiarity of female subjects show, in that they possess less ability to divide attention than male subjects.

(2) The individual variations can be classified into the following types:

I. *Objective type*. The stimulus-word is taken objectively, that is:

- (a) mainly according to its objective meaning; the reaction is matched to the sense of the stimulus-word as much as possible and linked by meaning to the stimulus-word.
- (/3) mainly as verbal stimulus; the reaction is in part matched purely verbally, in part it merely marks the juxtaposing of a canalized association, in which the meaning relationship rather recedes into the background.

H. *Egocentric attitude*. The stimulus-word is taken subjectively (egocentrically).

(a) *Constellation type*. The personal elements used in the reaction belong to one or more emotionally charged complexes, there being two possibilities: (aa) The complex-constellations are spoken without concealment.

(/3/3) The complex-constellations appear in veiled form as a result of a not always conscious repression.⁷²

(/3) *Predicate type*. This type has presumably the psychological peculiarity of particularly vivid (plastic) inner images, by which its particular mode of reaction may be explained. This type also shows at best an abnormally low ability to divide attention, which is expressed in the distraction experiment by an, on the average, almost complete lack of blunting phenomenon.

49¹ As a general result important for pathology, it emerges that the blunting of reaction-type in fatigue, alcoholic intoxication, and mania may be attributed primarily to a disturbance of attention. The observations on the affective side of associations (effects of feeling-toned complexes) might be of importance for the experimental investigation of pathological feeling changes and their consequences.

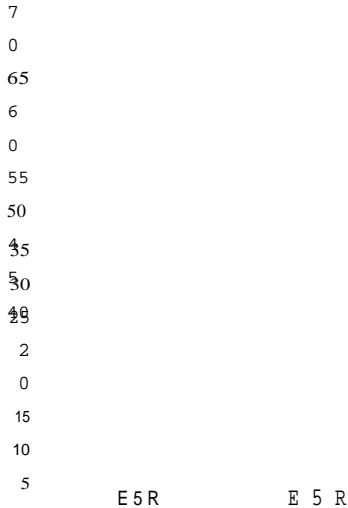
⁷² We use the term "repression" in the sense of Breuer and Freud, to whose work *Studies on Hysteria* we are indebted for valuable stimulus for our work.

49² Finally we may be permitted to express our sincerest thanks to our esteemed director, Professor Bleuler, for valuable encouragement. We are also particularly grateful to Mrs. Jung for active help in the repeated revision of the extensive material.

EXPLANATION OF GRAPHS

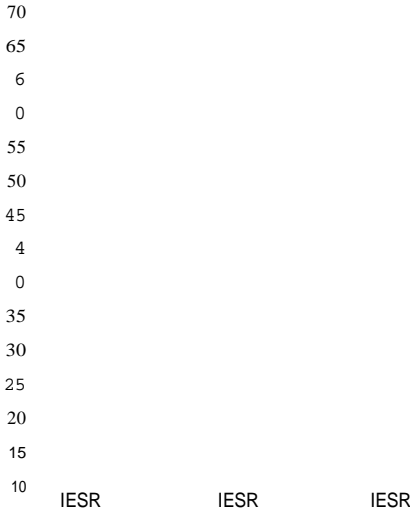
493 **In** the accompanying graphs the arithmetical means of internal associations, external associations, sound reactions, and reactions in the residual group of different groups are presented. The averages shown are:

I: internal associations E: S: sound reactions
 external associations R: reactions in the residual group



Graph I. Averages from Experiments under Normal Conditions (a) Educated Subjects: 23 subjects, 3,800 associations
 (b) Uneducated Subjects: 18 subjects, 3,000 associations

494 *Graph I.* The educated subjects have fewer internal, more external and more sound associations under normal conditions than the uneducated subjects.



Graph N. ⁵ Averages from Experiments with Educated Subjects under External Distraction

- (a) Normal conditions (Graph I, a): 23 subjects, 3,800 associations
- (b) Distraction experiment with 60 metronome-beats per minute: 13 subjects, 650 associations
- (c) Distraction experiment with 100 metronome-beats per minute: 13 subjects, 835 associations

495 *Graph N.* A definite, regular decrease of internal associations from *a* to *e* is found, i.e., according to the intensity of the method of distraction. Secondly, an increase of sound reactions in both distraction experiments emerges from the graph. The result of distraction consists in general of an increase of external associations plus an increase of sound reactions. This sum ($E + S$) is indicated in places by adding to column E a dotted column equal to the height of S. This column ($E + S$) increases regularly from *a* to *e*. The decrease of I and the increase of ($E + S$) under distraction demonstrates clearly the effect of distraction. *S_b* and *S_e* are both bigger than *S_a*. The reactions in the residual group increase from *a* to *e*.

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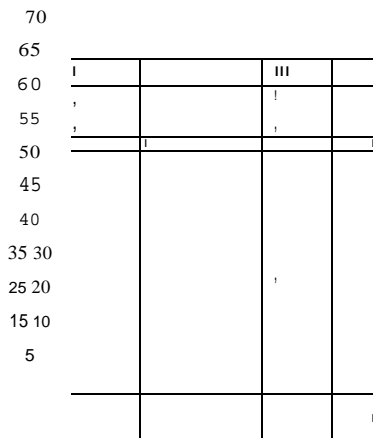
Graph III. Averages from Experiments with Uneducated Subjects under External Distraction

- (a) Normal conditions (Graph I, b): 15 subjects, 3,000 associations
- (b) Distraction experiment, 60 metronome-beats: 15 subjects, 750 associations
- (c) Distraction experiment, 100 metronome-beats: 15 subjects, 750 associations

⁴⁹*Graph III.* The picture, apart from the different starting point, is similar to the distraction experiment with educated subjects: Gradual decrease of internal associations from *a* to *c*; Gradual increase of external associations plus sound reactions from *a* to *c*. *R* increases under distraction, *S* only a little, the sound reactions generally play a much smaller part than in educated subjects.

E S R

ESRIESR



IESR IESR

Graph IV. Averages from Experiments with Subjects of the Predicate Type (Educated and Uneducated)

(a) Normal conditions: 9 subjects, 1,792 associations (b) Distraction experiments (60 and 100 metronomebeats taken together): 7 subjects, 700 associations

497 *Graph IV.* While in educated subjects the ratio of **I** : E is 2 : 3, and in uneducated subjects **I** : E is 5 : 6, here it is 1 : 1. I. S is smaller than in educated subjects but greater than in uneducated under normal conditions. **In** group R the ratio is inverted. Strikingly enough, in contrast to the preceding pictures, this ratio hardly changes under distraction. There is only a minimal decrease of **I** and a very small increase of (E + S). R has increased a little.

I. STUDIES IN WORD ASSOCIATION

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IESR

IESR

*Graph V. Averages of all Experiments in the Remaining Subjects
(Non-predicate Types)*

(a) Normal conditions

(b) Distraction experiment

49⁸ *Graph V.* The picture is a striking contrast to the picture in graph IV. Under normal conditions the ratio I: (E + S) equals 10: 17, approximately 2 : 3; in the distraction experiment 10: 24, approximately 2 : 5. S increases considerably, R less.

AN ANALYSIS OF THE ASSOCIATIONS OF AN EPILEPTICI

499 Epilepsy is one of the few mental diseases of which the symptomatology is particularly well known and delimited by innumerable clinical and systematic inquiries. Psychiatry has shown that in the epileptic, besides the symptoms of the fit, there is usually a mental degeneration that can be claimed to be specific and therefore of diagnostic value. Here are the principal traits of those epileptics who show degeneration according to the recognized textbooks of psychiatry:

1. *Intellect.* Mental debility, slowness of mental reactions, fussiness, restriction and impoverishment of ideas combined with poor and stereotyped vocabulary, frequently abnormal preponderance of fantasy.

2. *Emotional disposition:* Irritability, moodiness, strong egocentricity, exaggeration of all feelings, particularly religious ones.

500 These attributes comprise what is known as the epileptic character, which, once established, has to be considered a permanent formation. Transitory accentuations of one or the other trait are quite likely, radiating like ripples from occasional fits. It is occasionally possible to make the diagnosis with sufficient certainty by recognizing the epileptic character, even if fits are not known to have occurred. Such cases, however, are on the whole rare. Very frequently the epileptic character is not very obvious, particularly if the fits are infrequent. It would therefore, for practical purposes, be most valuable to find a method of concise formulation of the epileptic degeneration.

501 Repeated attempts to investigate the permanent epileptic changes by means of experimental methods have recently been

¹ [First published as "Analyse der Assoziationen eines Epileptikers," *Journal für Psychologie und Neurologie*, V (1905):2, 73-90. Republished in *Diagnostische Assoziationsstudien*, Vol. I, pp. 175-92 (III. Beitrag). Translated by M. D. Eder in *Studies in Word-Association*, pp. 206-26. See supra, par. 1, n.1.J

made: thus Colucci² and Breukink³ tested by means of the ergograph; Sommer⁴ and his pupil Fuhrmann⁵ in particular turned their attention towards associations in epileptics. We consider the latter research as particularly suited for a precise formulation of epileptic degeneration.

⁵2 Fuhrmann reports on an investigation into the associations of two epileptics. The first concerns a patient who was taken ill in his tenth year. The author found that predicates in particular occurred repeatedly and that egocentricity played a prominent part. Not all reactions could be regarded as "associations"; there were also verbal reactions, the content and form of which had no inherent connection with the stimulus-word. Fuhrmann calls these reactions "unconscious." They appear mainly at the beginning of the test sequence (according to the table given by Fuhrmann). Test sequence I starts with the following reactions:

1. bright	faith	5. red	parents
2. dark	health	6. yello	father
3. white	arm	w	chair
4. black	blue	7. green	arm
		8. blue	

⁵3 Fuhrmann does not attempt any interpretation. Kraepelin⁶ mentioned this observation in the latest edition of his textbook, where he states:

[It seemed] as if these ideas, only released but not produced by the experiment, emerged from permanent general trains of thought. Their contents were mainly related to the illness or else to the patient's personal circumstances. We may well assume that the frequency of such associations, determined by inner conditions, not by external stimulation, is particularly facilitated by the mental slowness of epileptics, which prevents them from associating quickly and easily with the stimulus-word, as normal people do.

² "L'Allenamento ergografico nei normali e negli Epilettici" (1902).

³ "Ober Ermüdungskurven bei Gesunden und bei einigen Neurosen und Psychosen" (1904).

⁴ *Lehrbuch der psychopathologischen Untersuchungsmethoden* (1899).

⁵ *Analyse des Vorstellungsmaterials bei ePileptischen Schwachsinn* (1902).

⁶ *Psychiatrie: Ein Lehrbuch tilr Studierende und ;frzte* (7th edn., 1904), 11, p. 626. [The passage is not included in the abstracted translation by Diefendorf (1907)-J

504 **In** 1903 I demonstrated the frequent occurrence of such meaningless connections in an imbecile in a state of emotional stupidity in my paper "On Simulated Insanity." Wehrlin⁷ recently expressly referred to these facts, supported by evidence in his research on associations of imbeciles and idiots. According to our experience these meaningless reactions always occur when the patient is in a state of emotional stupidity, which can, of course, occur in quite a number of mental abnormalities. These "unconscious" reactions are therefore not at all specific for epilepsy.

505 Let us return to Fuhrmann's paper. **In** the first case a repetition of the experiment with the same stimulus-words was carried out after about a month.

506 The second case concerns a patient who had been ill since he was sixteen. Here the experiment was repeated four times within eight months, and a considerable restriction of the extent of the associations, a striking monotony in the reactions, could be observed. Basing his opinion on the associations of two female idiots, Fuhrmann considers that there is a "marked" difference between epilepsy and idiocy, in that general concepts have no meaning for idiots. Wehrlin's investigation shows that the idiot is aware of general concepts but these are extremely primitive. Thus the difference may be more subtle than Fuhrmann appears to assume.

507 Riklin, in his notable paper on "Relieving Epileptic Amnesias by Hypnosis," reports on several association experiments with epileptics. This author deals more with the qualitative aspect of the reactions and arrives at a variety of important findings.

5⁰⁸ He finds a clinging to the content of a reaction and to the same grammatical form, strong egocentricity, personal constellations, a frequent emotional charge in the content of the reaction, and a paucity of ideas.

5⁰⁹ These peculiarities are to a great extent nothing but reflections of the epileptic character. Riklin states that it is possible to read the signs of epileptic degeneration from a sequence of associations. **In** scrutinizing Riklin's observations, however, it

⁷ "The Associations of Imbeciles and Idiots" (1904).

s "Hebung epileptischer Amnesien durch Hypnose" (1902).

has to be pointed out that: (1) Perseveration of the grammatical form need by no means always be an epileptic symptom. Wehrin's paper shows very marked perseveration of grammatical form in imbeciles and idiots. (2) Perseveration of the content occurs also in normal subjects, as I have shown, together with Riklin, in the first contribution of the Diagnostic Association Studies.⁹ Egocentricity and personal constellation too happen in the normal and in the feeble-minded, as well as feeling-toned reaction-contents. The paucity of ideas is, of course, not characteristic for epilepsy, but for mental deficiency generally, and in a certain sense also for emotional stupidity, where it assumes the special form of "associative vacuum."

⁵¹⁰ **In** epilepsy therefore it is a question of the quantity of these symptoms in any given case. It will also have to be considered whether they may perhaps have a more specific quality. I have made it my task to clarify these issues and to attempt to separate what is specific for epileptic associations from the various types of the normal and from congenital mental deficiency. Such an investigation has, of course, to be based on extensive material. The Swiss Asylum for Epileptics in Zurich, with its large numbers of patients, offered a favourable opportunity.

⁵¹¹ The material comes mainly from this institution, where it was collected by the Medical Superintendent, Dr. Ulrich; some of it came from the Burgholzli Asylum for the Insane. The total number of experimental subjects was 158, the total number of associations 18,277. This extensive material allowed us to form some ideas about associations in epileptics; for this reason Dr. Ulrich and I began a methodical inquiry into this subject which contains so much of interest. **In** order to comprehend the essence of the abnormalities of epileptic association as fully as possible, I classified the material as follows:

⁵¹² First, I excluded those cases who were not congenitally mentally defective and those who only contracted epilepsy after leaving school, i.e., after puberty.

⁵¹³ By doing this I discarded the cases, so frequent among epileptics, that are complicated by congenital mental deficiency. According to Wehrin's paper, it seems that imbeciles have a rather characteristic type of association which is mainly marked

⁹ "The Associations of Normal Subjects," supra.

by the tendency to "define" the stimulus-word. The first records of epileptics showed us association types which from the very beginning revealed the greatest similarity to the imbecile type. **In** cases of epilepsy complicated by imbecility or by mental degeneration in early youth, the similarity was even greater. **In** order to find the specific epileptic, it was necessary to eliminate the cases we have mentioned.

5¹⁴ For practical reasons the field of inquiry was further divided; in this paper I am analyzing the reactions of a typical case as fully as possible, and in a forthcoming publication Dr. Ulrich is going to discuss the variants of the epileptic types of association.

5¹⁵ Before dealing with the observations themselves, I must make a few remarks about the technique of obtaining the associations.

5¹⁶ The preparation of the subjects for the experiment is by no means unimportant. One has to consider that as a rule people have no idea what the experiment demands of them; therefore they easily get bewildered. If they become markedly so, this has a distinct influence on the result, as I have repeatedly seen. We therefore introduce the experiment in each case with an instruction: the subject is told that some random word is going to be called out, to which he or she has to answer as quickly as possible with the word or idea that comes to mind without reflection. The instruction is illustrated by a practical example in which the experimenter gives a reasonably complete list of the possible associations. **In** this way the subject is enabled to select freely from this list the reaction that appeals to him most. The unbiased subject will, of course, choose the type of reaction that is characteristic of him. We take special care that the subject does not make a special effort to respond, if possible, with one word only. If this is, nevertheless, the case, then the characteristic form of the response becomes completely obscured and the reaction-time is considerably shortened. **In** women it is often necessary to subdue a nascent emotion by talking casually about the experiment. I usually do this by presenting the experiment as a kind of game.

5¹⁷ For these experiments a new list of stimulus-words was used. I chose two hundred words; 75 of them denote concrete ideas, 25 denote abstract ideas, 50 of them are adjectives, and 201

50 are verbs. The sequence is as follows: noun-adjective, nounverb. They are as mixed as possible so that related stimuluswords do not occur in immediate sequence. No attention was paid to the number of syllables. The stimulus-words were taken from widely varied fields of everyday life, unusual words being avoided as much as possible. Intentionally a number of emotionally charged ideas were interspersed, such as love, to kiss, bliss, friendly, etc., because a particular significance is attached to these words. The reaction-times were checked by a 1/5-second stop-watch.

5¹⁸ I have chosen the following case from our material:

M. Joseph. Toolmaker, born 1863, widowed, no children. 19 convictions. No family history of illness admitted. Good at school, completed a three-year apprenticeship with a locksmith. Good testimonials. No major illness during early years, particularly no sign of epilepsy. Married in 1888. In 1893 his wife contracted a psychosis and died soon after in a lunatic asylum. After his wife was taken ill, the formerly stable and industrious patient began wandering about all over Europe. He left every place of employment after a short time, took to drink, travelled aimlessly about, even in forests. During this period there were frequent collisions with the police, mainly for theft. The patient claims amnesia for most of them. In 1893-94 he was three times in lunatic asylums for violent *mania transitoria*. In 1896 he fractured his skull. In 1896-98 he was again in various lunatic asylums for delirium. In 1898 one-sided twitching, occurring in fits, was noticed. At that time a relatively lucid delirium, with plastic and very stable visions, was observed, and the patient described it with much emotion. The end of 1904 was spent by the patient aimlessly in the mountains eating only poor food. Following a drinking bout, he stole a bicycle. After the theft he wandered aimlessly about and then came into the hands of the police. He was brought in here for observation, which revealed:

Mental deficiency in an epileptic character. Frequent short lapses of consciousness with aura: "Sees black dots, five to six in a row, which are always moving up and down; head feels as if in a clamp or pressed together by screws; chest feels as if a drop were trickling down inside it; there is buzzing in the ears, then fear overcomes him as if he had done something wrong, or he has pains in the back that rise to the head; he has the feeling that he wants to tear everything up, or it is as if a railway engine suddenly rushed towards him." After this aura he gets giddy, everything is spinning around him and he loses consciousness. The lapses of consciousness were also

observed during conversation and particularly while playing cards.
Intolerance of alcohol to a high degree.

5⁹ The associations in this case seemed to me in various respects rather typical for epilepsy, although not all the characteristic symptoms appear in them. This is because each case has its peculiarities, so that here too rather an important role is played by the individual differences between the various reaction-types.

	<i>Secs.</i>		
	hard coal		7. ²
1. coal		eating little	12.0
2. moderate		to sing, to sing a song	6.2
3. song	I assume, what do I assume?		
4. to assume		several things because I am ill	23. ² 4. ²
5. pain	if an apple is rotten, a plant,		
6. rotten	rotten	everything can get 5.8	
7. moon	that is the moon in the sky,		
8. to laugh	moon	here we have the 3.4	
9. coffee	one drinks it, drinks it	man laughs	4.2
10. wide		every day	4.0
11. air	this is the width of a distance (accompanied by an explanatory	gesture)	
unhealthy, fresh	this is the air, nature's air, healthy or		6.2
	air is fresh air		2.2
12. to carry (to wear) ¹⁰	I carry (or wear) something, a burden or fine clothes		5. ⁰

5²⁰ These first twelve reactions already allow some conclusions.

Above all it is striking that the subject reacts not with *one* word but usually with whole sentences. This fact has a certain significance. In my experience, which is supported by the material of more than thirty thousand normal associations, healthy people as a rule tend to react with one word (N.B. after being instructed as eXplained above). There are exceptions when even educated people may prefer the form of a sentence; Riklin and

¹⁰ [German *tragen* has both these meanings. All reaction-time data in this paper are in seconds.]

I quoted such an example in our paper on the associations of healthy people. That subject belongs to the "complex-constellation type," i.e., to that reaction-type whose associations are at the time of the experiment under the influence of an affect-charged complex of ideas. In such cases one recognizes at once the peculiar constellations from the contents of the associations. I refer to this quotation. Among healthy people there is also a type who likes to react with two or more words, though not actually in sentence-form:

⁵²¹ *The Predicate Type.*² People belonging to this type tend mainly to judge and evaluate the object described by the stimulus-word. This is, of course, done in predicate form; thus the tendency is quite obvious and the use of several words sufficiently explained. Certainly neither of these types can be confused with the reactions that now concern us.

⁵²² In the pathological field, however, the sentence form is so frequent and occurs so widely that one can hardly recognize in it anything pathognomonic.

⁵²³ An observation (which I cannot, it is true, support at present by figures) has to be mentioned: uneducated mental patients appear to tend more to form sentences than educated ones. Should this observation become confirmed, it would not be difficult to combine it with the fact that uneducated people are more concerned with the meaning of the stimulus-word than are educated ones, as has already repeatedly been stressed in previous papers. Uneducated people at a very low level, who tend to "answer" with something that is as "fitting" as possible and to explain the stimulus-word as well as possible, need more words for it than educated ones, who merely juxtapose words. This tendency to explain becomes most obvious in idiots and imbeciles, who very frequently form whole sentences.¹³ Our subject shows a preference for sentences which, in the absence

¹¹ See "The Associations of Normal Subjects," par. 429, supra. This case concerns a love-affair that ended unhappily and, moreover, with distressing circumstances that fully explain the strong affect.

¹² Ibid., par. 43².

¹³ A further reason that, in Bleuler's view, facilitates the occurrence of sentences in mental defectives is that it is difficult for them not only to understand a word outside the context of a sentence, but even to think words outside a sentence context.

of sufficient data, is difficult to understand; it may therefore be inferred that we are faced with some abnormality.

pay some attention to the reaction-times. These are abnormally long. (The average reaction-time of uneducated subjects is 2.0 secs.) This does not permit us to draw any conclusions at present, because there is no syndrome in which the reaction-time could not be prolonged. As is well known, Aschaffenburg found somewhat extended reaction-times also in manic patients. It may, in any case, not be advisable to investigate the reactiontimes found in the association experiment, isolated from the analysis of the association contents, because they depend to a high degree on the momentary contents of consciousness.

notice at once that the subject focuses on the meaning of the stimulus-word; there is an outspoken tendency to clarify and characterize the object denoted by the stimulus-word. Wehrlin described this tendency as particularly characteristic for congenital mental deficiency. Perhaps, however, the strong tendency to explain occurs in every variety of mental defect, and it may be assumed that the feeble-minded converge in some respects towards the congenital mental defective, even if the causes of the two conditions are entirely different. The tendency to explain is so obvious in our case that here too we can without difficulty demonstrate the kind of explanation found by Wehrlin among imbeciles. Reactions such as these can be regarded as "tautological clarifications":

to assume	I assume
to carry	I carry something
aIr	this is the air

(with explanatory gesture)

5²⁸ From this we can see no more than a very marked conformity with the explanatory tendency of imbeciles. Moreover, one can even say that the subject is taking pains not to be misunderstood in this respect. Thus he is adding something that confirms and elaborates the explanation in places where there is some doubt whether it is a superficial familiar word-connection, such as in *song / to sing) coffee / one drinks it*.

song to sing, to *sing a song*

(Similarly in 4, 11, 12.) These examples show that the subject needs to accentuate his tendency to explain.

5²⁹ Out of the twelve reactions cited, which show a tendency to explain, we find three containing the word "1." Such reactions belong to the egocentric type. There are egocentric reactions in the normal as well, particularly in subjects with an "egocentric attitude."¹⁴ This attitude can express itself in three different ways:

1. The subject reacts with a number of personal reminiscences.
2. The subject is under the influence of an emotionally charged complex of ideas. He relates almost every stimulusword to himself (i.e., to the complex) and responds to it as if it were a question concerning the complex (a prototype of paranoia, therefore!).
3. The subject belongs to the predicate type and evaluates the content of the stimulus-word from the personal angle.

53⁰ **In** these three types the subject puts himself occasionally into the foreground. Apart from this, egocentric reactions occur as a rule somewhat more frequently in the educated than in the uneducated, but mainly when the subjects are at their ease. For uneducated men we found an average of 1.7 per cent egocentric reactions, for uneducated women only 0.5 per cent. All the more remarkable is the strong predominance of egocentricity here. The cause of it could in the first place be ascribed to mental deficiency. Imbeciles use personal reminiscences relatively often because, owing to their narrow horizon, they have no others available. Wehrlein has given good examples of this.

¹⁴ See "The Associations of Normal Subjects," par. 427. 206

coffe one drinks it, *drinks it every day*
e

Figures found in our material obtained from imbeciles have shown a fluctuation of the numbers for egocentric reactions between 0 and 2.7 per cent. Among fifteen imbeciles there are no more than nine who show egocentric reactions. It must, however, be mentioned that in Wehrlin's material¹⁵ there is an imbecile who is distinguished by the fact of having produced no less than 26,5 per cent egocentric reactions. This is quite an unusual result, for special reasons. This imbecile is also different from the other subjects in that he has not an actual tendency to explain, but with each stimulus-word he forms a "schoolroom-type" sentence which often begins with "I"; e.g.,

fall ¹⁶	I fall down	to run I run swiftly
to loathe	I loathe rotten fish	advice I ask father's advice
head	I have a head	reward I deserved the reward

53' The examples show that, as Wehrlin has already mentioned, this imbecile is mainly trying to formulate correct "schoolroom" sentences, saying "I" in places in which other imbeciles say "one" or "the man." The description "egocentric" can therefore be applied to this case only with some qualification. As already mentioned, this case is an exception and does not alter the fact that as a rule imbeciles avoid the ego-reference. Egocentric reactions in imbeciles are not much in evidence; on the contrary, the subjects prefer the expressions "one," "someone," etc., in order to avoid the "I"-form. Hysteria, too, which has numerous ego-references, prefers the less suspect "one."

53² Our case, with his outspoken tendency to explain, also shows a prominence of egocentric reactions, such as we do not find in imbeciles with the same tendency to explain. One can object that R.12, *to carry / I carry something*, is a "schoolroom" sentence. But one cannot make this objection to 5, *pain / because I am ill*.

533 It is strange enough to see the strong egocentric aspect in imbecility; it is even stranger to observe the peculiar way in which the subject words his explanation.

534 I have already pointed out that in a way the subject accentu-

¹⁵ Case 13 of Wehrlin's paper.

¹⁶ [German *Falle*: "fall" was substituted for the correct translation, "trap," which would not have made sense in this example.]

means of definite examples, one of which is a personal constellation (the subject is a tool maker) and three times qualified.

16. to fly	the bird flies	4.8
17. eye	the eye sees	2.8
18. strong	am strong, that is strong	4.6

Again a clumsy ego-reference followed by a confirmatory but unnecessary sentence.

19. fruit	this is a fruit, a <i>tree-fruit</i>	7. ⁰
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The tendency to confirm and complete leads here to the formation of a new word *tree-fruit* (see also below on this reaction).

20. to create	to work hard means to create	3. ⁶
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To work has an emotionally charged attribute.

21. sail	a sail is a sailing boat on the water	6. 8
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Note the repeated return of the stimulus-word in the reaction. Up to now there were no more than three associations in all in which the stimulus-word did not recur in some form.

22. modest	yes, man is modest when he has learned something	9. ⁰
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Yes is an expression standing for a feeling that is about to take the shape of ideas and words (see R.14). Wherever strong feelings, either easily aroused or very intense, are involved (as in hysteria and certain organic brain-lesions), *yes* and *no* are frequent. The content of this association points to a train of thought hardly to be found in someone born mentally defective.

23. floor	floor of the room	3. ⁸
24. to whistle	I whistle	3. ²
25. purpose	for what purpose? For what purpose are you doing this?	5.6

The reaction is particularly striking because of the repetition of the stimulus-word. Here again we can see that the subject understands the stimulus-word as a question^Y

26. hot	it's too warm, too hot	2.0
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Up to now, hardly one of the reactions shows as well as this one the subject's tendency to confirm and complete the reaction

17 Cf. "The Associations of Normal Subjects," par. 408 (2). 20q

with emphasis. It is as if the subject is each time trying to clarify the meaning of his reaction with special vigour. This emphatic underlining shows up well in the accentuation *too warm) too hot*.

27. resin	fir resin, the resin grows on the fir-tree, on the pine-tree	3.8
28. to arouse	I arouse-I arouse my friend, he is asleep	8.4

Both reactions are again characterized by great completeness, especially the latter, where the subject even completes the picture by *he is asleep*.

29. apple	there are various apples	6.6
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This reaction can be found extremely frequently in exactly the same form in imbeciles.

30. wicked	one says, who is wicked? so-and-so is wicked, that is a wicked person a	6.0
31. case	brief-case	3. ⁰
32. to drink	I drink lemonade sleeping-I	3. ⁰
33. bed	have the bed for	3. ⁰
34. worthy	that person is worthy to whom him honour is due (<i>sic</i>)	9.4

This reaction has linguistically miscarried. Epileptic mental deficiency seems to have in common with congenital mental deficiency that the patient is clumsy and arbitrary in the handling of the language. In imbeciles we find many faulty formulations of sentences and also clumsy neologisms. However, in the association experiment one must not simply ascribe linguistic clumsiness to mental deficiency, since there may also be momentary emotional disturbances that interfere with the linguistic expression. We shall come back to this later.

35. danger	I am in dang~r, in danger of life	
36. to visit	I visit a patient	4. ²

8.⁸

The latter reaction may again be an ego-reference.

37. locksmith	I am a locksmith, an artisan	
38. high	the steeple is usually high	2.8
39. hatchet	the hatchet is an axe	4. ⁸
40. to mix	don't mix yourself up in other people's affairs	3.4

6.2

This reaction very much resembles a common phrase. It is the first in this case. As is well known, just such reactions are very common in normal subjects.

41.path	that is a footpath, a field-path	3.2
42. round	it is a sphere, otherwise it is not a sphere, if it is not round	3.8

A reaction very typical of the pedantic fussiness of the subject.¹⁸

43. blood	every man has, every animal only good or bad, that is the difference	3-4
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In this long-winded reaction we again find similar evaluations to those in R. 11. There it was *healthy or unhealthy air*, here it is *good or bad blood*. The constellation common to both is apparently the question of health, which is important for the patient. R.S and R.36 also refer to this complex. The strong predominance of the illness-complex in the associations of the epileptic has also been stressed by Fuhrmann.

44.to let	I let lodgings	6.0
45.cautious	l\Jan, be cautious	4.8
46.merry	I am merry, I am gay	3.6

¹⁸ Such reactions differ distinctly from certain reactions that can occasionally be obtained from loquacious imbeciles. I quote the following as examples of this type:

Sunday	consists of a day when one does nothing, when one goes to church a high mountain, with houses or without houses
mountain	something to salt with. One salts meat
salt	is made of paper. One makes a newspaper of it on
exercise- book	the finger-jewelry-chain
ring attendant	someone who attends in hospitals, institutions, almshouses
piano	where music is, on the top floor where the organ is, the Misses have played it, next to it (even tells a story of an organ-player)
to swim	in the lake, in the water, in the Rhine, one needs swimming trunks necessary for the meal, soup, flour, meat, pots and pans, casserole parts of the sky, system of planets, sun, moon, and stars
to cook	
star	

In these associations the emphasis and confirmations of the epileptic are absent; they do not express the emotional moment so well. They are more enumerations, which frequently appear like flights of ideas; the train of thought progresses and does not stick anxiously to the stimulus-word.

1. STUDIES IN WORD ASSOCIATION

47. market	the annual fair, that is a market, the fair at Basel only recently took place	7.0
48. to forget	I have forgotten something	5.0
49. drum	the kettle-drum is a drum	3.2
50. free	I am free-I am free, I am a free citizen, it would be nice if only it were true	4.0

In this reaction, apart from the repeated emphasis on *free*, the egocentric relation, clothed in the evaluation *nice*, is noticeable.

51. carriage	a carriage, a team of horses	4.4
52. to eat	I am eating, I am eating a stew	2.4
53. insolence	if a person-there are people who are insolent, insolent in their speech, insolent behaviour	6.8
54. fast	the engine runs fast (probably a constellation arising from his daily work)	3. ⁸
55. fireplace	is a chimney, a factory chimney	2.4
56. to enjoy	I enjoy an evening entertainment, I enjoy pleasure	4. ⁰
57. parson	is a clergyman, a pastor that ought to be a righteous man	2.2

To the reaction, which would be quite sufficient in itself, a feeling-toned evaluation is attached. It resembles R.IS: *intention to live properly*. Are these perhaps indications of a tendency in the epileptic to moralize?

58. easy	what is not easy is difficult	5. ⁰
59. neck	is the neck (points at his neck) every man has a neck	2.8
60. to wish	I wish you luck in the New Year	3. ⁰
61. stone	a marble stone, there are various stones, stone is a product of nature ¹⁹	4. ⁶

Imbeciles too are inclined to use abstract nouns of foreign origin (substance material, article, etc.), which, however, they frequently use in a truly grotesque way.

62. distinguished	the educated man is distinguished the	6.2
63. hose	rubber hose is a hose	4. ⁰
64. to love	I love my neighbour as myself	5. ⁰

¹⁹[German *Na tura lie*, which is felt to be a foreign word.] 212

This reaction seems to me characteristic for the epileptic: Biblical form, strong emotional charge, and egocentricity. For comparison I assembled the reactions to *to love* of ten imbeciles chosen at random.:

- | | |
|------------------------|----------------------------------|
| 1.friendly | 6. I love father |
| 2.to be angry | 7. if one loves one another |
| 3.fiance | 8. if two are fond of each other |
| 4.if one loves someone | 9. if one likes someone |
| 5. pleasant | 10. if one loves someone |

With one exception (6), the imbeciles react very impersonally and in a considerably less colourful way than the epileptic.

- | | | |
|----------|-------------------------------------|-----|
| 65. tile | there are grooved tiles in Basel is | |
| 66. mild | mild weather, is mild, is warm | 2.8 |

54⁰ It is hardly necessary to pile up any more examples. The further associations of this case contain nothing fundamentally new.

54¹ Some more general clarifications may be useful. It must first be mentioned that the subject made gestures with most reactions (which were indicated each time by a tick on the association form). The gesture expressed, wherever possible, confirmation and completion. Secondly, the stimulus-words were repeated in 30 per cent of the reactions. As I shall demonstrate in a later paper, "The Reaction-time Ratio in the Association Experiment," the repetition of the stimulus-word in the normal subject is not accidental but has deep reasons, like all the so-called disturbances occurring in the experiment. Apart from these rare cases in normal subjects, in which the stimulusword is each time quickly repeated in a low voice because of a general self-consciousness, this disturbance mainly occurs only at those points where an emotional charge from the previous reaction perseverates and hinders the following associations. In hysterics I have also seen that the complex-constellating stimulus-word tends to be repeated in a questioning tone.²⁰ These observations teach us that those places where repetitions of the

²⁰ Certain stimulus-words can touch off a feeling-toned complex of ideas that is very important for the individual. This results in certain disturbances of the association which we have described as "complex-characteristics," such as: abnormally long reaction-times, repetition of the stimulus-word, abnormal wording of the critical or of the following reaction.

stimulus-word occur are not at all unimportant in normal subjects. For epilepsy, however, other mechanisms may also have to be considered. **In** this case the first four stimulus-words were repeated, the fourth, *to assume*, even three times. Then there was nothing repeated until the fifteenth, *intention*.²¹ At the beginning a general self-consciousness is likely. **In** *assume* perhaps the "difficulty" of the word can have played a part; the same applies to *intention*. Both, moreover, have extraordinarily long reaction-times (23.2 and 13.0 secs.) which exceed by far those of other reactions. Perhaps then the repetition of the stimulus-word is not simply to be explained by the "difficulty" of the word, but could have been brought about by a perseverating emotional charge. The preceding reaction is *I am tired yes) tired-the body is tired: 3.0*; the following reaction-time is 13.0.

54² Apart from the content, the word *yes* already points to the existence of a stronger feeling-tone. The subsequent repetition of the stimulus-word appears in 19, *fruit*. The reaction preceding this is *am strong) that is strong: 4.6 (fR-T 7.0)*.²² 21, *sail* is repeated. Preceding reaction: *to work hard means to create: 3.6 (fR-T 6.8)*. 22, *modest* is repeated. Preceding reaction: *a sail is a sailing boat on the water: 6.8 (fR-T 9.0)*.

543 Here we have two stimulus-word repetitions immediately following one another, whereby the reaction-times progressively increase: 3.6-6.8-9.0.

544 The reaction to *sail* is a linguistic mishap (in my investigations into reaction-times, linguistic slips have proved to be complex-characteristics). At the near end of the scale is *to work hard*, an emotionally charged, probably egocentric reaction. The third reaction (22) is *yes) man is modest when he has learned something*. It is not difficult to see here a relation in the content to *to work hard*. The assumption that the emotional charge of *to work hard* has perseverated behind the linguistically disturbed reaction and constellated R.22 is therefore not unlikely.

545 47, *market* is repeated. Preceding reaction: *I am merry) I am gay: 3.6 (fR-T 7.0)*. 51, *carriage* is repeated. Preceding

²¹ *Intention* is in any case a very insidious word for certain people. ²² [fR-T = reaction-time of the following association.]

reaction: *I am free-I am a free citizen*) it would be nice) if only it were true: 4.0 (fR-T 4.4).

54⁶ With the exception of the first four reactions most of the other repetitions of stimulus-words coincide with reactions that immediately follow egocentric associations. The reaction-time in these cases is mostly abnormally prolonged. To avoid being unduly long-winded I shall not bring any further evidence for this fact; I can, however, give an assurance that, with only very few exceptions, all the other repetitions of stimulus-words took place near strong emotional charges.

547 **In** several reactions a certain linguistic awkwardness was noticed. One is tempted, in analogy with imbecility, to make the epileptic mental defect responsible for these faulty formations. "We know, however, another source for slips of the tongue: namely, the strong emotional charge of a complex aroused by the stimulus-word. **In** my communication on reaction-time in association experiments I shall quote a number of examples from which it can be seen how reactions are influenced in normal subjects by an emotionally charged complex. Apparently quite casual slips of the tongue, which the subject himself hardly notices, prove to be meaningfully determined products of the mixture of two competing ideas.²³ Before therefore ascribing the linguistic mishaps to mental defect it is advisable to investigate whether perhaps the mechanism discovered in the normal subject is here too the cause of the incorrect sentence or wordconstruction. Amongst the associations quoted here, there are three linguistically incorrect ones. I am pairing each of these three associations with the immediately preceding ones (the incorrect construction is given in italics):

18. strong	am vigorous, that is, strong	4. ⁶
19. fruit	(stimulus-word repeated) this is a fruit, <i>a tree-fruit</i>	7. ⁰
20. to create	to work hard means to create	3. ⁶
21. sail	(stimulus-word repeated) <i>a sail is a sailing boat</i> on the water	6.8
33. bed	sleeping-I have the bed for	3. ⁰
34. worthy	(stimulus-word repeated) that person is worthy <i>to whom him honour is due</i>	9.4

23 Cf. also Freud's observations in *The Psychopathology of Everyday Life*.²¹⁵

54⁸ These three faulty constructions have in common:
 1. The stimulus-word of the faulty association was each time repeated.

2. Everyone of the incorrect reactions has a reaction-time not only higher than that of the preceding reaction but prolonged beyond the average of the others.²⁴

3. Two of the incorrect associations follow emotionally charged reactions: for the third this is at least probable according to the content and the analogy with similar cases.

54⁹ These observations give us so many starting points for an explanation that we may hardly assume mental deficiency to be the cause of the incorrect constructions.

55⁰ From these observations we can see that a specific epileptic mechanism can be found neither in the numerous repetitions of the stimulus-word, nor in the faulty constructions of the sentences. It is, however, debatable whether anything specifically epileptic can be seen in the intensity of these otherwise normal processes. Here perhaps the reaction-times, a valuable aid for judging emotional processes, can give us some information.

55¹ All time-averages given here are "probable means."²⁵ The time measurements for the subject give 4.2 seconds as a general probable mean (uneducated normal person: 2.0 secs.). The general reaction-time is thus more than twice as long as that of corresponding normal subjects. This mean, however, is only a "gross" figure; it is composed of several unequal magnitudes. As I shall show in my later publication, reactions complicated by feelings are usually prolonged. If therefore there are many such reactions the general mean may under certain circumstances be strongly influenced. If we now eliminate all those reactions that, according to the criteria already given, are remarkable because of their feeling-toned egocentric contents and also those reactions that immediately follow these, then we obtain 3.8 secs. as a probable mean for all the assumedly un-

²⁴ I find in normal subjects that reactions constellated by a conscious or unconscious complex often show abnormally long reaction-times; in some cases the emotional charge can even involve the following reaction, for which the reaction-time also becomes extended.

²⁵ See Aschalfenburg, "Experimentelle Studien (iber Assoziationen)" (1896 ff.). (For the calculation, see my later paper on reaction-times.)

complicated reactions, while the probable mean for those eliminated is 4.8 secs.

55² Thus the feeling-tone makes a difference of 1.0 sec. This state of affairs is not very different from that of the normal. As we have seen in several examples, there is frequently a considerable difference between the times of feeling-toned associations and those of the reactions immediately following them. We therefore investigate separately the time of these two groups. As a mean for the reactions containing a feeling-toned idea we have 3.6 secs., a figure 0.2 secs. lower than the mean for associations not feeling-toned; for the associations immediately following those that are feeling-toned, however, there is a mean of 5.8 secs. This unusually high mean, which exceeds that for the uncomplicated reactions by not less than 2.0 sec., expresses the important fact that the feeling-tone inhibiting the reactions perseverates from the critical reaction and exerts its main influence on the following reaction. Thus the effect of the feeling-tone inhibiting the reaction cannot as a rule be demonstrated in the critical reaction but only in the following reaction. One must therefore assume that in this case the feeling-tone does not properly set in until after the critical reaction, increases very gradually, and then decreases slowly, still inhibiting the following reaction. This state of affairs appears the more remarkable when we remember that the experimenter has to write down the reaction, to read the stop-watch, and to call out the next stimulus-word, and that the writing down of the reaction, which may be rather long, takes most of the time. I also tried to make similar observations about the associations of normal subjects. For this purpose I took the associations of a case of whom I possess a most detailed analysis, so that I was fully informed as to all complex-constellated associations. The probable mean of all associations not complicated by feelings is 1.2 secs. The mean of the feeling-toned reactions is 1.6 secs. The mean of the reactions immediately following the feeling-toned ones is 1.2 secs. This equals the mean of the uncomplicated reactions. If, therefore, in the mentally normal subject the complex-arousing stimulus-word is followed by a reaction-time on average 0.4 secs. longer than that of the immediately following or irrelevant stimulus-word, this only means that in the normal subject the feeling-tone sets in much

faster and subsides again incomparably faster than in our epileptic; thus the average reaction-time of the following association is unimpaired in the normal subject, whereas in our epileptic, as we have seen, the reaction-time for the following critical association is unusually prolonged.

553 This important and interesting peculiarity appears to be of a pathological nature; how far it is typical for epilepsy has to be learned from the further study of our vast material.

554 There seems to be something characteristic for our case in this phenomenon, because one can also assume the existence of such an enormous emotional process from the quality of the associations. I have repeatedly pointed out the fact that the subject frequently emphasized his reactions with his voice as well as also sometimes with words giving expression to some feeling (e.g., *hot / it's too warm*) *too hot*; *tired / I am tired-yes*) *tired -the body is tired*; etc.). This peculiar form of reaction also seems to indicate that the feeling-tone sets in slowly and increases slowly, in this way releasing even more associations in a similar direction. It is most likely that the feeling-tone in the epileptic is of greater intensity than in the normal subject, which again is bound to prolong the feeling-tone. It is, however, difficult to say whether the epileptic's feeling-tone is necessarily abnormally prolonged.²⁶

555 In my analytic investigations into the reaction-times of normal subjects I was able to demonstrate the existence of one or more feeling-toned complexes of ideas that constellate a large number of the associations. I have already pointed out that in our epileptic also there exists a ~omplex that constellates many of the associations. It is the complex of the illness. The following associations may be related to this complex:

5. pam	because I am ill	4.2 (fFl-T 5.8)
14. tired	I am tired-yes, tiredthe body is tired	3.0 (fFl-T 13. ⁰ Flr)27

²⁶ This suggestion would also explain the epileptic perseveration in terms of the abnormality of the feeling-tone. It is, however, not unthinkable that the epileptic idea is abnormal in that it lasts longer than in the normal subject, and therefore produces a number of associations that still belong to the initial idea. Under these circumstances one could certainly expect relatively numerous perseverations of the contents. There is, however, none present in this case.

²⁷ Rr = repetition of the stimulus-word in the following reaction.

18. strong	am vigorous, that is, strong	4.6 (fFl-T 7.0 Flr)
43. blood	every man has, every animal only good or bad, that is the difference	3.4 (fFl-T 6.0 Flr)
46. merry	I am merry, I am gay	3.6 (fFl-T 7.0 Flr)
A more remote	constellation might be:	
11. aIr	this is the air-healthy or unhealthy	2.2 (fFl-T 5.0)
36. to visit	I visit a patient	4. ⁸

The reaction following is:

37. locksmith	I am a locksmith, an artisan	2.8
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55⁶ Because of his illness the patient was hospitalized, a fact that made a great impression on him. He feared especially that he might never be discharged, nor be able to work and earn his living any longer. He was also homesick. The following reactions perhaps refer to this aspect of the complex:

20. to create	to work hard means to create	3.6 (fFl-T 6.8 Flr)
35. danger	I am in danger, in danger of life	4.2 (fFl-T 4.8)
50. free	I am free-I am free, I am a free citizen, it would be nice if only it were true	4.0 (fFl-T 4.4 Flr)
60. to wish	I wish you luck in the New Year	3.0 (fFl-T 4.6 Flr)

Regarding this last reaction, it must be added that the associations were taken before Christmas-at a time, therefore, when sensitive patients suffer twice as much from hospitalization.

557 These few examples may suffice to show that quite a number of associations are constellated by a feeling-toned complex. This state of affairs in itself is not at all abnormal, since the associations of normal people are also often constellated by such complexes.

SUMMARY

55⁸ 1. In common with the associations of normal persons:

(a) The patient adapts himself to the meaning of the stimulus-word in the same way as uneducated subjects. Therefore there are no superficial word associations.

(b) The associations are partly constellated by an illness-complex.

II. In common with the associations of imbeciles:

(a) The adaptation to the meaning of the stimulus-word is so intense that a great number of associations has to be understood as "explanation" in the sense of Wehrlin's paper.

(b) The associations are in sentence-form.

(c) The reaction-times are considerably prolonged, compared with the normal.

(d) The stimulus-word is frequently repeated.

III. Peculiarities compared with normal and imbecile subjects:

(a) The "explanations" have an extraordinarily clumsy and involved character which is manifest particularly in the confirmation and amplification of the reaction (tendency to completion). The stimulus-word is frequently repeated in the reaction.

(b) The form of the reaction is not stereotyped, apart from the egocentric form that occurs particularly often (31 %).

(c) Frequent emotional references appear rather bluntly (religious, moralizing, etc.).

(d) The reaction-times show the greatest variation only after the critical reaction. The abnormally long times are therefore not to be found with particularly difficult words, but in places determined by a perseverating emotional charge. This permits the conclusion that the feeling-tone probably sets in later and lasts longer and is stronger in the epileptic than in the normal subject.

559 In conclusion I beg to remark that the value of my analysis lies only in the case-material and that therefore I do not dare to draw any general conclusion from it. There are many forms of epilepsy that may have quite different psychological characteristics. Perhaps the fact that my case is complicated by a fracture of the skull sets it apart.

THE REACTION-TIME RATIO IN THE ASSOCIATION EXPERIMENT¹

⁵⁶⁰ As the subject of the present investigation I have chosen the ratio of the time-interval between calling out the stimulusword and the patient's verbal reaction. I am calling this period simply the *reaction-time*, knowing that it is a matter of a compound whole that can be divided, not only deductively but also empirically, into numerous compOnents. I am not going to attempt an analysis of [his kind for it could only be a matter of hypotheses that would have to be supported, quite unjustifiably, by anatomical data. The components of our reactiontime are known to us only in part, and careful examination must necessarily show them to be tremendously complicated, as we can see from the following summary given by Clapan~de:2

1. Transmission of sound to the ear of the recipient.
2. Neural conduction to the auditory centre.
3. Word-recognition (primary identification).
4. Word-comprehension (secondary identification).
5. Evocation of the associated image, i.e., pure association.
6. Naming of the idea evoked.
7. Excitation of the motor speech-apparatus or the motor-centre of the hand when measurement is made by means of a Morse telegraph key.
8. Neural conduction to the muscle.

⁵⁶¹ A purely superficial examination of these eight factors shows that only a few of the most important processes are

¹ [Originally published as "Ober das Verhalten der Reaktionszeit beim Assoziationsexperimente," *founzal fur Psychologie und NeuI'Ologie*, VI (1905): *lh*, 1-36; republished separately the same year as Jung's *Habilitationschrift*, Le., treatise submitted for recognition as lecturer in psychiatry at the University of Zurich. Republished in *Diagnostische Assoziationsstudien*, Vo!. I, pp. 193-228 (IV. Beitrag). Translated by M. D. Eder as "Reaction-time in Association Experiments," *Studies in Word-Association*, pp. 227-{}5. See supra, par. 1, n.1.]

[In this study, the symbol τ = a millisecond, or 1/1000th of a second.]

² *L'Association des idees* (1903), p. 275. The construction of the schema follows Ziehen, "Die Ideenassoziation des Kindes" (1900), p. 14.

stressed. The innumerable possibilities of intra-cerebral process are by no means exhausted in this summary.

⁵⁶² So far as we know these components, they are of very short duration, even the longest of them should not exceed 50 (τ) (Ziehen). Some of these components might, in normal circumstances, be of fairly constant duration, as for instance the time of the neural conduction, of the excitation of the centres, etc. In any case, their variations will occur only within relatively narrow limits. The variation of the identification periods, however, are greater, and the longest of all are the actual association-time and that of the verbal formulation of the reaction. Thus, in the association experiment, the latter factors will be of the greatest importance.

⁵⁶³ Anyone conversant with the association experiment knows how wide are the limits within which reaction-times vary. In our experience times of up to six seconds are by no means rare, even with quite normal subjects. The great variability of the times gives us the necessary lead for establishing a *method of measurement*. So long as we have inadequate knowledge of the causes of the variations, small differences cannot tell us anything; we do not therefore need a complicated experimental set-up in order to measure the intervals in one-thousandths of seconds, for we can safely ignore small differences so long as the causes of the greater variations are still hidden. Quite apart from the fact that the complicated methods of exact time-measurement do not reveal more than measurements taken with a 1/5-second stop-watch, there are weighty arguments against the use of complicated apparatus like labial keys^{2a} and megaphones or of dark-room methods. Considering that Mayer and Orth³ even thought it necessary that the eyes should be closed throughout the experiment, to avoid distracting sensations, surely the apparatus mentioned do not contribute anything to the simplification of the experiment or the prevention of disturbing influences. In any case, inexperienced subjects should not be used in experiments of this kind if one is not to

^{2a} [Labial keys are electrical contacts fastened to the subject's lips; they close an electrical circuit that is interrupted each time the subject opens his mouth and thus mark the moment when the reaction is uttered-C. A. M.]

³ "Zur qualitativen Untersuchung der Assoziationen" (1901).

risk gross distraction. Finally, in the case of psychotics exact measurements are impossible.

⁵⁶⁴ For this reason, measurement with a 1/5-second stop-watch not only appears entirely satisfactory, but has been proved adequate by several other writers in numerous experiments. Mayer and Orth worked with a 1/5-second stop-watch, so did Thumb and Marbe,⁴ Wreschner,⁵ Sommer, and others. Claparede⁶ holds that this is adequate in all experiments regarding successive associations. Besides the fact that the watch is easy to handle, a further special advantage is that the second hand disturbs the experiment as little as possible, a factor which is particularly valuable in experiments with uneducated subjects, who are easily upset.

⁵⁶⁵ Considering the great differences in the times, it means little that the times measured are all somewhat too long. All of us who have worked with a stop-watch know too that it functions with only limited precision, since the stopping mechanism does not always hold the second-hand at the exact place it was at when the button was pressed. There are also certain variations in the personal equation that can influence the measurement. In spite of numerous imponderables, we can still, at least in my experience, assume that the measurements are accurate to approximately 1/5 second, i.e., 200 μ . This small disadvantage has not so far had any adverse effect on our experiments.

⁵⁶⁶ The material that forms the basis of this investigation consists of time-measurements that were taken by Riklin and myself during association experiments with normal subjects. Out of 38 cases, whose associations we have already discussed, reaction-times were taken in 26. In about half the cases Riklin did the timing. The personal differential in the measurements of the two experimenters can, as we have established by means of control experiments, be determined at less than 1/5 second and can, therefore, be considered unimportant.

⁴ *Experimentelle Untersuchungen über die psychologischen Grundlagen der sprachlichen Analogiebildung* (1901).

⁵ "Eine experimentelle Studie über die Assoziation in einem Falle von Idiotie" (190^b).

⁶ Op. cit., p. 261.

⁷ "The Associations of Normal Subjects," supra.

5⁶⁷ Here are the number and analysis of the measurements:

1. 7 uneducated women	1,201 reaction-times
2. 7 uneducated men	1,007
3. 6 educated women	94 ⁸
4. 6 educated men	9 ⁸⁸
26 subjects	4,144 reaction-times

A. *The Average Duration of an Association*

5⁶⁸ **In** his studies of associations, Aschaffenburg says: "The fact that the difference between duration of the association of normal subjects and that of others, which lies between 1,200 and 1,400 τ , can be as much as 50 per cent is of the greatest importance. This brings home to us how little value can be attributed to the absolute duration."B

5⁶⁹ Aschaffenburg bases this opinion on the observation that the reaction-time is subject to very considerable individual variations. Correspondingly, the data recording the average duration of association contained in the literature show wide discrepancies. Fere, 9 for instance, found an average of 700 τ in men, 830 τ in women. Galton¹⁰ gives 1.3 seconds as the average, and Trautscholdt's¹¹ figures range between 1,154 and 896 τ .

5⁷⁰ These examples should suffice to show how little agreement there is between the various writers. The differences can be reduced to the following points:

- (1) The methods of measurement differ according to the apparatus used and other experimental conditions.
- (2) The degree of practice of the subject is variable.
- (3) The methods of computing the mean vary. **In** practice, only two methods of computation are in use:
 - a. The arithmetical mean.
 - b. The probable mean (Kraepelin).

5⁷¹ **In** view of the fact that excessively long reaction-times frequently occur in the association experiment, the application of the arithmetical mean does not appear advisable in that by

⁸ "Experimentelle Studien über Assoziationen" (1896), p. 27². ⁹ *The Pathology of the Emotions* (orig. 1892).

¹⁰ "Psychometric Experiments" (1897).

¹¹ "Experimentelle Untersuchungen über die Assoziation der Vorstellungen" (1883).

this method the high values influence the otherwise quite low average values in a most disturbing and possibly quite misleading manner. This can be avoided by using the method of the probable mean, which consists in arranging the figures in the order of their numerical value and taking that nearest the middle. By this means the influence of excessively high values is eliminated. In by far the largest number of cases the probable mean is for this reason lower than the arithmetical mean. For example, three of my subjects show the following values:

Probable mean	1.8	2.0	1.
Arithmetical mean	2.	3. ⁰	6
	8		3. ⁶

As the example shows, such differences can influence the general mean to a considerable extent. It is therefore not a matter of indifference which method of calculation is used. Ziehen's "representative value," which demands fairly intricate calculations, should, for this reason, not meet with much approval, although it does make possible a very just appraisal of the individual figures. Finally, the highest value depends on external contingencies, and can be used only in certain conditions.

57² For these reasons, the probable mean appears to be the method with the most to recommend it for quickly deriving averages from large numbers of figures.

(4) The number of subjects used by the early writers on this subject was mostly too limited, and their selection too onesided.

573 My endeavours have not been directed towards discovering absolute means, but merely approximate figures which can, to a certain extent, give us the levels of the values of normal subjects from varying social strata. As I believe that the association experiment, carried out in approximately the way it has been practised in this clinic for several years past, will play an important role in the future diagnosis of mental illness, it seems to me to be most important to find general normal meanvalues which can form a firm basis for the assessment of pathological values.

574 The general mean-value of the duration of an association seems to be 1.8 seconds. This figure was arrived at in the following way: First of all, the probable mean for each of the twenty-six subjects was calculated, and then the arithmetical mean was derived from the individual values. This method was

chosen because twenty-six subjects represent a very modest number, and it would be unjust to exclude the individual values from the calculation through the application of the probable mean.

575 This mean shows a fairly long duration of the reaction-time; it is considerably higher than the values given in the literature. The causes of this lengthening can be attributed to the following:

(1) The points mentioned above (measurement with a stopwatch, unpractised subjects, who in part come from lower social strata).

(2) The majority of the subjects are Swiss, the significance of which in our acoustic/linguistic experiments has already been emphasized in our previous contribution, which the reader may refer to.¹²

576 The varying data show what the interpretation of the values depends on. The variability of the mean is most easily demonstrated by classifying the subjects according to certain simple criteria and comparing the figures of the individual groups.

B. *Sex and Reaction-time*

577 As already mentioned, Ferc~ has given longer times for women than for men. This result is confirmed by our figures:

men	1.6 secs.
wome	2.6

These values indicate that women reactedⁿ considerably more slowly in our association experiments. It must be pointed out in criticism of this result, however, that the educated women among the subjects approach the educational level of the educated men, whereas, on the other hand, the cultural level of the uneducated women is inferior to that of the uneducated men. As may be known from Ranschburg's¹³ and our own earlier investigations,¹⁴ uneducated subjects, and especially the women among them, produce much higher figures than educated subjects, and give a considerably higher percentage of

¹² "The Associations of Normal Subjects," supra, par. 10.

¹³ Ranschburg and Balint, "Dber quantitative und qualitative Veranderungen geistiger Vorgange im hohen Greisenalter" (19⁰⁰).

¹⁴ "The Associations of Normal Subjects," supra, pars. 436ff. 226

internal associations, while purely linguistic associations are very much less prominent. According to Ziehen's¹⁵ observations on children, associations by means of internal connections (semantic relationships) are distinguished by the longer reaction-times, whereas verbal associations need the shortest times. This fact stressed by Ziehen, was denied by Aschaffenburg,¹⁶ since he finds on the basis of his observations "that no form of association is characterized by especially notable differences of duration." The figures given by Aschaffenburg can, it is true, not be interpreted in any other way, but they can perhaps be explained by his one-sided selection of subjects. Ziehen's claim that "images that are related to each other externally, such as, for instance, rhyming words" are reproduced more quickly, is in full accord with everyday experience.

⁵⁷⁸ This point, too, should be taken into account in explaining the longer association-times of women. Whether this explanation is sufficient, further consideration will tell. **In** any case, we must investigate the influence of education before discussing a possible sex difference in the reaction-times.

C. Educational Level and Reaction-time

	<i>Educated Subjects</i>	<i>Uneducated Subjects</i>
⁵⁷⁹ Men	1.3 secs.	1.8 (1.6) ¹⁷ secs. 2.2
Women	1.7	2.0 (1.9)
Average	1.5	

⁵⁸⁰ Our previous investigations demonstrated that uneducated subjects produce more internal associations than the educated. The ratio of internal to external associations is 43 : 53 per cent with uneducated and 36 : 59 per cent with educated subjects. One is therefore tempted to connect the differences in the reaction-times with these ratios and to state: the smaller number of internal associations with educated subjects corresponds to the shorter reaction-time, and vice versa, the greater number of internal associations with uneducated subjects corresponds to the longer reaction-time.

¹⁵ "Die Ideenassoziation des Kindes."

¹⁶ "Experimentelle Studien iiber Assoziationen."

¹⁷ Among the uneducated male subjects there is a young man of a slightly hysterical disposition, whose mental soundness we may have overestimated. His probable mean is no less than 3-4 seconds (an abnormally high value!). If this doubtful subject is left out, then the mean for men is only 1.6 seconds.

5⁸¹

However plausible this hypothesis may appear, particularly in view of Ziehen's statements, consideration of the figures of the different sexes does show, however, that the position is not so simple. On closer consideration of the educational levels of the subjects, it must be expressly mentioned that the educational difference between the educated and the uneducated is incomparably greater than that between educated men and women, so that it is quite incomprehensible why the time-difference of 0.4 seconds is the same between educated men and women as between educated and uneducated subjects. Moreover, the reaction-time of 1.7 seconds for educated women, as against 1.3 for educated men, does not correspond at all to the percentage-ratio of internal and external associations; for the educated women show 35: 61 per cent and the men only 3⁶: 56 per cent. Similarly, the time-difference of 0.4 and 0.6 seconds respectively between uneducated men and women in no way corresponds to the difference in educational level between the two sexes in the uneducated group. In both cases there remains a time-difference against the female which in no way corresponds to any variation in educational level. If we take the time-difference of the two groups of men on the one hand and of women on the other, the difference in educational standards is a sufficient explanation, as has already been very clearly shown in the ratio of the association-qualities one to another. The observations of vVreschner⁸ and Wehrlin⁹ also lend support to this assumption, as they have demonstrated a general slowing down of associational activity in cases of pathological deficiency in intelligence and education (congenital feeble-mindedness). Wehrlin demonstrates an increased incidence of internal associations along with longer reaction-times.

5⁸²

Whereas the uneducated women produce slightly more internal associations than the men, the position with regard to educated men and women is actually the reverse, in that the educated women have fewer internal associations than the men; nonetheless, there is a time-difference between the sexes that is greater than that between the educated and uneducated. As we have seen, we can account for this neither by a greater number of internal associations, nor by the small difference in educa-

18 "Eine experimentelle Studie über die Assoziation in einem Falle von Idiotie" (1g00).

19 "The Associations of Imbeciles and Idiots" (orig. 1g04) 228

tion. Here a new factor seems to be at work, presumably the difference of sex.

5⁸³ The justification of this hypothesis will be dealt with below. Before we approach this task, however, we must investigate the influence that the individual stimulus-word has on the reaction.

D. The Influence of the Stimulus-word on the Reaction-time

5⁸⁴ The preceding investigations into association-times have been principally concerned with the connection between the quality of the association (i.e., the reaction) and its duration. Trautsholdt attempted to establish certain connections and claims, among other things, that verbal associations take the shortest time. Ziehen's and Aschaffenburg's observations have already been mentioned. We must now find out whether the influence on the reaction-time of the two components of the association—the stimulus-word and the reaction—cannot be examined separately. Only an extensive material can be expected to yield definite information. For this reason I have already attempted, with Riklin, to demonstrate the influence of the stimulus-word on the quality of the reaction. Here certain regular occurrences appeared, namely:

5⁸⁵ (1) The grammatical form of the stimulus-word has a considerable influence on the form of the reaction, and the form of the reaction is indeed determined by it; the subject tends to clothe the reaction in the grammatical form of the stimulusword.²⁰ Individual figures showing this tendency vary greatly. My 'stimulus-words, which consist of 60 per cent nouns, 18 per cent adjectives, and 21 per cent verbs (the various parts of speech are well mixed up in order to avoid a continuation of one form of reaction), have given these results:

5⁸⁶ Individual figures of grammatical agreement vary between 26 per cent and 95 per cent. The average figure for educated subjects is 51 per cent and for the uneducated 59 per cent. Thus the uneducated show a somewhat clearer tendency to

20 Münsterberg, Kraepelin, and Aschaffenburg have all dealt with this question. Kraepelin found that, in about 60% of cases, where the stimulus-word was given in the form of a noun, the reaction was also given as a noun; Aschaffenburg, testing 16 subjects, found the same result in 81 %. It may be remarked that he used only nouns as stimulus-words, on principle. This fact induces the subjects to indulge in perseverating with the same reaction-form; that is why these figures have only limited value. By "grammatical form" I understand merely noun, adjective, or verb.

allow themselves to be influenced by the form of the stimulusword. (This holds good not only for the grammatical form but also for the number of syllables and alliteration!)

5⁸⁷ (2) The tendency to agreement in grammatical form is limited by the influence of the law of frequency. **In** speech, adjectives and verbs occur only about half as often as nouns. ²¹ The noun, therefore, has a higher frequency-value, so that the probability of the reproduction of a noun is greater than that of an adjective or verb.

5⁸⁸ **In** our experiments noun stimuli were followed, on an average, by 73 per cent nouns (Aschaffenburg: 81 per cent). As verbs and adjectives have a lower frequency-value, their influence on the form of the reaction will be correspondingly less. Our experience confirms this supposition: verb stimuli were followed, on an average, by 33 per cent verbs. The number of nouns is on an average 49 per cent, it has thus been lowered through the tendency to agreement in grammatical form. A somewhat stronger influence is exerted by adjective stimuli, which are followed by 52 per cent adjectives. The number of nouns was reduced to a mean of 44 per cent through adjective stimuli. From these facts it appears that the frequency of nouns can be reduced, on the average by about half, by using verbs and adjectives as stimulus-words.

5⁸⁹ (3) From our earlier investigations²² it appears that the quality of the association is influenced to quite an extent by the grammatical form of the stimulus-word. Whereas, for example, with uneducated women the ratio of internal to external associations is 1 : 1.06, the ratio of associations which follow adjectives in particular is 1 : 0.62 and that of associations following verbs is 1 : 0.43. The number of internal associations to verbs and adjectives thus increases considerably. The same phenomenon is also found in educated subjects, but in a smaller degree. The increase in internal associations seems to be accounted for by the fact that, by virtue of the lower frequencyvalue of verbs and adjectives, fewer common word-sequences exist with these than with nouns. For this reason associations following verbs and adjectives are much less canalized and

21 I have counted them in newspapers and in interview articles and have found approximately the same proportion.

22 "The Associations of Normal Subjects," supra. pars. 475ff.

require a greater concentration, as a result of which, of course, semantic relationships emerge more readily than superficial and more external connections.

59⁰ Thus we can see that more internal associations follow verbs and adjectives than follow nouns; according to observations made by Ziehen, who has found higher time-values for semantic relationships, it is to be expected that on the average verbs and adjectives should be followed by higher time-values than nouns. As, however, nouns refer to images that are to be evaluated differently, and that can to a great extent influence the reaction-time, they have been classified as concrete and abstract. One further reason was that uneducated subjects especially are easily startled by abstract terms.

59¹ The probable mean-times for all subjects are as follows:

Concrete nouns	1.67 secs.
Abstract nouns	1.95
Adjectives	1.70 "
Verbs	1.90 "

These figures correspond to our expectations: reactions to verbs and adjectives show a longer time than those to concrete nouns. The longest time of all is taken for abstract terms, which was also to be expected.

592 This picture becomes more interesting when the subjects are divided into groups.

Probable Mean of the Reaction-times to Concrete Nouns etc. as Stimulus-words

	UNEDUCATED		EDUCATED	
	Women	Men	Women	Men
Concrete nouns	2.0	1.7	1.6	1.4
Abstract nouns	2.8	1.9	1.8	1.3
Adjectives	2.2	1.7	1.7	1.2
Verbs	2.4	2.0	1.9	1.3

593 The table²³ shows that uneducated people have longer reaction-times than educated ones. The longest time occurs for abstract ideas with uneducated women, whereas with educated men these words need an even shorter time than concrete ideas. It is striking that, in contrast to all other subjects, educated

²³ The individual values on which this table is based vary between 1.0 and 4.4 seconds.

men have the longest reaction-time in response to concrete ideas. This fact is significant in so far as it shows that the influence of the stimulus-word on the duration of the association does not consist merely of those elements just mentioned. If we compare the figures of this group with the values that Aschaffenburg has found with similar subjects, it appears that the figures found by using a stop-watch are similar to those obtained by labial key and chronoscope.²⁴

E. The Influence of the Reaction-word on the Reaction-time

594 **In** the above discussion we have explained how the reaction-time is affected by the stimulus-word's being a noun, adjective, or verb. We must now find out what happens to the reaction-time when the reaction-word is a noun, adjective, or verb.

595 The probable mean-times of all subjects are as follows:

concrete nouns as reaction-words	1.81 secs.
abstract	1.98 " 1.95
adjectives	" 1.66 "
verbs	

596 If we compare this table with the earlier one, which gave the mean-times for the corresponding stimulus-words, it appears that in both cases abstract terms produce the longest intervals (1.95 and 1.98 seconds); if the reaction-word is a concrete one a longer time is taken than that produced by a concrete stimulus-word (S. 1.67; R. 1.81 seconds). This difference might be due to the fact that there are many current word-compounds containing nouns, whereas noun following noun signifies an inner relation, or at least an association by coexistence (which, by the way, in uneducated subjects appears as an internal association; cf. our earlier investigations).²⁵ Under the heading "concrete nouns as reaction-words" numerous internal associations are crowded together, which is probably the cause of the long reaction-time. The opposite can be seen with verbs and adjectives as reaction-words. Their average val-

²⁴ One could easily pose a whole series of questions on this theme; for instance, what is the reaction-time when verb is followed by verb and noun by noun? how does this vary between different subjects? and so on. This, however, would lead us too far afield.

²⁵ "The Associations of Normal Subjects," supra, par. 445.

ues are less, compared with those on the earlier table (1.70, 1.90 : 1.65, 1.66 because under these headings, particularly in that of verbs, current word-compounds abound.

597 The probable mean-values of the individual classes of subject are these:

*Possible Mean-times for Concrete Nouns etc.
as Reaction-words²⁶*

	UNEDUCATED		EDUCATED	
	Women	Men	Women	Men
Concrete nouns	2.2	1.85	1.7	1.5
Abstract nouns	2.7	2.0	2.0	1.1
Adjectives	2.0	1.7	1.7	1.2
Verbs	1.9	1.7	1.8	1.3

598 These relatively lower values for adjectives and verbs are shown here in all four groups. Here, as in the previous table, the uneducated women again show the highest figures. The relatively high figures for concrete nouns are striking. The fact already mentioned in the previous section, that cultured men take their longest time to react with concrete nouns, is also in evidence here. An explanation of this is perhaps to be found in the circumstance that in this group very many semantic relationships (causing delay) occur.

*F. The Influence of the Quality of the Association on the
Reaction-time*

599 As we have seen, Aschaffenburg's investigations into the influence of the quality of the association on the reaction-time did not lead to unequivocal results; Ziehen's success, already mentioned, is therefore all the more encouraging. I too have conducted some research on this subject in which I have confined myself to the three principal groups of our earlier classification: internal, external, and sound reactions. This has produced the following average figures:

	UNEDUCATED		EDUCATED	
	Women	Men	Women	Men
Internal associations	2.8	1.9	2.1	1.6
External "	1.9	1.7	1.8	1.3
Sound reactions	2.6	2.4	2.0	1.8

²⁶ The individual mean-values on which this table is based vary between 1.0 and 4.0 seconds.

600 There is a distinct difference between the reaction-times for internal and external associations in that external associations take up decidedly less time. A different picture is presented by sound reactions, where one would expect the shortest times, as sound reactions quite rightly are to be regarded as the lowest and least valuable form of association, and for that reason could be produced in the shortest time. In practice, however, the situation is obviously not as simple as one would surmise in theory. As I have so often observed, the most superficial sound reactions very often take a very long time. As a rule, in my experience, sound reactions are usually abnormal reactions and their formation is mostly attributable to some kind of distracting influence; of what kind this disturbance usually is, the following chapter will show.

G. *Prolonged Reaction-time*

601 To demarcate the concept of a "prolonged" reaction-time, I call any time prolonged that takes longer than the probable mean for the subject concerned. Thus, if the average for the individual subject is 2.5 seconds, then 3 seconds is overlong.

602 Let us first recapitulate what is so far known of the causes that (of course, only in our experiments) lengthen reactiontimes:

- (1) Certain grammatical forms of the stimulus and reactionwords.
- (2) Semantic relationship between stimulus- and reactionwords.
- 603 tions (3) The rarity or difficulty of the stimulus-word (abstrac. .)
- (4) Ziehen²¹ states the remarkable fact that (in contrast to generic reactions) individual associations prolong the reactiontime.
- (5) Mayer and Orth²⁸ in their experimental studies on associations found that the reaction-time was lengthened when the active will intervenes between stimulus-word and reaction. If between the stimulus-word and the reaction an emotionally charged conscious content occurred, the reaction-time was on the average considerably prolonged, as compared to those of

²⁷ "Die Ideenassoziation des Kindes."

²⁸ "Zur qualitativen Untersuchung der Assoziationen." 2QA

all the other reactions. Contents charged with displeasure²⁹ have an especially delaying effect.

(6) In our earlier investigations³⁰ on the associations of normal subjects, we pointed out that abnormally long reaction-times occur particularly when the stimulus-word touches on a feeling-toned complex, i.e., a mass of images held together by a particular affect. So we were able not only to confirm the observations of Mayer and Orth, but also to demonstrate in various cases that: (i) The cause of several, or even very many, long reaction-times is generally the complex, and (ii) of what type the complex is.

⁶⁰³ It appears to us to be of the utmost importance that prolonged reaction-times can indicate the presence of feeling-toned complexes. So here we may perhaps have a means of discovering by a short and simple examination certain things that are individually extraordinarily important—namely, those complexes that are distinctive features in the psychology of the personality. This would also be of great assistance in pathology, since in this way we could find—in cases of hysteria, for example—valuable pointers to the pathogenic complexes of images of which the hysterical patient is not always aware.

⁶⁰⁴ To clarify matters more fully, I have, with the help of educated subjects who are also reasonably introspective, made a thorough analysis of individual associations, to which I should now like to refer.

⁶⁰⁵ *Subject No. 1:* a married woman who placed herself at my disposal in a most co-operative manner and gave me all the information I could possibly need. I am reporting on the experiment as fully as I can so that the reader may picture it as completely as possible.

The probable mean reaction-time for this experiment was 1.0 second.

1. head	-scarf	1.0
2. green	grass	0.8
3. water	-fall	1.0
4. to pierce	to cut	0.8
5. angel	-heart	0.8

²⁹ Ziehen first drew our attention to the fact that in cases of prolonged reaction-time a "relatively strong emotional charge" often occurred. *Op. cit.*, 2nd contrib., p. 36.

³⁰ "The Associations of Normal Subjects," *supra*. 9'1e:

Up to this point the reactions followed without the slightest emotional charge, quite smoothly and impassively. R.5 is striking; the subject can for the moment give no justification or explanation of how she came to *-heart*, which she feels is a word-compound. Suddenly through her mind flashes "Engelhard," a name that had always been familiar to her. This is therefore an indirect association of the type known as displacement by sound similarity. We now come to the question of why this indirect association should have occurred so suddenly. As a result of our earlier investigations,³¹ we find that under certain circumstances indirect associations are more often found with a state of disturbed attention. It may therefore be assumed that the distraction of the subject's attention can produce indirect associations. The subject repudiates any disturbance coming from without. Nor is she aware of any inner disturbance. When consciousness cannot furnish any data, an unconscious excitation may still have disturbed the reaction. The stimulus-word *angel*, however, was for this subject not emotionally hinged. As we know from earlier investigations, a preceding emotionally charged association can leave a trace in the unconscious and unconsciously constellate³² the reaction, particularly when the preceding association had a strong feeling-tone. R.4, *to cut*, had evoked in the subject some slight anxiety, the image of blood,³³ etc. The subject is pregnant and now and again has feelings of anxious anticipation. Whether the image *blood* had determined the reaction *heart* I shall not try to decide.

The feeling-tone of *to cut* was according to the subject so slight and secondary that the connection did not strike her. It was for this reason that the extension of the reaction-time usual in similar situations failed to occur.

6. long	short	0.8
7. ship	sailing	0.8
8. to plough	field	1.0
g. wool	silk	1.0
10. friendly	charming	1.2
11. table	chair	1.2
12. to carry	to lift	1.2
13. state	to make	1.2
14. insolent	snobbish	1.2 (<i>trozig protzig</i>)

³¹ Ibid., par. 4!9.

³² On perseveration, cf. MULLER and PILZECKER, "Experimentelle Beitrage zur Lehre von Gedachtnis" (1900).

³³ Cf. R.143, *blood*, *infra*.

(This rhyme is a constellation. The subject recalls that she once read it on one of my association-forms.)

15. to dance	to leap	0.8
16. lake	sea	0.8
17. ill	well	1.2
18. proud	fiery	1.2

The last two reactions show some (albeit slight) feeling-tone.

19. to cook	to learn	0.8
20. ink	black	1.0
21. evil	good	0.8
22. needle	thread	1.0
23. to swim	to learn	0.8

Here R.lg recurs with the same short reaction-time. The subject admits that she has not learned much about cooking and had never learned to swim at all well.

24. Journey	Berlin	1.2
-------------	--------	-----

Constellation of a journey some months previously, the date of which, by the way, approximately coincides with the start of her pregnancy.

25. blue	heaven	0.8
26. bread	to eat	1.2
27. to threaten	fist	1.2
28. lamp	green	1.4

Here we find the first rather long time. The subject had hardly noticed her hesitation, nor had she been aware of any particular feeling-tone. The previous stimulus-word, *to threaten*, does, however, have something insidious to many subjects. If we think of the feeling of anxious anticipation mentioned earlier, we perhaps have a clue to the elucidation of this extended reaction-time; it is perhaps a perseveration. The feeling-tone in such cases need not appear with the previous reaction. In our experience, affective processes always take longer than purely associative processes, both to appear on the surface and to take their course. The feeling-tone lingers on, as can be observed in certain hysterics.

The reaction *green* is a constellation from her *domestic* life (lam p-shade).

29. rich	poor	1.0
30. tree	green	0.8

Here we have the same reaction as 28 with a very short interval, a phenomenon that may be accounted for by the fact that associative processes that have just come into consciousness tend to return, i.e., can very easily be repeated.³⁴

Our earlier investigations³⁵ have also taught us that repetitions of a reaction are frequently based on a particular feeling-tone, in that the repeated words are associated with a feeling-toned complex. The feeling-tone pervading such a word is the mechanism that evokes it again and again in appropriate circumstances.

31. to sing	ca	2.
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A very superficial reaction, similar to *to learn* with ⁴*to cook* and *to swim*, with a strikingly long reaction-time. The subject is very musical, but has always regretted that she cannot sing, and indeed this has hurt her more than, for instance, her not being able to swim.

32. sympathy	to have	1.0
33. yellow	gold	1.0
34. mountain	to climb	1.0
35. to play	children	1.0
36. salt	salty	1.4

In this reaction the subject comes up against a certain inhibition for the first time, whereas all the earlier reactions had followed easily. The subject explained that at first she did not understand the word *salt* at all and had had to make a deliberate effort to grasp it. In spite of the prolonged reaction-time and the exertion of attention, a very superficial reaction followed, which is determined to a considerable degree by sound. The subject cannot explain this disturbance. Let us look again at the previous reaction, *children*; this belongs quite clearly to the pregnancy-complex; the feeling-tone has persisted and caused the disturbance.

37. new	old	1.0
38. custom	habit	1.0
39. to ride	to travel	1.0
40. wall	-maps	1.0
41. stupid	clever	1.0
42. exercise-book	book	1.0
43. to despise	<i>mepriser</i>	1.8

Once again a longer reaction-time and, also, a striking rendering of ³⁴Cf.

Muller and Pilzecker, op. cit.

³⁵ "The Associations of Normal Subjects," supra, pars. 350ff.

the reaction into French. The reaction is also very superficial and adds nothing new to the idea referred to by the stimulus-word.

To desPise is, for the subject, accompanied by an unpleasant feeling-tone. Immediately after the reaction it occurred to her that she was momentarily afraid that her pregnancy might by its various effects cause her to lose her husband's regard. Then she immediately remembered a married couple who had at first been ideally happy and then had become estranged: the couple in Zola's novel *Verite*. Hence the reaction's being in French.

These reminiscences, needless to say, were not conscious at the time of the reaction.

44. tooth	time ³⁶	1.
45. correct	false	0
46. nation	faithful	1.4

Again a longer time with a slightly unpleasant feeling-tone. She thinks that some song contains the phrase "Ha faithful people," but has a feeling that there is something about it personally unpleasant to her.

The preceding reaction, which has no perceptible feeling-tone, is *false*; *loyal* is the opposite. This observation suffices to bring the subject to the correct explanation: the reaction *false* had stimulated her pregnancy-complex, and in particular her fear of her husband's estrangement.

47. to stink		
48. book	to be scented	1.
49. unjust	to read	0
50. frog	just	1.0
51. to part	leg	0.8
52. hunger	to avoid	1.2
53. white	thirst	0.8
54. ring	black	0.8
55. to watch	finger	1.
56. pine	to listen	0
57. dull	forest	1.0
58. plum	fine (weather)	0.0
59. to meet	pear	1.0
60. law	sure	1.0
61. dear	to keep	1.0
62. glass	man	1.2
	clear	1.2
		1.

³⁶ [This association derives from the German phrase "der Zahn der Zeit" = "the tooth (i.e., ravages) of time."]

The strong sound association of *clear* is probably also due to the previous reaction.

63. to argue	to quarrel	1.2
64. goat	bleats	1.2
65. big little	0.8	
66. potato	field	1.0
67. to paint	painter	1.0
68. part	piece	1.0
6g. old	young	1.0
7 ⁰ . flower	red	0.6 (<i>Blume/rot</i>)

This notably short reaction-time is explained by, the subject by the fact that the first syllable of the stimulus-word *Blu-me* had already caused that of *Blu-t* (blood); cf. 4 and 143. Here we have a kind of *assimilation* of the stimulus-word to the strong pregnancy-complex.

71. to beat	to stab	1.0
72. box	-bed	1.0
73. bright	brighter	1.4 (<i>hell/ heller</i>)
74. family	father	1.4

These four reactions are interesting. It will be remembered that with 4 *to pierce/to cut* we came across the pregnancy-complex for the first time. Without the subject having had any idea that this reaction was important, we here have *to pierce* following immediately on the *Blu-me / Blut* association. The following R.72 also came quite smoothly without any feeling at all. The reaction itself is, however, striking. The subject, who occasionally visited our asylum, meant the deep beds used there-the so-called box-beds. She was somewhat puzzled by this explanation, because the expression "box-bed" was not particularly familiar to her. Following this somewhat unusual association, we have a sound association of relatively long duration, thus a phenomenon that we have already indicated earlier to be indicative of a complex. "Heller" (brighter) is the name of a person who was once important-though indirectly-to the subject. Quite probably no strongly emotional memories are connected with this name. There was only a very slight hesitation, implying a subjective feeling. For this reason, the supposition that the sound reaction is connected with the strange previous reaction does not seem to be entirely groundless. The reaction *bed* is later repeated with the clear impression of a word-combination in *Igg-bone-bed* (*Knochenbett*), a meaningless combination inexplicable to the subject; if we consider a change of sound in view of her pregnancy-complex, the

THE REACTION-TIME RATIO IN THE EXPERIMENT association could be very significant-Wochenbett (childbed).^{36a} If we take this hypothesis as a basis, the above series is explained in the clearest way; again we have the pregnancy-complex with blood, operation, childbed; the feeling-tone here becomes obviously stronger and disturbs the following reaction (perhaps *bright* cannot be assimilated to the complex!); finally, we have *father*.

75. to wash	washerwoman	1.0
76. cow stupid	0.8	
77. strange	-ness	1.0
78. fortune	fortunate	0.6
7g. to tell	mother	1.4
80. propriety	Ge-	1.2 (<i>Ge-</i>)
(<i>Anstand</i>)	usage	2.0 (<i>Sitte</i>)

R.78 is very short, which is rather striking in a stimulus-word that could easily have stirred up the complex. The following reaction, therefore, takes proportionately longer, 1.4 seconds, which up to now has been symptomatic of a complex. The reaction *mother* explains the prolonged time. R.80 is disturbed, not surprisingly, as the complex was so obviously touched; only after 2 seconds do we get the reaction *usage*, after the *Ge-* prefix first. In this the feelingtone of *mother* still perseverates in the subject. The subject cannot find any connection between *propriety* and *Ge-*. Above all she cannot think what word she wanted to start with *Ge-*. We are thus dependent only on suppositions. With 79 the pregnancy-complex appeared again quite clearly. We have already seen on several occasions that it is characterized mainly by feelings of *anxiety* and apprehension. We have also already seen that the first syllable of a stimulus-word is assimilated to the complex (*bloom/blood*); is the first syllable of *Anstand* (propriety) = *Anst*, assimilated as *Angst* (fear) and then *Ge-* = *Geburt* (birth)? This hypothesis immediately struck the subject as near the truth. This construction may well appear to many to be made in the manner of the augurs; I would not record it here if I had not come across many analogous phenomena in both healthy and sick subjects.

81. narrow	-minded
82. brother	sister
83. to damage	to avoid

36a [Cf. "The Psychology of Dementia Praecox," par. 110, where the same association is rendered in translation as *mild / bed; child / bed.*]

24¹

0.6
0.
8
1.2 (*schaden/
meiden*)

This is verfreminiscent of 51, *scheiden/meiden* (to part/to avoid). Has *schaden* perhaps been repressed by the complex as too unpleasant and been assimilated as *scheiden*? Repressive assimilations of this nature frequently occur in hysterics. The subject is quite unable to explain this.

84. stork	to bring	3.
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This abnormal time is quite clearly caused by the complex.

85. false	cat	1.0
86. fear	to have	1.0
87. kiss	me	,1.

The emphasis on the ego in R.87 could perhaps also be determined by the critical reaction to 86.

88. conflagration	fire	1.2
89. dirty	yellow	1.0
90. door	closed	0.8
91. to choose	choice	1.2
92. hay	grass	1.0
93. still	quiet	0.8
94. scorn	derision	1.0
95. to sleep	to stay awake	1.0
96. month	May	1.0
97. coloured	blue	1.2
98. dog	cat	1.0
99. to talk	speak	1.0
100. coal	dust	1.0
101. moderate	drinking	1.0
102. lid	eye-	1.0
103. to suppose	to believe	1.2
104. ache	heart	0.8 (<i>Schmerz/Hen</i>)

This rhyme, which has a relatively short reaction-time, is stated by the subject to be a mere catch-phrase.

105. lazy	sluggish	1.0
106. moon	-calf	1.0
107. to laugh	to cry	1.0
108. coffee	to drink	1.0
109. wide	narrow	1.0
110. air	thick	1.0
III. to carry	to lift	1.0
II2. plate	round	0.8

THE REACTION-TIME RATIO IN THE EXPERIMENT

R.110 is somewhat unusual; it seems as if the constellation *wide / narrow* has had a particularly powerful influence. Does it perhaps echo through to R. 11 2?

The next following reactions are entirely objective in character neither the subject nor the observer noticed anything special about them. The times are never more than 1.2 seconds. We shall therefore pass them over.

143. blood	red	0.6
144. to let (a house)	to let	1.2
	to avoid	2.0
145. caution	leniency	1.0 (<i>Vorsicht / Nachsicht</i>)

R.143 is very quick. This is the well known reaction which already occurred at 70 (*Blume*). It is followed by a longer time and a repetition of the stimulus-word-the only one in the whole series. R.145 is likewise superficial, not even meaningful but only linked in form and sound.

Because they are of no importance I am omitting the subsequent associations.

162. distinguished	noble	1.2
163. tube	sly	0.8 (<i>Schlauch/ schlau</i>)

The subject explained that at the time of the second of these two reactions she still felt the persistent influence of *distinguished*. The lady had previously been in rather better financial circumstances and occasionally feels this loss.

172. to turn	round	1.4
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The cause of this longer time is obscure if *round* does not have the supposed emotional influence mentioned above. The subject has no explanation to offer.

175. trust	me	1.4
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Here again we have the fear of the estrangement of her husband associated with her complex.

190. to bring	something	1.2
191. inn	The Stork	1.0

What *something* represents is clear from the subsequent reaction.

195. mirror	shining	1.4
198. to punish	prison	1.4

607 Apart from those with longer reaction-times, there are numerous other associations with complex-constellations. In general, reactions with a powerful feeling-tone and a distinct indication of a complex show longer reaction-times. The meaning of the association is grasped with ~ fair consistency only when a very strong and differentiated feeling-tone, or a very characteristic form of the reaction, brings one complex into consciousness. In the reactions given, this only occurred once, with *stork / to bring*. In all other reactions the feeling-tone, or the special form of the reaction, provided merely pointers to the subsequent identification of the complex.

608 At the time, only the aspect of the complex appearing in the reaction was available to consciousness. From these facts it becomes evident that consciousness plays only a minor role in the process of association.

609 All our thinking and acting, the vast bulk of which appears to us to be conscious, actually consist of all those little bits that are finely determined by innumerable impulses completely outside consciousness. To our ego-consciousness the associationprocess seems to be its own work, subject to its judgment, free will, and concentration; in reality, however, as our experiment beautifully shows, ego-consciousness is merely the marionette that dances on the stage, moved by a concealed mechanism.³⁹

610 An analysis of this series of tests shows the influence of the complex on association. Although, as people are fond of saying, associations are made at one's own discretion and the subject can say whatever he wishes, nevertheless he does not in fact say what he wishes but is *compelled* to betray precisely what he feels most sure of concealing. The reactions, therefore, are by no means random thoughts but simply symptomatic acts, directed by a psychic factor that can behave like an independent being. The feeling-toned complex, for the time being split off from consciousness, exercises an influence that constantly and successfully competes with the intentions of the ego-complex; in spite of the rejecting and repressing attitude of the ego-complex, it brings about subjective and treacherous reactions and arouses associations the meaning of which is utterly

³⁹ From this we can also gather that those who equate psyche with consciousness actually take *partem pro toto*.

⁴⁰ Cf. Freud, *The Psychopathology of Everyday Life* (orig. 1904).

unexpected by the ego-complex. Thus we find a series of intimate secrets divulged in the associations of our subject, and it is not only complexes referring to her actual situation, but the most important complexes, which form the content of her joys and sorrows. At the time of the test we find the most powerful complex to be the psychic equivalent of pregnancy, round which revolve her anxious anticipation and her love for her husband, coupled with slightly jealous fears. This complex is of an erotic nature, and still active; it is therefore understandably in the foreground. Not less than 18 per cent of the associations can safely be related to this! Besides this we find some other complexes, of considerably lower intensity: loss of former prosperity, some deficiencies felt to be disagreeable (singing, swimming, cooking), and finally an erotic complex dating back many years to her youth, which could be shown to be the cause of only a single association. (Unfortunately I have had to leave this one out, out of respect for the subject herself.) The probable mean of this subject was 1.0 second. 30.5 per cent of reactions exceeded this mean, 20.5 per cent took 1.2 seconds. Of these, 32 per cent could clearly be attributed to the influence of a complex. 6 per cent of reactions took 1.4 seconds, 75 per cent of which were certainly conditioned by the complex. 3 per cent were in excess of 1.4 seconds and all of these were certainly due to the influence of a known complex.

611 *Subject No. 2: an educated man of middle age. His reaction-type is as objective and superficial as that of Subject No. 1. I shall, therefore, confine myself to giving only his critical reactions. The subject is a physician and often takes part in our experiments, which he follows with interest.*

The probable mean of the series of tests is 1.2 seconds.

1.head	part	1.4	
2.green	blue	1.0	
	3. water	to clean	2.6

The stimulus-word immediately aroused an unpleasant feeling-tone suggesting something sexual, coupled with a sense of inhibition. Immediately after his reaction, the subject clearly recognized that *water* had been understood in the sense of *urine*.

4. to pierce	to strike	1.
5. angel	pure	0

41 Only 4% of the associations can safely be related to other complexes. — . r
0

6. long	large	1.
7. ship	large	2

Here we have a distinct perseveration. With *large*, R.6, there was at first a clearly sexual feeling-tone, followed by the second reaction and immediately afterwards the reason for this was clearly recognized. It concerned a recollection: the subject had heard from us that certain women patients frequently associate sexual implications to the word "long."

8. to plough	to turn up the soil	1.
g. wool	sheep	0
10. friendly	... , busy	1.
11. table	fish	2

R.10 is clearly disturbed. We have here a slip of the tongue. The subject immediately corrected himself with *tiitig*. At this stage (Tische/Fisch) a vaguely unpleasant sensation, somewhat like an inner restlessness, which persisted during the following reaction. Hence the unmotivated rhyme. *Freundlich / tiitig* (friendly/busy) is striking, and the subject is unable to explain it. The slip of the tongue that produced *totig* instead of *tiitig* gave the impression that the reaction should really have been *bose* (bad). But even this reaction was incomprehensible to him (for the probable explanation, see below, 86).

15. stem	long	1.2
16. to dance	to steam	1.8 (<i>tanzen/ dampfen</i>)
17. lake	large	1.2

In R.15 we once again have *long* with its sexual tone and almost simultaneously the reminiscence mentioned above. R.16 is due to similarity of sound and has an abnormally long reaction-time. The sexual tone of R.15 is persisting, with an admixture of irritation, and brings about the repetition of the earlier association *long, large*.

18. ill	poor	1.2
Ig. pride	bolt	1.6 (<i>Stolz/Bolz</i>)

Poor is accompanied by a vague feeling of dislike, but there is no particular image connected with this. *Pride* is felt to be even less pleasant and we had here a feeling of rejection and restraint. The meaningless rhyme and the prolonged time are doubly determined. The subject has financial worries that have been troubling him for

⁴² [*T6tig*, not actually a word, suggests *tOten*, 'to kill']

I. STUDIES IN WORD ASSOCIATION

some time. He had been accused frequently, particularly in the past, of pride. This reproach, converging with the business of the money, forms a particularly painful contrast. This connection was of course only realized after the reaction was given.

20. to cook	well	1.0
21. ink	to come	1.4 (<i>Tinte / kommen</i>)

The association is the phrase "in die Tinte kommen" (to get into hot water) it has an unpleasant tinge and is related by the subject to the money business. There is also an immediate recollection of an erotic complex, dating back several years, which has associations of unpleasure.

24. to swim	well	1.2
25. journey	gay	1.

Numerous indistinct recollections of travelling with predominantly pleasant associations.

26. blue	lake	1.2
27. bread	daily	2.0

Bread excites a slightly unpleasant feeling-the impression is almost like that of *poor* and there is an accompanying feeling of restriction. Later this is seen to have a clear connection with his financial worries.

28. to threaten	evil	1. 4
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A very unpleasant tone, connected subsequently with the memory of the erotic complex already mentioned and a feeling of guilt.

29. lamp	shade	1.2
30. rich	poor	1.

Poor again has the suggestion of unpleasure and again recalls the money business.

31. tree	trunk	1.
32. to sing	to spring	2

Tree again evokes the sexual tone of *long*, for the reasons given above, coupled with irritation; to this is to be related the⁸ rhyme and the long reaction-time.

33. sympathy	the poor	1.4
34. yellow	much	1.2 (<i>gelb jviel</i>)
	24 ⁸	

The poor again arouses the money-complex, this time with very distinct feeling-tone. *Gelb* (yellow) is at once assimilated as *Geld* (money), in spite of the stimulus-word being correctly understood. The money-complex has forestalled the ego-complex by means of the revealing *much*.

36. to play	ball	1.2
37. salt	dripping	1.4 (<i>Salz/ Schmalz</i>)

The association *to play/ball*, which in itself is quite innocuous, immediately acquires an erotic feeling-tone, since the word *ball* changed in meaning to *dance*. Here the erotic complex reappeared; hence the rhyme and longer reaction-time in the following association. Needless to say that at the instant of the reaction the trend of thought broadly outlined here was not conscious, but only indicated by fleeting feelings. The awakening of the associated images occurs as a rule afterwards, when the subject's attention is especially directed to the feeling-tones that appear in their place.

38. new	old	1.2 (<i>neu/alt</i>)
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The *a* in *alt* was conspicuously prolonged, giving rise to the suggestion that perhaps the reaction should have been *arm* (poor) but it came out as *alt* (old). The money-complex had recently become more acute.

39. morality	immorality	1.8
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A slight hesitation-a vague suggestion of guilt in the enunciation of *immorality*. The erotic complex once again.

40. to ride	to drive	1.4
41. wall	place	1.8
42. stupid	clumsy	2.0

The subject can offer no explanation for R.41; he feels as though it should be "no place in the sun." A somewhat painful tone to R.42 leads straight to the money-complex with the clear recognition that *to drive* is conditioned by the complex, although the feeling-tone peculiar to the complex has emerged only with R.42. The reaction *Place* belongs to the money-complex rather than to *wall*. R.42 also makes the erotic complex vibrate slightly.

43. exercise-		
book	book	1.
44. to despise	to respect	4
45. tooth	money	1.2
	249	1.4 (<i>Zahn / Geld</i>)

To respect seems to have struck very close to the money-complex because *Zahn* (tooth), in spite of correct interpretation, is assimilated as *zahlen* (to pay), hence *money*. Here again, we have the money-complex forestalling the ego-complex.

46. correct	incorrect	1.2
47. people	poor	1.8

Again the delayed reaction with the money-complex.

60. to hit	marksman	1.2
61. law	not set	4.8

At 61 there is an inexplicable feeling of restraint which for a long time does not permit of any reaction, and then finally a disturbed, meaningless reaction which seems as if it may perhaps be a defensive expression. Later a whole series of painful memories came to mind all of which dealt with actions that, like the erotic complex, did not conform to the laws of morality.

The following reaction

62. dear	good	2.0
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is also under the influence of these memories of past immorality.

6g. part	part of the body	1.8
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Here again we have the sexual constellation, as in R.6 and 15.

76. to wash	filth ⁴³	1.6
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A slight feeling of guilt and penitence. Later, the erotic complex. For the coarse mode of expression, see go.

78. strange	newcomer	2.0
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First the feeling that the reaction would be *poor*, but then the reaction *Neuling* (newcomer) predetermined by 38 (*neujalt [arm]*). Of course the reaction followed without any conscious awareness of this constellation. *Strange* has again hit the money-complex. One can see how this complex sends out its *poor* at every opportunity.

7g. fortune	misfortune	1.4
-------------	------------	-----

is predetermined by the preceding reaction.

80. to tell	mother	1.2
81. propriety	not proper	3.6
82. narrow	narrow- minded	1.8

⁴³ [*Dreck*, which also means excrement.] 25⁰

R.80 followed without any particular feeling-tone. On the other hand *propriety* immediately called up inhibitions with unpleasant feeling, which clearly persisted throughout the following association. Afterwards memories of various scenes from childhood which are clearly constellated by *mother*. It was a matter of a few impressive moments when his mother in rightful anger had maintained that he was not a decent person and never would be. One scene was particularly clear when the subject in his teens had behaved coarsely; and indecently towards a lady. This memory led again immediately; to the erotic complex and here the subject had something similar to reproach himself with. It must therefore be this complex that is concealed at the root of this long reaction-time, and of the various screen-memories (Freud).

Here we have *evil* repeated for the third time. (In the entire series: it occurs six times and *good* or *well* five.) *Evil* always brings with it the feeling of guilt that is peculiar to the erotic complex. As you can see, this word, together with *good*, has a similar tendency to increase in frequency, as *poor* does for the money-complex. (*Poor* occurs: four times in a manifest and three times in a repressed form.) The first time *evil* appeared was in 10, but at that stage it was obviously repressed, as there are strong inhibitions against the erotic complex in the subject's present emotional life.

The stimulus was correctly understood, but changed immediately; into *Brandung* (surf); hence the association of *sea*, with a somewhat longer reaction-time. *Brand* (fire) was therefore assimilated. The previous association does not constellate this assimilation. *Brand* however, has an unpleasant tone and this is associated in his mind immediately with the meaning of acute alcoholism and, together with the latter, the memory of his having once been in that state which aroused painful feelings. This time the ego-complex has forestalled the old but still active memory, which has assimilated the stimulus-word in a convenient sense and has thereby drawn a veil over the painful memory, i.e., has hidden it from consciousness. This mechanism (the censor in the Freudian sense)⁴⁴ plays a prominent role in hysteria. It must be emphasized that it is not all a function of consciousness but an automatic mechanism that regulates what may or may not come into the conscious mind.

86. false	evil	1.4
90. dirty	filthy (<i>dreckig</i>)	1.4

⁴⁴ Cf. *The Interpretation of Dreams* (orig. 1900). 25¹

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The coarse wording of this reaction is determined by the moral feeling of repugnance that is tied up with the erotic complex.

91. door to show 1.4

This reaction too, negative and dismissive as it is, is determined by the same feeling.

92. to elect *Maire* (mayor) 2.2

With *to elect* we meet a new complex. This is a matter of hopes of promotion, of *mehr* (i.e., more) from several points of view. It is at the same time the hope of holding a leading, no longer a subordinate, position. Thus the determination of *Maire* is not purely a matter of sound; but also of sense in a symbolic form. The right reaction would have been *manager*. This word, however, is associated with the secret wish and for that reason is subject to the inhibition that suppresses the wish itself. Thus instead of the correct reaction we have an image associated with it that is outwardly determined by the word *mehr* (more), which itself is characteristic of the momentary mood. This process has great similarities to the hysterical talking at cross purposes of the Ganser syndrome,⁴⁵ or perhaps even more to the associating at cross purposes of dementia praecox, in which this kind of metaphor is particularly common. Analogous phenomena occur relatively frequently in everyday life I mean the word-and-melody automatisms. The following good example was given me by a lady I know. She told me that for some days the name *Taganrog* had been, as it were, on the tip of her tongue but she had not the remotest idea where it came from. I asked her about her emotional experiences and repressed wishes of the recent past. After some hesitation she told me that she very much wanted a housecoat (*Morgenrock*) but that her husband had not shown the desired interest. *Morgen-rock* : *Tag-an-rog-you* can see that the two words are related partially through meaning and partially through sound. The appearance of the Russian name could be attributed to the fact that the lady had met someone from *Taganrog* at about the same time.⁴⁶ Vast numbers of similar combinations can very easily be demonstrated, if one were to take the trouble of getting to the bottom of all the tunes one hums or whistles to oneself or hears from others. A colleague on his hospital rounds caught a fleeting glimpse of a nurse who was allegedly preg-

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nant and caught himself a moment or so later in the act of whistling the tune of: "Es waren zwei KönigsKinder, die hatten einander so lieb" (There were two royal children, who loved each other so, etc.), although his conscious mind was-occupied with something completely different. Another colleague betrayed to me the sad end of a love-affair by a succession of melody automatisms.

One can see from these examples roughly the course taken by thought processes when they lack conscious awareness. Each association occurring in consciousness evokes as it were an echo of similarities and analogies that fades out through all stages of similarity of sound. The best examples are furnished by dreams.

9S. mockery	scorn	1.4
99. dog	dead	1.6

This reaction amazed the subject. He could not understand how he could have arrived at this unusual association. The somewhat long time taken suggests a feeling-tone; this is at first described by the subject as indistinct, and then later as sad. The cue *sad* then reminds him of the incident at the root of this feeling. Some twenty years previously he had had to have a dog he was very fond of destroyed. This loss had been *sad* to him for some considerable time.

102. moderate	immoderate	1.
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The longish time of this superficial reaction is explained by its connection with R.89 (*Brand*).

104. to suppose	to believe	2.0
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Suppose is a suggestive word as a stimulus and there are few subjects who do not feel affected by it. **In** this case it hit the erotic complex.

IOS. pain 108	scorn
to laugh	to chatter

45 Riklin, "Zur Psychologie hysterischer Dammerzustände und des Ganser'schen Symptoms" (1904).

46 A similar word-automatism (Bunau-Varilla) is reported in "The Associations of Normal Subjects," *supra*, par. 451.

1.2
2.8 (*lachen/
schwätzen*)

The *sch* of the reaction *schwätzen* was rather prolonged. First for a moment *schmerzen* (pain) came to mind momentarily though clearly, hence the length of time. *Schmerzen* was at once involuntarily suppressed. The feeling-tone expressed had a tinge of grief. The subject admits having an almost morbid sensitivity to mockery. 9S: *mockery/scorn*, IOS: *pain/scorn*, and 108: *laugh/pain*, are now closely linked. The determination of *schwätzen* is on the one hand alliteration and on the other semantic relationship: *iiber Einen schwätzen* (to gossip about someone).

120. to create

to operate

2.0

Here we have the complex of his professional life which produces the lengthened reaction-time.

127. resin	tree	2.0 (<i>Harz/Baum</i>)
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First, a feeling occurred as if the association was *hart/arm* (hard/ poor), in which *arm* was almost spoken out loud. This is a reappearance of the money-complex.

Also the following reaction:

128. to wake	to awaken	1.6
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is therefore still very superficial, with relatively long time.

130. bad	evil	b.8
131. briefcase	wood	0.8 (<i>Mappe/Holz</i>)

The subject takes *Mappe* in the sense of a briefcase in which he usually fetches (*holen*) money. The reaction *Holz* (wood) is quite meaningless and the subject was amazed at first until he remembered the meaning that he had attributed to *Mappe*. *Holz* conceals *holen*, which obviously belongs to the repressed money-complex.

148. forget	-fulness	2.0
149. drum	beat	1.2
150. free	-dom	1.2
151. wagon	-barricade	3.0 (<i>Wagen/-burg</i>)

148 has a very unpleasant feeling-tone. Nothing particular was reported about 149 and 150, but at 151 there is a strong but inexplicable inhibition. *To forget* awakens the memory of an event several years ago, when he broke with a faithless friend. 149 is an echo of the song "Der treue Kamerad" (The faithful comrade):

"Die Trommel schlug zum Streite/Er ging an meiner Seite, etc." (The drum beat for the battle, He walked by my side). 150 hints at the break. 151: *wagon* appears to have been assimilated only with difficulty. The compound *Wagen-burg* is strange, but became intelligible through the subject's remark that the place where he first recognized the friend's false-heartedness was *Augsburg*. All these data were at the time of the reaction unconscious. The complex betrayed itself at first only by the slightly unpleasant but otherwise indefinable feeling shown in 148. The connection of this series was only established later.

153. impudence	confounded	2.0
154. quick	-ness	0.6

R.153 belongs to the same mood as the reactions given above. (N.B. The analysis of these was undertaken only on completion of the

entire series.) This mood is the anger about the insolence of the false friend. This strong feeling-tone seems to have persisted as far as 154.

167. change of time 1.8

The stimulus-word has again hit the money-complex-hence the long reaction-time.

184. deaf to fly 2.6 (*taub/fliegen*)

The subject has assimilated *taub* (deaf) as *Taube* (dove) although he did understand the stimulus-word correctly. (He is familiar with the stimulus-words and has experimented with them himself on various occasions.) The reaction-time is very long. *Deaf* hits on a fear-complex of limited range. He suffers from recurrent catarrh of the Eustachian tubes and his hearing in one ear has therefore deteriorated. He connects this fact with the fear, often exaggerated, of becoming totally deaf. *Deaf* thus has too unpleasant a tone and is therefore quickly suppressed.

190.to bring money 1.2

191.vocabularyH to fetch 2.2

The last reaction is senseless, but can be explained as a perseveration of the money-complex stimulated by *to bring*.

195.mirror soul 1.8

196.full filth 1.4

197. understanding

lg8. to punish good 1.

200. beautiful for evil 6.

good 2

R.195 for some unknown reason is somewhat inhibited. Perhaps "mirror of the soul" already presaged the ethical tone of the following reaction. With *full* it is quite clear: "the soul is full of filth." This coarse expression again reveals the revulsion already mentioned (90). The following reaction, *good*, is loosely connected with its stimulus-word and is repeated at the next opportunity (200). Each time it represents the erotic complex.

R.lg8 is clearly influenced by the complex.

In contrast to the case of the previous subject, we have here a whole ⁶¹² series of feeling-toned complexes, which are interconnected only slightly or not at all. Whereas with the female

⁴⁷ [*Wortschaft*, not an actual word; apparently a mistake for *Wortschatz*, 'vocabulary:']

subject (No. 1) the sexual complex (pregnancy) with its various branches (fear, jealousy, etc.) is predominant, with the male subject (No. 2) the sexual complexes play a less important part. From personal respect for the subject I cannot give all the reactions. It is easy enough to demonstrate, however:

1. Sexual complexes:

An erotic complex, belonging to the past, now over and done with, which is expressed almost exclusively in ethical feeling-constellations (revulsion, remorse).

An actual erotic complex, expressed merely through erotic feeling-constellations (not reported).

At least three sexually charged ideas, independent of each other.

2. The money-complex.

3. Ambition-with at least four secondary memory-complexes.

4. Personal sensitivity-with at least three secondary memory-complexes.

5. Friendship.

6. Two feeling-toned reminiscences, independent of each other (dead dog, deafness).

113 Thus we have about ten complexes, independent of each other, that are touched on in the series of experiments. Subject No. 2 is a few years older than No. 1. In the latter case, as was mentioned, 18 per cent of the associations were to be attributed to the sexual complex, whereas only 4 per cent came under the influence of other emotions. On the other hand, with subject No. 2, 53 per cent of the associations can be related to the influences of complexes. This great number of constellations does not in any way indicate that the analysis was taken further, or that subject No. 2 gave fuller information than No. 1, but it is also to be recognized objectively that subject No. 2 (at least at the time of the experiment) was more emotional than No. 1. We recognize this from the numerous disturbed reactions and the striking assimilations and repressions.⁴⁸

⁴⁸ Cf. also the "complex-characteristics" in our earlier investigation: "The Associations of Normal Subjects," *supra*, par. 417.

per cent can be attributed directly to the sexual complex, namely the actual erotic complex, 11.5 per cent to the moneycomplex, 2.5 per cent to ambition, 4.5 per cent to personal sensitivity, 3 per cent to the broken friendship; to the erotic complex of the past, which is only betrayed by feelings of revulsion and remorse, 9 per cent can be related, and 12.5 per cent are connected to about six smaller, more or less separate emotional complexes. Thus with the male subject the sexual complex as such is very much in the background against the many other influences (10: 43)'

how much of the individual personality is contained in the associations. The experiment provides data about a whole series of highly important psychological contents; it gives us as it were a cross-section of the actual personality from a psychological point of view.

in this case entirely to the critical associations and am reporting on it mainly to show again what in principle emerged in the two preceding cases. The probable mean time for this subject is 1.6 seconds.

1. head	neck	1.2
2. green	mous	0.8

What strikes one in this series is the peculiar reaction *mouse* and the perseveration of *green*. *Neck* is a reverberation from the day before the experiment when the subject had seen a film about the death of Marie Antoinette. The subject is not sure where *mouse* comes from, he only has the feeling that it is a slip of the tongue and supposes it should have been *neck* (*Hals*) or *house*.

3. water	e	1.0
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Here we have, with a long reaction-time, the reaction *house* assumed in 2, and now the memory comes back. The subject's grandfather had often in times past sung the song "Es geht durch alle Lande-ein Engel still" (A silent angel walks through every land,

4. to pierce	green	1.2
5. angel	to fence	1.6
	house	

⁴⁹(This case is also discussed in "The Psychological Diagnosis of Evidence," infra.J

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etc.). Just as frequently he would sing: "Mein Hauschen steht im Griinen" (My little house stands in the greenwood, etc.).

A series of feeling-toned images, only some of which are pleasant, are associated with these songs. Hence the perseveration of *green* and the slip of the tongue *mouse*.

13. state	church	1.
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This reaction is somewhat hesitant since *church* represents the sizeable complex of a rather strong religious attitude.

16. to dance	not	1.8
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This reaction really is "I cannot dance," to which a very unpleasant feeling is connected, for the subject has experienced a disappointment in love, which a friend who could dance well has been spared.

18. ill	not	1.6
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Here again a stimulus-word is felt to apply to himself: he is *not ill* from despair over the unfortunate ending of the romance.

22. angry	friendly	1.8
23. needle	nail	1.2 (<i>Nadel/Nagel</i>)

Angry arouses the feeling of jealous animosity that the subject feels towards a certain rival. The sound association that follows is conditioned by the perseveration of this feeling-tone.

30. rich	rather	2.8
31. tree	branches	1.6

R.30 refers to the match that did not materialize, hence the long reaction-time. The next reaction is still somewhat long and has a rather stilted and artificial character; it also seemed to the subject to have a rather ironic tone which holds for the following reactions, too:

32. to sing	beautiful	1.4
33. pity	absolutely not	1.8

by which he means that he does not deserve any pity because everyone forges his own fate.

44. detest	rascals	5.0 (<i>Kerle</i>)
47. people	religion	1.6
48. to stink	abominable	1.
50. unfair	atrocious	0
	25 ⁸	1.
		8

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R.44, *rascals*, means the Jews. The lady concerned is Jewish. *People* again arouses the image *Jews* but this is repressed. *Religion* comes in in its place because the religion of his beloved had aroused scruples in the religious-minded subject. The following feeling-toned reactions refer to the complex rather than to the stimulus-words. (Similarly in subject No. 2 a coarse reaction betrayed the affect.)

54. white	snow	1.8
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A feeling of "having finished" or "death"; refers to the love-complex.

61. law	absolute	1.4
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Here we again have the reaction of R.33 expressing the same feeling: "it is the law, it must be so."

62. dear	beautiful	1.2
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66. tall	fine	1.2
----------	------	-----

Both reactions have an ironical flavour and relate to the complex.

74. wild	animal	1.8
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Wild (dial., "angry") he applies to himself on account of the complex.

75. family	house	1. 0
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House seems to represent the complex of all family memories. (Also in *to cook / house*.) Here we have a relatively short reaction-time.

79. luck	game	1.8
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Clearly refers to the love-complex.

80. to tell	to talk	1.6 (<i>erzählen / talk</i>)
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The reaction is in English. We have already seen that French reactions are suspect; this English one too refers to the complex. The subject at first wanted to tell the story of his disappointment to his brother, who lives in America, but then decided against this. Hence the English form.

83. brother	sister	2.0 (<i>Bruder/sister</i>)
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Again an English form with a long reaction-time! *Brother* pas probably subconsciously awakened the image of the earlier reaction. *Sister* comes because his sister at that time was on the point of leaving for a French boarding-school in the same way as his brother

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had left some time earlier for America. This analogy has condensed itself into *sister*.

88. to kiss	absolutely	1.
<i>Absolutely</i> is the key-word to the love-complex.		6

91. door	mouse	1.6
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The slip of the tongue of R.2 reappears, probably to mask *house*, which stands for the complex.

92. choose	Kaposi ⁵⁰	
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Actually the word *caprice* came up momentarily: as the reaction, but was immediately suppressed and altered into *Kaposi*. *Caprice* was the choice of the lady in question. *Kaposi* is only an example of similarity in sound and is constellated by a conversation of a few days earlier in which *Kaposi* was mentioned.

105. pain	kissing	1.0
106. lazy	sow	1.4

The coarser expression of the last reaction is caused by the feeling of anger perseverating from R.105.

115. intention	kissing	1.8 (<i>Absichtj</i> <i>kiissen</i>)
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Absicht he immediately assimilated as *absolut*, which refers to the complex; he then reacted as if this were the meaning of the stimulus-word.

125. purpose	absolutely	
	none	1.2
126. hot	yes	2.2
134. worthy	daft	2.0
135. danger	glad	1.4
136. high	no, low	2.8
140. to mix	blood	2.0
143. blood	to mix	1.4

These reactions are all sometimes more, sometimes less clearly constellated by the love-complex, and in this naturally the constellating factor was not a clear image, but only a certain not very distinct mood.

144. to let	family	1.6
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⁵⁰ (Famous Viennese dermatologist (1837-1902).]

620 The perseveration of a feeling-tone deserves attention. As is well known, perseveration plays a particularly important part in the pathology of the process of association. Investigations made with normal subjects might be of some help in elucidating the nature of morbid perseveration. In our experiments the perseveration of a feeling-tone occurred so often that we were able to express it statistically to a certain extent. For example, subject No. 2 showed 32 reaction-times of over 1.6 seconds, of which 16 were themselves followed by longer reaction-times. In 10 cases, only the subsequent reaction was prolonged, in 3 the two following, and once in each case the three, four, and five subsequent reaction-times were prolonged. As can be seen from this survey, we quite often observe a discontinuous decrease in the reaction-times. I have seen a quite similar but even clearer discontinuous decrease in some cases of hysteria and dementia praecox, and mostly at points suspect of complex.

621 To summarize:

(1) From the figures given, it follows that relatively long reaction-times are almost without exception caused by the intervention of a strong feeling-tone.

(2) Strong feeling-tones as a rule belong to extensive and personally important complexes.

(3) The reaction can be an association belonging to a complex of this nature and take its feeling-tone from this complex, though the complex need not be conscious. The *constellation* (Ziehen) of an association is mostly unconscious (or not-conscious); the constellating complex here plays the part of a quasiindependent entity—a "second consciousness."

(4) The feeling-tone can unconsciously also influence the next reaction, in which several phenomena are to be observed:

impression that *repression* equals deliberate forgetting. With normal subjects it might, however, be a more passive "sliding into the background"; at least here repression seems to be something unconscious, to which we can only indirectly attribute the character of something willed or something *wished*. If, nevertheless, I speak of repressing or, better, concealing, this can be taken as a metaphor from the psychology of the conscious. Essentially it comes to the same thing because objectively it does not matter one way or the other whether a psychic process is conscious or unconscious. (Cf. Bleuler, "Versuch einer naturwissenschaftlichen Betrachtung der psychologischen Grundbegriffe" (1894).)

(a) The reaction influenced by a perseverating feeling-tone has a prolonged reaction-time.

(b) The reaction is still an association belonging to the group of images of the preceding complex.

(c) The reaction is abnormal in character: it can (i) be disturbed through a slip of the tongue or through repetition of the stimulus-word; (ii) be abnormally superficial (sound reactions).

(5) The feeling-tones in question are mostly unpleasant. (6) The characteristics of an unconsciously constellating

complex are: long reaction-time, unusual reaction, failures, perseveration, stereotyped repetition of the stimulus-word ("complex-representative"), translation into foreign language, strong language, quotations, slips of the tongue, assimilation of the stimulus-word (possibly also misunderstanding of the stimulus-word).

(7) Erotic complexes seem to play a particularly significant part.⁵²

H. *The Quantitative Ratio of Prolonged Reaction-times in a Greater Number of Subjects*

A. STIMULUS-WORD AND PROLONGED REACTION-TIME

622 It would be interesting to learn whether the rules we have discovered in the analyses given above can be applied to a greater number of subjects about whom we have not adequate information. Practical experience teaches us that there are very few people who can pursue their own psychological processes in their subtlest details. Hence a very narrow limit is imposed on subjective analysis. The results given above should, however, make it possible, objectively, to penetrate into the complexes hidden in the associations and at least to demonstrate that rules gained from subjective analysis probably have a general validity. Hence I have investigated, in a comparative manner, the kind of words that are usually followed by prolonged

⁵² I must observe that the analysis of the associations of an uneducated subject would take a very different and more complicated form. As explained by Riklin and myself, the uneducated subject is inclined to concentrate on the meaning of the stimulus-word; for this reason his reaction-times are longer and it would be difficult to decide to what extent feelings or attitudes account for these.

reaction-time. Eleven subjects provided my material; of these, nine were uneducated and two educated.

⁶²3 I. Five subjects reacted with prolonged times to the following stimulus-words:

needle	false	Hdespise: 7
e	to court	subjects)54 ~inn
hair ⁵³	to disgust	to remember
salt	uproar	ripe
[tooth: 3 subjects]54	resin	
window	pyramid	
fern	to hit	
hope	to threaten	

⁶²4 strange It is not surprising that stimulus-words such as *fern*, *uproar*, *resin*, and *pyramid* cause a lengthening in the reaction-time, for they are rather rare words and uneducated people do not have at their disposal ready-made associations to them. But this cannot be said of the words *needle*, *hair*, *to hit*, *ripe*, etc., for these on the contrary are words that occur very frequently in everyday language. The reasons why these words should cause long reaction-times can only be found by means of the above analyses; in most cases they are words that readily arouse emotional associations for they already have in themselves a certain feeling-value, as for example: *hope*, *false*, *to hit*, *to threaten*, *to remember*, *ripe*, etc., for women *hair*, too, should have an emotional value. The words *salt*, *window*, *uproar*, *inn*, have no striking emotional value, but in the original series they follow stimulus-words that evoke feeling; and for this reason, as has many times been shown, come into the orbit of a perseverating feeling-tone. *Hair* and *tooth* can cause long reaction-times, particularly with women, whereas *to disgust* and *to despise* generally stimulate feeling. *Needle* does not in fact follow a stimulusword arousing feeling; in this case, however, another factor might play a part. This word (*Nadel* in the German original) is pronounced differently in dialect: the vowel *a* is pronounced nearer to an *o* and the ending is transposed into *-die*. On the other hand, in the dialect the *a* in the word *Nabel* (navel) is

⁵³ The stimulus-words bracketed together followed immediately on each other in the test series.

⁵⁴ The stimulus-word in square brackets is given because it seems more likely to arouse a complex than *window* or *inn*.

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exactly as in academic German and likewise the ending is unchanged. *Nabel* is the only dialect word that sounds at all like *Nadel* in academic German. For this reason inevitably this word must be evoked in the Swiss-German subject when *Nadel* is called out. As we have seen, it does not necessarily come into consciousness at the time: the inhibition connected with this word can nevertheless influence the association occurring in consciousness. That this is no idle speculation is borne out by the similar case of the word *book*, with which seven out of eleven subjects took prolonged times. *Book* (*Buch* in German) is pronounced in the dialect as *Buoch*. The dialect word *Buch*, however, means *Bauch* (belly), which is a very unpleasant stimulus-word. In experiments on psychotics it has frequently occurred that *Buch* has been immediately understood as *Bauch* and the corresponding reaction followed.

⁶²₅ 11. Six out of eleven subjects reacted with prolonged times to the following stimulus-words:

dream	damage	impetus
paper	to spare	premonition
book	dreadful	to stink
frog	gentle	to forge
nurse (male)	† to surmise: 8 subjects	to
right	~of age	caress
		family

Of age, *impetus*, and *premonition* can be considered "difficult" words in which the rarity probably prevails over any possible feeling-value.

⁶²₆ Since *paper* is a very common word it is difficult to say just what is its capacity to arouse emotion. *Nurse (male)* is effective because it is in constellation with uneducated subjects who are all male or female nurses in our hospital. The meaning of the word *gentle* (*leise* in German) became clear to me when a South German male nurse reacted with *big* (*gross*): he had in fact in the meantime suppressed the association *Liiuse / klein* (lice / small). What matters here is the sound similarity as in the case of *book*. It is striking that so many long reaction-times should occur with the word *frog*. With one exception, the subjects giving these long times were all women. The man who had a long reaction-time could give the reason: *frog* had struck the emotional complex associated with a new-born son.

Possibly in the subconscious of a woman, too, the frog's likeness to a small, naked wriggling baby can arouse feeling; so a sexual complex would be touched on which could well be present in every woman, even if only unconsciously.

⁶²⁷ The feeling-value of the other stimulus-words is clear and requires no further explanation.

⁶²⁸ iii. Seven out of eleven subjects reacted to the following stimulus-words with prolonged reaction-times:

{ fre~dOm
 unjust
 world
 loyalty
 consciousness

Only *consciousness* could be rated as "difficult." The stimuluswords *freedom*, *unjust*, and *to pay attention* presumably produce long reaction-times in the nursing staff, which can easily be understood. *World* may well have prolonged times so frequently because it is placed between two words that arouse emotions.

⁶²⁹ iv. Eight to ten out of eleven subjects had long reaction-times to the following stimulus-words:

It is not so much the relative rarity of the word *to surmise* that is important, but its capacity to arouse complexes. *Miracle* often seems to excite religious complexes associated with inhibitions. *Natural* is influenced by the immediately preceding erotic-sexual stimulant *to kiss* and is therefore very embarrassing for both sexes. *Violence* attracts the maximum of prolonged reaction-times. This is perhaps mainly due to the fact that all the subjects are closely connected with the mental hospital.

⁶³⁰ From this account we can see that the difficulty or rarity of a stimulus-word can certainly influence the reaction-time; but in the vast majority of cases the stimulus-words that produce long reaction-times are characterized by a high feeling-value. Thus' the principal cause of prolonged reaction-times. This objective statistical examination shows the principal cause of

heart violence wonder to disgust to despise
to pay attention to kiss to surmise
f to kiss: 7 subjects / natural: 9 "

THE REACTION-TIME RATIO IN THE EXPERIMENT

prolonged reaction-times to be the emotional effect of the stimulus-word.

63¹ I have tried to estimate roughly the quantitative values for the four series given above, and have compiled them in the following summary:

Out of 200 stimulus-words, 48 aroused prolonged reaction-times in 5 or more out of 11 subjects.

17 stimulus-words produced prolonged reaction-times in 5 subjects.

Of these 76% referred to affective images.

17 stimulus-words produced prolonged reaction-times in 6 subjects.

Of these 76% referred to affective images.

9 stimulus-words produced prolonged reaction-times in 7 subjects.

Of these 89% referred to affective images.

5 stimulus-words produced prolonged reaction-times in 8 to 10 subjects. Of these 90% referred to affective images.

63² On the average, therefore, approximately 83 per cent of the stimulus-words producing prolonged reaction-times have affective value, whereas only about 17 per cent have a delaying influence through their intrinsic difficulty. Of the stimuluswords arousing affects, at least 28 per cent have a mainly eroticsexual affective value.

B. INCIDENCE OF PROLONGED REACTION-TIMES WITH INDIVIDUAL SUBJECTS

633 It follows from the explanations given above that emotional processes are of the greatest significance in the origin or formation of abnormally long reaction-times. As we know from everyday experience, it is in the sphere of the emotions that the greatest individual differences exist. For this reason, it should be worthwhile investigating what is the numerical proportion of abnormally long times with the different subjects. For this investigation, I used the material given by twenty-six subjects. (Uneducated: seven women and seven men. Educated: six women and six men. Thus a total of over 4,000 individual data.)

634 As already mentioned, all those reaction-times that exceeded the individual probable mean times were considered to be prolonged. True, we came upon a series of reactions showing neither a particularly long duration nor obvious complexinfluence. On the other hand, if we raise the upper individual

limit for normal times, we are thrown on to the arithmetical mean in which the prolonged times are taken into account. This limit is then individually far too high, for which reason no characteristic figures can be obtained in this way. I therefore decided to select the individual probable mean as the upper limit, first, because the abnormally long times are not taken into account in this (the probable mean is as a rule lower than the arithmetical mean) and, secondly, because (according to the analysis of subject No. I) of those times exceeding the probable mean by only 0.2 seconds, almost a third are clearly influenced by feeling-toned complexes, whereas all the very long times depend entirely on the effect of complexes. In this way we encounter almost all the prolonged reaction-times produced by affects. As is clear from several examples, there is a certain proportion between the intensity of the affect and the length of the reaction-time. Hence one can deduce, *cum grano salis*, very intensive affects from very long reaction-times. By means of the arithmetical mean the prolonged reaction-times are taken abundantly into account in a calculation of averages. For the four groups mentioned I am giving the figures for the probable and arithmetical means, the percentages of prolonged reaction-times, and the difference between the two means.

		Probable Mean	Arithmetical Mean	Differ- ence	% of Prolonged Reaction- times
Uneducated	11-11	2.2	2.9	0.7	49. ²
	Men	1.8	2.4	0.6	4 ^o .9
	Women	1.7	2.2	0.5	4 ² .4
Educated	Men	1.3	1.7	0.4	41.8

635 The four columns in this table all say approximately the same thing in different forms, namely that the uneducated women, as well as having the highest probable mean, also have the greatest number of prolonged reaction-times. The differences between probable and arithmetical mean times are most instructive: the group of educated men has a smaller difference than the other three groups. This figure states that the prolonged reaction-times of educated men are on average shorter than those of the other groups, that consequently the emotional inhibitions in all the other subjects-for this is the

main point, not the difference in educational levels-even if they do not always occur more frequently, are still more fundamental and abundant than those of the educated men. From this I see that the experimenter, who is in every respect on the same level as the group of educated men, as far as the other groups are concerned is of the opposite sex or a superior or both. This seems to me sufficient reason for the prevalence of emotional inhibitions in the other subjects.

63⁶ In stating the influences of the emotions on the length of reaction-times, I have ventured into a sphere so complicated, and therefore so subject to great individual variations, that there is no point in giving the individual figures on which the above table is based. Only untenable hypotheses could be based on the differences.

GENERAL RECAPITULATION

637 A. In time-measurements, using a stop-watch, made with both educated and uneducated subjects, the average reactiontime came out at 1.8 seconds.

B. The times of male subjects (1.6 seconds) are on average shorter than those of female subjects (2.g seconds).

C. Similarly, the times of educated subjects (1.5 seconds) are, on average, shorter than those of the uneducated (2.0 seconds).

D. The quality of the stimulus-word exerts a certain influence on the reaction-time. The average shortest times follow concrete nouns (1.67 seconds), the longest follow abstract nouns and verbs (1.95 and 1.90 seconds). Educated men form an exception to this rule in that with them it is usually the concrete nouns that are followed by the longest times.

E. The quality of the reaction also seems to have a certain influence on the length of the reaction-time. The longest times occur with abstract nouns (1.88 seconds), the shortest with adjectives and verbs (1.65 and 1.66 seconds). Concrete nouns (1.81 seconds) are in the middle. Educated men here again are the exception in that their longest time occurs with concrete nouns.

F. The quality of the association has a distinct influence on the reaction-time. Internal associations command a longer reaction-time than external ones. Sound reactions generally show 26g

relatively long times because they are abnormal and owe their appearance to certain disturbances occasioned by inner distractions.

G. Those reaction-times that exceed the probable mean are for the most part caused by the eruption of intense emotions associated with individually important complex-images. The subject is mostly unaware of the reason for the prolonged reaction-time. Hence, too, long reaction-times can serve as a means of uncovering emotionally charged complexes, both conscious and unconscious. (Important in hysteria!)

H. Prolonged reaction-times tend to follow certain stimulus-words. About 83 per cent of these are mainly characterized by their affective value, whereas only about 17 per cent cause prolonged reaction-times on account of their difficulty or rarity.

63⁸ Very frequently the dying away of the feeling-tone is shown and it extends to the subsequent reactions which are thereby disturbed (perseveration).

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EXPERIMENTAL OBSERVATIONS ON THE FACULTY OF MEMORY¹

639 We have often observed in our association experiments with hysterical patients that the patient would not react for a long time to stimulus-words that were obviously related to his complex, and then would suddenly ask, "What was the word you said?" Closer interrogation revealed that the patient had forgotten the word of which he had just been reminded. We immediately recognized that this striking disturbance of memory was identical with the type of *forgetting* described by Freud, i.e., the "not wanting to remember" unpleasant impressions. The phenomenon that we observed is a particular case of a general tendency to repress and then forget the unpleasant image. (Cf. Freud's papers.²)

64⁰ It is to the credit of Freud, and partly also of Breuer-as is probably well known-that they have amply demonstrated this fact (forgetting equated with repression) in hysterical patients. The validity of this can be doubted only by someone who has not himself tested Freudian psychoanalysis. In more recent works³ Freud has demonstrated that the same mechanisms of repression are at work in the normal dream and in trivial incidents of everyday life (parapraxes in speaking, reading, etc.). In our experimental investigations we have also succeeded in demonstrating the repressed complex in such associations as are produced by calling oJ.lt a stimulus-word. The laying bare of a repressed complex is of immense practical importance, e.g., in hysteria. Every hysterical patient has a

1 [First published as "Experimentelle Beobachtungen iiber das Erinnerungsvermogen," *Zentralblatt fur Nervenheilkunde und Psychiatrie* (Leipzig), XXVIII (1905; n.s. XVI): 196 (Sept.), 653-6. It was not included in the first volume of *Diagnostische Assoziationsstudien*, whose contents Jung referred to in the opening sentence, and it is here first republished.]

2 Freud, "The Neuro-Psychoses of Defence" (orig. 1894), "The Psychological Mechanism of Forgetfulness" (1898), "Screen Memories" (1899), *The Psychopathology of Everyday Life* (orig. 1904).

3 Freud, *The Interpretation of Dreams* (1900).

EXPERIMENTAL OBSERVATIONS ON THE FACULTY OF MEMORY repressed complex of causal significance. It is therefore essential for treatment that the complex be identified, unless one wants to forego such important psychotherapeutic aids. As Freud has shown, however, the inhibitions repressing the complex are so strong that the images concerned are very often split off from consciousness. It was to overcome this barrier that Freud invented his ingenious method of *free association*. This method is, however, extremely time-consuming and its use presupposes certain qualities in both the patient and the doctor. The same inhibitions are betrayed in our own method of association. A tabulation of the stimulus-words that have brought up inhibitions shows quite clearly into which category the repressed complex may fall, and from this one can obtain valuable pointers to supplementary questions. To get a clearer idea of the type of complex one can then intersperse additional pertinent stimulus-words. The art of the method, which is never easy to use, lies in distinguishing the reactions connected with a complex from the irrelevant ones. I have therefore compiled a series of so-called *complex-characteristics*.⁴ In principle the complex-characteristics are the same for normal and pathological associations. Furthermore, to lay bare the complex is of far-reaching significance in applying our experiments to the field of criminal psychology. Hans Gross and his pupils have shown this, stimulated by our experiments.⁵ The complex in this case is the fact of a crime: the stimulus-words are the designations of things associated with the mental picture of the crime.

64¹ The observations mentioned in our first paragraph became the point of departure for a new method that points to those associations attributable to complexes. The *reproduction method*, as I should like to call it, can be described as follows: After completing an association test (usually one hundred words), we try to find out whether the subject remembers how he reacted to individual stimulus-words. We simply repeat the experiment, always allowing the patient enough time to recall

⁴ See my "The Reaction-time Ratio in the Association Experiment," supra.

⁵ Hans Gross, "Zur psychologischen Tatbestandsdiagnostik" (1905); Wertheimer and Klein, "Psychologische Tatbestandsdiagnostik" (1904); Alfred Gross, "Zur psychologischen Tatbestandsdiagnostik als kriminalistisches Hilfsmittel" (1905); Stern, "Psychologische Tatbestandsdiagnostik" (1905); Hans Gross, "Zur Frage des Wahrnehmungsproblems" (1905).

his previous reactions. In this reproduction method certain regular characteristics come to light, which I should now like to outline briefly. In these experiments my leading idea was to find out whether failures of memory were accidental or whether a system behind them could be revealed. I have carried out this experiment on mentally healthy people and on patients, and have, at least in principle, always found the same phenomena. (Organic disturbances of memory are of course excepted.) As this article is only concerned with establishing and describing this phenomenon, I have selected as examples two pathological cases in which the phenomenon in question is quite pronounced.

CASE NO. I

64²

A 32-year-old professional musician who was undergoing psycho-analytical treatment because of vague anxiety-states and a compulsive fear of not being able to give solo performances. Two years previously he had become engaged, but the engagement soon broke up owing to moodiness and quarrelling. The young woman was of an implacable, quarrelsome, and jealous nature. This led to violent rows and finally to the breaking off of the engagement when the patient made the mistake of writing picture postcards to another girl. During the nights following these quarrels the patient could not sleep, and it was then that the first nervous symptoms appeared. About a year previously he had had a secret affair with a lady of a rich and distinguished family, but this had soon been broken off. In January of that year the patient became engaged to a rather unintelligent girl who was, however, already three months pregnant by another man, which the patient did not then know. The numerous excitements brought on by these circumstances aggravated his nervous condition to such an extent that he had to seek medical advice. It should also be mentioned that he had led a very dissolute life between the ages of 18 and 25, as a result of which his physical strength had allegedly been greatly impaired.

Association and Reproduction Test

643 The results of the two tests are set side by side. Those associations that were either not reproduced or wrongly reproduced are shown in italic type.⁶

⁶ [In the German version, the items of this list were not numbered. They have now been numbered to facilitate comparison with the list for Case No. II. The list for Case No. I omits, perhaps inadvertently, 51, *frog*.]

EXPERIMENTAL OBSERVATIONS ON THE FACULTY OF MEMORY

Stimulus-word	Re-action	Re-action time (secs.)	Reproduction	Remarks
1. <i>head</i>	<i>empty</i>	3. ²	n	Complex underlying the illness.
2. <i>green</i>	<i>lawn</i>	2.2	to see	Probably perseverating feeling-tone.
3. <i>water</i>	<i>to drown</i>	2.2	colour, tree deep	The patient had had thoughts of suicide as a result of his illness.
4. <i>to stab</i>	<i>dead</i>	1.8		
5. <i>angel</i>	<i>beautiful</i>	8.0	unpleasant	Here the feeling-tone of the previous reaction has probably perseverated. Word not at first understood. Erotic reminiscences easily aroused by this word.
6. <i>long</i>	<i>table</i>	2.8		
7. <i>shiP</i>	<i>crew</i>	3. ⁰	to travel, to drown	Suicide by drowning.
8. <i>to plough g. wool</i>	<i>peasant</i>	2.0		
10. <i>friendly</i>	<i>sheep</i>	2.0		Affair with the lady.
11. <i>desk</i>	<i>very high</i>	2.8 3. ⁶		Prolonged reaction-time due to perseverating feeling-tone.
12. <i>to ask</i>	<i>difficult</i>			Same complex.
13. <i>state</i>	<i>beautiful</i>	3. ²	to put	
14. <i>obstinate</i>	<i>very</i>	2.		1 st fiancée.
15. <i>stalk</i>	<i>green</i>	4		
16. <i>to dance</i>	<i>good</i>	2.0		
17. <i>lake</i>	<i>stormy</i>	2.2		Illness.
18. <i>ill</i>	<i>unpleasant</i>	2.2		Relations with the lady.
19. <i>conceit</i>	<i>very</i>	2.0		
20. <i>to cook</i>	<i>good</i>	8.8		
21. <i>ink</i>	<i>black</i>	2.8		
22. <i>wicked</i>	<i>very</i>			1 st fiancée.
23. <i>pin</i>	<i>prick not</i>	2.0		
24. <i>to swim</i>	<i>difficult</i>	1.8		Suicide.
25. <i>journey</i>		4. ⁸	good	Perseverating feeling-tone.
26. <i>blue</i>	<i>colour</i>	1.4 2.8	long	

1. STUDIES IN WORD ASSOCIATION

Stimulus-word	Re-action	Re-action-time (secs.)	Reproduction	Remarks
27. bread	to taste	2.8	-	-
28. to threaten	me	10.4	-	Fear of the future: suicide.
29. lamp	good	2.2	to burn	perseverating feeling-tone.
30. rich	pleasant	3.4	-	The lady.
31. tree	green	2.0	high	Perseverating feeling-tone.
32. to sing	beautiful	1.4	good	(ditto)
33. sympathy	Pleasant	4. ⁶	to have	Ostensibly the illness-complex, but probably something else as well which is not divulged.
34. yellow	material	5.4	colour	Not at first understood.
35. mountain	high	1.2	-	-
36. to play	children	2.4	-	-
37. salt	bitter	1.8	-	-
38. new	material	2.4	dress	?
39. habits	good	3. ⁰	bad	Early life: adulterous relationship with the lady.
40. to ride	pleasant	3. ⁶	-	-
41. wall	white	2.2	-	-
42. stupid	cattle	4. ⁸	very	2nd fiancee.
43. notebook	blue	2.2	to write	Perseverating feeling-tone.
44. to despise	him	3.4	me	Early life: erotic complexes.
45. tooth	sharp	2.2	long	perseverating feeling-tone.
46. correct	to write	3. ⁸	-	Correspondence behind 1st fiancee's back.
47. people	Swiss	2.4	-	-
48. to stink	dung	2.0	-	-
49. book	beautiful	3. ⁶	good	Perhaps not at first understood. Otherwise?
50. unjust	judge	2.0	very	The reaction very might indicate a connection with one of the erotic complexes.

EXPERIMENTAL OBSERVATIONS ON THE FACULTY OF MEMORY

Stimulus-word	Re-action	Re-action-time (secs.)	Reproduction	Remarks
52. to separate	acid (noun)	6.0	-	Not at first understood. Relationship with the lady.
53. hunger	pang	2.0		
54. white	lamb	2.2		
55. <i>cattle</i>	<i>to slaughter</i>	4.4	to kill	Memories of quarrels with 1st fiancée.
56. to pay attention	very	2.0	—	Perseverating tone.
57. pencil	long	2.0		
58. sultry	weather	4. ⁸		
59. plum	blue	1.8		
60. <i>to hit</i>	<i>target</i>	2.0	marksman	Rendezvous with the lady.
61. law	to despise	2.6	—	The lady is married.
62. dear	she	2.6	-	The lady.
63. glass	transparent	2.0		
64. <i>to quarrel</i>	<i>unPleasant</i>	2.2	violent	1 st fiancée.
65. goat	pasture	3. ⁸	—	Perseverating tone. Stimulus-word was repeated by the patient.
66. <i>big</i>	<i>man</i>	2.4	child	?
67. potato	to eat	1.8		
68. <i>to paint</i>	<i>wall</i>	3. ²	beautiful	?
69. <i>part</i>	<i>whole</i>	3. ⁰	?	Suggestion of "sexual parts."
70. <i>old</i>	<i>coin</i>	7.4	man	As a result of previous word the fear of impotence is aroused.
71. flower	smells	1.6		
72. <i>to fight</i>	<i>stick</i>	2.0	violent	Quarrel with 1st fiancée.
73. <i>box</i>	<i>to put in</i>	3.4	?	Perseverating tone.
74. wild	horse	1.6	—	—
75. family	to have	2.6	—	2nd fiancée.
76. to wash	face	1.8		
77. <i>cow</i>	<i>to slaughter</i>	2.6	to kill	Memories of rows with 1st fiancée.
78. strange	to me	2.0	—	1 st fiancée.
79. luck	to have	1.6		
80. to tell	story	1.6		
81. <i>poise</i>	<i>good</i>	2.0	habit	Early life: the lady.
82. narrow	boot	1.8		

I. STUDIES IN WORD ASSOCIATION

Stimulus-word	Re-action	Re-action-time (secs.)	Reproduction	Remarks
83. brother	sister	1.2		
84. <i>damage</i>	<i>to have</i>	1.6	to do	Impotence.
85. stork	long	1.0		
86. <i>false</i>	<i>to write</i>	5. ⁸	to speak	Correspondence behind 1st fiancee's back.
87. fear	to have	1.2		
88. to kiss	her	2.0		The lady.
89. fire	house	4. ⁰		Word not understood, perseverating tone.
90. dirty	street	1.2		
91. <i>door</i>	<i>house</i>	2.0	high	
92. to elect	electorate	2.0		
93. hay	sweet-smelling	1.4		
94. still	water	2.4		Suicide.
95. <i>scorn</i>	<i>Pleasant</i>	1.6	unpleasant	perseverating tone. (ditto)
96. <i>to sleep</i>	<i>very</i>	2.2	deep	
97. month	January	4. ⁶		Cf. R.3; stimulus-word at first not understood. January is the critical month.
98. coloured	cloth	1.6		
99. <i>dog</i>	<i>snaPPish</i>	2.4	to snap	Quarrel with 1st fiancee.
100. to speak	sensitive	1.8		

644 In these associations several clearly feeling-toned complexes are evoked. Their symptoms are mainly a delayed reaction and its influence on the following reactions. I will not proceed further with this analysis as it might lead too far.⁷

645 The remarks given with the reactions should enable the reader to get his bearings. Those points where the analysis showed an association constellated by a complex have been noted. If we now look over the whole experiment we can see that, with very few exceptions, the incorrect reproductions to the repeated stimulus-words are those that are directly constellated by a feeling-toned complex or those that immediately

⁷The complex phenomena are comprehensively presented in my "The Reaction-time Ratio in the Association Experiment"; see supra.

follow a critical one, and therefore fall within the area of the perseverating feeling-tone. In many places the perseverating can be quite easily recognized by the prolonged reaction-time or by the form and content of the reaction. Out of 38 incorrect reproductions there are only five in which analysis could not demonstrate any kind of complex-constellation. Nevertheless: the prolonged reaction-times usually found in such places indicate a feeling-tone.

646 Analysis is exceptionally difficult and time-consuming in the case of half-educated and uneducated people; in fact, often proves almost impossible to reach any depth because of a lack of co-operation. Also, with patients from an out-patient clinic, you may easily meet people who have every reason to keep their secrets. Apart from these exceptions, which need not be considered, it becomes quite clear that the forgetting does not apply to the irrelevant reactions, but to the significant complex-reactions. Should this be generally confirmed, it should have found a method, in this reproduction process, for objectively revealing complexes from the reactions. But this method can also be theoretically valuable in that it shows a way to investigate the much discussed connection between feeling-tone and memory.

647 Before we go further into these questions, I should like to refer to a second case.

64⁸

CASE NO. II

An educated young man, 22 years old, excitable and sensitive, sanguine, morally unsound, not particularly intelligent. He is well known to the writer and has also given sufficient information about the complexes broached by the associations.

Complex I: The patient is very excitable and extraordinarily sensitive. This characteristic brings him into frequent conflict with his environment. One of these conflicts has led him to a mental hospital. The patient had a good friend who once made a joke of sketching him with ass's ears, and produced this caricature in the presence of ladies. The patient took him to task about this, but the perpetrator denied having done it, whereupon the patient slapped his face and challenged him to a duel with sabres.

His relationship with his family is strained.

Complex II: Numerous love-affairs. The patient had been given a diamond pin by one amorous lady, which he wore in his tie, and had recently lost a stone from this, which annoyed him a great deal 279

One of these relationships is with a Greek woman. In the year he has just completed in the cavalry he led a wild and dissolute life.

Complex III: The patient recently wanted to become engaged to a woman of means, but it came to nothing.

Complex IV: The patient has decided to study agriculture, which seems to keep him occupied for the time being, and he is also enthusiastic about rowing and other sports.

649 I am giving full details of the associations in this case. The method of analysis is the same as that I have already demonstrated in the work on the reaction-times. I have marked with the appropriate number all the places where the analysis certainly or in all probability shows a complex. Those associations to which the reactions were either not remembered or wrongly remembered in the reproduction test are shown in the table, as on the previous occasion.

Stimulus-word	Re. action	Re-action-time (secs.)	1st Reproduction	2nd Reproduction	Remarks
1. <i>head</i>	<i>hat</i>	2.8		cover	Stupidity complex (ass's ears) and the supposition, owing to stay in mental hospital, that he is men tally ill.
2. green	colour	1.4			
3. <i>water</i>	<i>to row</i>	2.6			IV.
4. to stab	spear	2.8			1. Sabre duel.
5. angel	heaven	1.8			
6. long					1. Not understood, reaction omitted.
7. ship	-building	1.			
8. to plough g.	field	0			} IV.
wool	sheep	2.2			
10. friendly	Mr.Z.	1.2			Acquaintance at the hospital.
11. desk	bank	2.4 2.2			
12. to ask	answer	3.6?			III.
13. <i>state</i>	<i>Switzerland</i>	3.8		institu- tion	Preceding R.12 refers to complex III. Owing to the perseverating feelingtone the reproduction is disturbed.

EXPERIMENTAL OBSERVATIONS ON THE FACULTY OF MEMORY

Stimulus-word	Re-action	Re-action-time (secs.)	1st Reproduction	2nd Reproduction	Remarks
14. obstinate	wench	4. ⁸			"The Obstinate Wench," popu song. The stim word <i>to ask</i> ha touched comp] III. How mud feeling-tone re berates can be gathered from way the reactic times increase from the conte of R.I4.
IS. stalk	flower	1.8			
16. to dance	ladies	3. ⁸			II.
17. lake	Zurich	2.0			IV.
18. <i>ill</i>	<i>medicine</i>	4. ²		to be	1. Complex of h pitalization, ol vation of his m state.
Ig. conceit	Mr.S.	1.8			1. Acquaintanc(the hospital.
20. to cook	kitchen	2~			
21. ink	to write	1~			
22. <i>wicked</i>	<i>Mr.C.</i>	3~	to be		1.
23. <i>Pin</i>	<i>tie</i>	3. ²	cravat	tie-pin	II.
24. to swim	water	3. ²			IV.
25. journey	adventure	2~			II.
26. blue	colour corn	3. ⁸			
27. bread	<i>angry</i> light	2			V.
28. <i>to threaten</i>	<i>money</i>	4			1. Duel comple~
2g. lamp	<i>leaves</i>	2~		someone	
30. <i>rich</i>	music	3~			III.
31. <i>tree</i>		2~		to be	
32. to sing		3	leaf		Here the critica reaction is obv ly <i>rich/money</i> , which the reac times decrease proportion. Tl action after thl critical one is uncertain
		4			
		3~			
		2~			
33. sympathy	to have	2.6			

I. STUDIES IN WORD ASSOCIATION

Stimulus-word	Re-action	Re-action-time (secs.)	1 st Reproduction	2nd Reproduction	Remarks
34. yellow	colour	2.8	-	-	-
35. <i>mountain</i>	<i>climbing</i>	1.8	-	tour	-
36. to play	tennis	3. ⁰	-	-	IV.
37. salt	sea	4. ²	-	-	-
38. new	-Greek	6.2	-	-	II.
39. habits	& customs	2.2	-	-	-
40. to ride	horse	1.8	-	-	II.
41. wall	papered	3.4	-	-	-
42. <i>stuPid</i>	<i>Mr.B.</i>	6.4	to be	-	I. Similar to R.22, same complex.
43. notebook	to write	2.2	-	-	-
44. to despise	Mr.H.	2.8	-	-	I. Acquaintance in the hospital. With this man the patient had had a similar experience to that given in complex I.
45. tooth	to pull	2.4	-	-	-
46. <i>correct</i>	<i>answer</i>	8.0	right and - proper	-	I. Connected with the denial in complex I.
47. people	race	2.0	-	-	-
48. to stink	carbolic	3. ⁶	-	-	I. The hospital.
49. book	to read	1.6	-	-	-
50. unjust	Russia	3. ⁰	-	-	-
51. frog	leg	1.6	-	-	-
52. <i>to separate</i>	<i>marrzage</i>	6.0	?	-	III.
53. hunger	to eat	4. ⁰	-	-	-
54. white	colour	3.4	-	-	-
55. cattle	cattle-breeding	2.6	-	-	IV. Here again the timing shows a regular decrease after the critical reaction.
56. <i>to pay attention</i>	<i>lecture</i>	6.2	-	question	IV.
57. pencil	to write	4. ²	-	-	-
58. sultry	sky	7. ⁶	-	-	I. Stay in hospital.
59. plum	stone-fruit	3. ⁰	-	-	IV.
60. to hit	to shoot	2.6	-	-	I.
61. <i>law</i>	<i>state institutions</i>	6.2	?	-	I.
62. dear	beloved	7.4	-	-	II or III.
63. glass	water	2.2	-	-	-

EXPERIMENTAL OBSERVATIONS ON THE FACULTY OF MEMORY

Stimulus-word	Re-action	Re-action-time (secs.)	1St Reproduction	2nd Reproduction	Remarks
64. to quarrel	difference	4. ⁸	—	—	I.
65. goat	farming	2.8	—	—	IV.
66. <i>big</i>	<i>Germany</i>	11.2	?	tree, pine	Refers to himself as he is exceptionally tall.
67. potato	farming	2.8	—	—	IV.
68. to paint	pictures	2.4	—	—	—
69. part	to have	4. ⁶	—	—	III. He had hoped to become a partner in his prospective father-in-law's business.
70. old	to become	1.8	—	—	—
71. <i>flower</i>	<i>blossom</i>	3-4	—	rem, to bloom, leaves	IV.
72. to fight	sabres	4. ⁰	—	—	I.
73. box	lid	2.8	—	—	—
74. <i>wild</i>	<i>to become</i>	3. ²	—	to be	I. Wild, evil.
75. family	parents	4. ⁶	—	—	I.
76. to wash	soap	3. ⁶	—	—	—
77. cow	farming	4.4	—	—	IV.
78. strange	to be	4. ⁰	—	—	—
79. luck	lucky	2.2	—	—	—
80. to tell	story	1.6	—	—	—
81. <i>poise</i>	<i>to have</i>	3. ⁰	—	& customs	I.
82. <i>narrow</i>	<i>a flat</i>	5. ⁰	room	—	I. Stay in hospital.
83. brother	siblings	4.4	—	—	I.
84. <i>damage</i>	<i>to inflict</i>	2.8	to suffer to endure, in drunkenness.	{ to have, to suffer, I. Refers to excesses to inflict	
85. stork	bird	4. ⁰	- - Word not at first	—	understood.
86. false	envy	4. ⁸	—	to be	—
87. fear	to have	3. ⁸	—	—	—
88. to kiss	pleasant	3-4	—	—	II.
89. fire	brigade	6.4	—	—	—
90. dirty	street-instantly	6.8	—	—	Marked increase in times from R.88 onwards. Cf. below.
91. door	to open	1.6	—	—	—
92. to elect	election	3. ²	—	—	—
93. hay	haymaking	3. ²	—	—	IV.
94. still	at night	3. ⁶	—	—	n

I. STUDIES IN WORD ASSOCIATION

Stimulus-word	Re-action	Re-action time (secs.)	1st Reproduction	2nd Reproduction	Remarks
95. scorn	& derision	1.8			At first did not understand the word. 11.
96. to sleep	at night	2.			
97. month	12 months in a year flowers	9.2			
98. coloured	8.2 Great Dane	2.4			
99. dog	foreign	5.0?		-	11. The Greek
100. to speak	language				woman.

Note to test: Reactions 94-g8 are influenced by a complex that requires some elucidation. These reactions show various intense *complex-characteristics*. Obviously the complex is hidden by the words *at night*. From the first reproduction onwards, there is a marked increase in the reaction-time. I suggested to the patient that this might be due to a more recent love affair, but he did not admit it. There is a similar increase in the time taken after 88, *to kiss/pleasant*, and it is difficult to understand why 56, *to pay attention/lecture*, should take as long as 6.2 seconds. Complex-characteristics in reactions to words such as *to kiss, to sleep, still, to pay attention*, gave rise to the suspicion that the patient had begun an affair behind our back.

On the day following these tests we intercepted a letter addressed to the patient. This was from a girl whom he had met when he was allowed to go out on parole, and suggested how they could keep their relationship secret and how they could arrange a rendezvous.

65⁰ In this series of associations there are obvious complexes expressed in the usual way. Out of one hundred reactions there are only 13 in which memory failed. When we now examine where these 13 unrepeated reactions occur, we see that 12 of them are found at points constellated by a complex; 7a one follows immediately on a complex-reaction. We may therefore suppose that the disturbance of memory is connected with the complex, or with its feeling-tone. As I have shown earlier,⁸ strong emotions, especially feelings of unpleasure, are expressed in abnormally long reaction-times.

65¹ The arithmetical mean time of all correctly repeated reactions is 3.0 seconds. The mean of those not repeated is 5.0 seconds. Thus the times taken for those reactions not repeated

7a [lung is apparently referring to the first column of reproductions, in which there are actually 12, not 13, incorrect reproductions. There are 14 in the second column.]

8 "The Reaction-time Ratio in the Association Experiment:"

are significantly longer than those of the others, which gives us an objective confirmation of our supposition that there is a connection between the disturbance of memory and the strong feeling-tone of the reaction.

65² The first reproduction test followed immediately after the initial test of one hundred reactions. I had the test repeated again on the following day, and the results are shown in the column headed "2nd Reproduction."

653 Of the hundred reactions, 14 were incorrectly reproduced on the second occasion. (The second reproduction was assumed to be correct if it was the same as the first reproduction, when the initial reaction had been incorrectly remembered.)

654 Eleven of the fourteen incorrect reproductions concern reactions that had been correctly reproduced the first time but that, because of their content or the length of time taken, appeared to suggest the presence of a complex. Only three were wrongly remembered on the second reproduction. We can thus see that the amnesic blockages have developed further in the same direction as in the first reproduction test, and give rise to a series of reactions that also belong to the complexes. For practical purposes it would seem to be advisable to leave some time between the first test and the reproduction tests.

655 In my experience the amnesic blockages occur just as frequently with critical reactions as with those immediately following. These two cases represent the usual behaviour. But there are even more island-like amnesias, particularly, as it seems, in hysteria, where the feeling-tones are of great intensity and can extend over many subsequent reactions. Thus, I recently found in the case of a 23-year-old hysterical woman, who had only 13 per cent incorrect reproductions, the following interesting chain of reactions:

1. water - (no reaction)

bee 1.8

2. to sting

3. *angel*

-COU¹⁰

4. *long*

knife

g.o

5. *ship*

steamer

7.⁰

6. *to plough*

field

4.

In the repeat the patient believed she had not given any reaction, as with No. 1.

⁹ [German *Engelhof*; in Switzerland, a name sometimes given to a farm or house.]

:56 The stimulus-word *water* had awakened the memory of a suicide-attempt, as was subsequently shown through psychoanalysis. With *angel* the image of death and the hereafter immediately appeared, this time with persisting feeling-tone that hindered the subsequent reactions in a way shown by the decrease in reaction-times. All four reactions showed themselves to be amnestically blocked.

57 The theory of our phenomenon is closely related to the teaching of Freud, whose psychological depth and fertility are still not sufficiently appreciated, in particular by psychiatrists. Freud says in effect that forgetting is frequently caused by the feeling of un pleasure associated with the forgotten image, i.e., one is inclined to forget what is unpleasant and what is associated with the unpleasant.¹⁰ The process underlying this forgetting is the repression of the affect of un pleasure which one can observe every day in hysterical cases. "Systematic" forgetting plays, as I have shown/I an important part in the origins of the so-called Ganser's twilight state. Up to now only Riklin¹² has taken up my suggestion and developed it with any result. These investigations fully confirm the correctness of Freud's teachings on this point. That just the essential matter (i.e., the repressed complex charged with un pleasure) is forgotten is the obstacle in psychoanalysis that is often the most difficult to overcome. One usually comes up against amnesia ("I don't know," "I have forgotten," etc.) where the important matter lies. The amnesic blockages in our experiment are nothing but hysterical amnesias. They also have in common with hysterical amnesia that not only what is significant is forgotten, but also related ideas which happen to coincide with the perseverating unpleasure.

58 The reaction-words that are so easily forgotten seem like excuses; they play a similar role to that of Freud's "screen memories." When, for example, a hysterical young girl takes an agonizingly long time to react to *to kiss* with *sister's kiss*

10 Cf. Pick, "*lur* Psychologie des Vergessens bei Geistes- und Nervenkranken" (1905).

11 "A Case of Hysterical Stupor in a Prisoner in Detention"; "On Simulated Insanity." [For Sigbert Ganser, see *Psychiatric Studies*, index, s.v.]

12 Riklin, "*lur* Psychologie hysterischer Dammerzustände und des Ganser'schen Symptom" (1904).

and afterwards has forgotten how she did react, it is understood without further ado that *sister's kiss* was only an evasion, which must conceal an important erotic complex. Such reactions are reminiscent of simulation (naturally, unconscious) and resemble the "screen memories" with which hysterical subjects conceal events that are of causal importance. Another reason for the speedy forgetting of these reactions is their superficiality; for these words can just as well be replaced by a number of different words of an equally superficial kind. The deceptive nature of such reactions is one aspect of the well-known general impression that has so often caused hysterical subjects to be accused of conscious pretence. It should, however, be pointed out that very often the complex hidden by such an evasion is completely cut off from consciousness, since in fact hysterical subjects can *very often* only under hypnosis be shown what lies behind the suspect reaction.

659 As the experiment shows, the incorrect reproduction has the value of a complex-characteristic. (I do not know whether irrelevant reactions are also forgotten.) It can have a positive value through its content since, as a second association to the stimulus-word and the repressed complex, it can be very useful in analysis. The same is, of course, true in research on criminal psychology. I should like to point out that, as in the association test, so also in the reproduction method, the repressed complex can betray itself in the reaction even though it is unconscious; it does so when it is split off from consciousness, as is often the case in hysterical patients. So far as I can see, where repressed complexes are concerned the same phenomenon occurs with normal, hysterical, and catatonic subjects; in normal cases there is a brief embarrassment or momentary blockage, in hysterical cases there is the well-known arbitrary amnesia, and in catatonic cases there is a complete barrier. The psychological mechanism, however, is the same.

¹³ Cf. Riklin, "Analytische Untersuchungen der Symptome und Assoziationen eines Falles von Hysterie (Lina H.)" (1905).

PSYCHOANALYSIS AND
ASSOCIATION EXPERIMENTS I

660 It is not easy to say in a few words what is the essence of Freud's theory of hysteria and of the psychoanalytic method. Freud's terminology and conceptions are still in the making luckily, if I may say so, because, in spite of the amazing progress that, thanks to Freud's contributions, insight into hysteria has made in recent years, neither Freud nor we, his followers, have gained full knowledge of it. It is therefore not surprising that Freud in his most recent publication on hysteria² has for the most part abandoned the terminology that he had laid down in the *Studies on Hysteria*, and substituted for it a number of different and more fitting expressions. One must understand Freud's terms not as always sharply defined scientific concepts but more as opportune coinages from his rich vocabulary. Anyone writing about Freud should therefore not argue with him about words but rather keep the essential meaning in mind.

661 Freud sees hysteria as caused by and manifesting a series of psychic traumas, culminating at last in a sexual trauma in the prepubertal period. The so-called psychogenic character of hysteria was, of course, already known before Freud. (We have to thank Mobius³ in particular for a concise definition of the term "psychogenic.") It was known that hysteria stems from ideas marked by the strength of their affect. But it was only Freud who showed us what lines the psychological process follows. He found that the hysterical symptom is essentially a symbol for (fundamentally sexual) ideas that are not present in consciousness but are repressed by strong inhibitions. The repression occurs because these crucial ideas are so charged with painful affects as to make them incompatible with ego-consciousness.

¹ [First published in "Psychoanalyse und Assoziationsexperiment," *Journal für Psychologie und Neurologie*, VII (1906): 1-2, 1-24. Republished in *Diagnostische Assoziationsstudien*, Vol. I, pp. 258--81 (VI. Beitrag). Translated by M. D. Eder in *Studies in Word-Association*, pp. 297-321. See supra, par. 1, n. 1.]

² "Fragment of an Analysis of a Case of Hysteria" (orig. 1905).

³ [Paul Julius Mobius (1853-1907), German neurologist who influenced Freud.] 288

662 The psychoanalytic method is inseparably linked with this conception. It acknowledges the concept of repressed and therefore unconscious ideas. If we inquire from patients about the cause of their illness, we always obtain incorrect or at least incomplete information. If we had been able to get proper information as in other (physical) diseases, we should already have known a long time ago of the psychogenic nature of hysteria. But this is just the trick of hysteria, that it represses or forgets the real cause, the psychic trauma, and substitutes for it superficial "cover" causes. We often hear from hysterics that their illness stems from a cold, from overwork, from real organic disturbances, etc. And so many doctors are fooled again and again. Others turn to the opposite extreme and allege that all hysterics are liars. So they entirely misunderstand the psychological etiology of hysteria, which actually exists only because ideas incompatible with ego-consciousness have been repressed and can therefore not be reproduced. By means of Freud's psychoanalytic method the barriers between ego-consciousness and repressed ideas are bypassed. This method consists mainly in the patient simply telling spontaneously everything that comes into his mind (Freud called this "free association"). An elaborate description of this method can be found in Freud's book *The Interpretation of Dreams*. Although it is theoretically *a priori* certain that all human ideas are determined, in a most wonderful way, by psychological laws, it is still easy to conceive that an inexperienced person would get lost in the maze of ideas and would finally be hopelessly caught in a blind alley. It is and will remain one of the main objections against the general acceptability of Freud's method that the prerequisite for the practice of psychoanalysis is psychological sensitivity as well as technique, i.e., characteristics that cannot be taken for granted in every physician or psychologist. Then there is a particular way of thinking required for psychoanalysis, which aims at bringing symbols to light. This attitude, however, can only be acquired by constant application. It is a way of thinking that is innate in a poet but is carefully avoided in scientific thought, which is said to be characterized by clear-cut ideas. Thinking in symbols demands from us a new attitude, similar to starting to think in flights of ideas. These seem to be the reasons why Freud's method has only exceptionally been understood and even more rarely

practised, so that there are actually only a few authors who appreciate Freud, theoretically or practically (Lowenfeld, Vogt, Bleuler, Warda, Starring, Riklin, Otto Gross, Hellpach).⁴

663 Freud's psychoanalysis is, in spite of the many valuable experiences given to us by its author, still a rather difficult art, since a beginner easily loses courage and orientation when faced with the innumerable obstacles it entails. We lack the security of a framework that would enable us to seek out essential data. Having to search haphazardly in treatment is often tantamount to realizing that one has no idea at what point to tackle the problem.

664 The association experiment has helped us to overcome these first and most important difficulties. As I have shown, particularly in my paper "The Reaction-time Ratio in the Association Experiment,"⁵ complexes of ideas referred to as emotionally charged are shown up in the experiment by characteristic disturbances, and their presence and quality can be inferred precisely from these disturbances. This fact is known to be the basis of the "psychological diagnosis of evidence" inaugurated by Wertheimer and Klein,⁶ Hans Gross,⁷ and Alfred Gross,⁸ an apparently not unpromising method of diagnosing from the associations the complex underlying a crime. Everybody, of course, has one or more complexes that manifest themselves in some way in associations. The background of our consciousness (or the unconscious) consists of such complexes. The whole material that can be remembered is grouped around these. They form higher psychic units analogous with the egocomplex.⁹ They constellate our whole thinking and acting, therefore also our associations. With the association experiment we always combine a second, which we call the reproduction test.¹⁰ This test consists in making the subject state how he

4 [For Jung's reviews of books by Leopold Löwenfeld and Willy Hellpach, see Vol. 18. *Miscellany.*]

5 See supra, pars. 602 II.

6 Wertheimer, "Experimentelle Untersuchungen zur Tatbestandsdiagnostik" (1905). Wertheimer and Klein, "Psychologische Tatbestandsdiagnostik" (1904). 7 "Zur psychologischen Tatbestandsdiagnostik" (1905).

8 "Die Assoziationsmethode in Strafprozess" (1906). Grabowsky, "Psychologische Tatbestandsdiagnostik" (1905).

9 Bleuler, "Versuch einer naturwissenschaftlichen Betrachtung der psychologischen Grundbegriffe" (1894) and "Consciousness and Association" (orig. 1905).

10 Jung, "Experimental Observations on the Faculty of Memory," supra.

to each stimulus-word in the first test. Where memory fails we usually find a constellation through a complex. The reproduction technique also allows a more detailed description of the complex-disturbances.

665 Every psychogenic neurosis contains a complex that differs from normal complexes by unusually strong emotional charges, and for this reason has such a constellating power that it fetters the whole individual. The complex, therefore, is the *causa morbi* (a certain disposition is, of course, presupposed!). From the associations we can often quickly recognize the nature of the complex, thereby gaining important starting points for causal therapy. A by-product, not to be underestimated, is the increased scientific insight that we obtain into the origin and intrinsic structure of psychogenic neuroses. The essence of these insights has, of course, already been given us long since by Freud, but here he is far too advanced for the understanding of his time. I may therefore be allowed to try to open up new avenues to Freud's body of knowledge. **In** the papers of the Diagnostic Association Studies published so far, Freud's principles have already been repeatedly used to explain various points. **In** the present paper I propose to illustrate the connection of psychoanalysis with the association experiment by means of practical examples. I am choosing a common case of obsessional neurosis which I treated in June 1905.

666 Miss. E. came to me for hypnotic treatment of insomnia, which she had had for four months. Besides sleeplessness, she complained of an inner restlessness and excitement, irritability towards her family, impatience and difficulty in getting on with people. Miss E. is 37 years old, a teacher, educated and intelligent, has always been "nervous," has a mentally defective younger sister; father was an alcoholic. Present condition: well nourished, no physical abnormality detectable. Patient makes numerous conspicuously restless and twitching movements. When talking she rarely looks at the doctor, mostly speaks past him, out of the window. Occasionally she turns even further round, often laughs unintentionally, frequently makes a shrugging movement with the shoulder, as if shaking off something repulsive, simultaneously stretching the abdomen forward in a peculiar way. Her history is very incomplete and vague. One learns that she had been a governess abroad, and was not then ill. The illness started only in recent years and developed gradually to the present 29¹

climax. She had been treated by various doctors without any success. She now wanted to try hypnosis, but she had to say at once that she was firmly convinced hypnosis would not be successful. Her illness was incurable and she was sure to go mad. She had in any case repeatedly thought that she was not normal, she must already be mad. Here it was obvious that the patient was apparently talking around something that she either did not want to or could not say. On urgent questioning she declared at last, with many defensive movements and persistent blushing, that she certainly could not sleep, because each time she started going off to sleep the thought came that she certainly would not be able to sleep, she would never be able to sleep until she was dead; then she promptly woke up again and could not sleep any more for the rest of the night. Each time she felt tired and again wanted to sleep, a tremendous fear that she would never again be able to sleep until she was mad or dead woke her up afresh. She had a great struggle to bring herself to this explanation, making numerous defensive gestures, which almost gave the impression that she had something sexually indecent to tell and was ashamed of it. Here again the abdominal movements became noticeable. She repeatedly giggled in a coy way. As this gave an inadequate picture of her condition, I was led to ask whether there were any other ideas that tormented her during her sleeplessness. "No, I don't remember anything else--everything is mixed up--oh, there are thousands of things going through my head." She could not, however, produce any of them, made defensive gestures and suddenly said: In any case, she often had such silly thoughts that they actually overcame her and she could not get rid of them whatever efforts she made. She regretted that she could not tell me these thoughts, because she was afraid that I might also be overtaken by such obsessional ideas. Once before she had told a priest and a doctor about some of her thoughts, and she had always had the compulsive idea that she must have infected those people with them, so that they too had obsessional id~as. She had . certainly already infected me. I reassured her; I had already heard many such ideas and it had not done me the slightest harm. After this statement she confessed, again with those peculiar defensive gestures, that besides the idea that she had infected the priest and the doctor with obsessional ideas she was tortured by the thought that a woman neighbour who had recently died had, on her account, died without the last sacrament and was having to suffer all the tortures of hell. She had had this idea only since the death; before that she had for several years had the idea that a boy whom she had brought up had afterwards died from the beatings that she had occasionally given him. The fear had tortured her so much that

she had twice been obliged to write to the pupil's family to ask how he was. Each time she had done it in quite a casual manner. The good news that she had received on each occasion had calmed her down for the time being, but a few days later the fear was upon her again. This idea had now vanished, but instead she had to blame herself for the death without extreme unction of the neighbour. Her common sense told her that these ideas are nonsense (she said this with a very uncertain voice), but perhaps it was not (she quickly added). Thus she did not correct it completely, but was apparently entirely dominated by the obsessional idea.

The anamnesis did not reveal any sexual abnormalities; i.e., anything that might refer to sexual processes was immediately rejected.

An attempt at hypnosis was frustrated because she could not keep her eyes fixed on anything. In order not to compromise this method from the very beginning by useless trials, I decided first to obtain some information about the psychic material underlying the condition. I therefore carried out the association experiment with her.

1. THE ASSOCIATION EXPERIMENT

667 Here is the whole test: ¹¹

<i>Stimulus-word</i>	<i>Reaction</i>	<i>Reactiontime</i> (secs.)	<i>Reproduction</i>
1. <i>head</i>	<i>thoughts</i>	2.2	<i>hair</i>
2. <i>green</i>	<i>grass</i>	1.8	+
3. <i>water</i>	<i>drinker, to drink</i>	2.4	<i>glass</i>
4. to prick	needle	3.6	+
5. angel r.	heaven	2.6	+
6. long r.	short	4.0	+
7. ship	sea	1.4	+

668 I cannot give a complete analysis of the associations. In answer to all questions the patient confined herself to saying that nothing special had come to her mind at the critical points. It was thus impossible to find the determinant of the reactions by means of subjective analysis. The objective result of the experiment was, however, sufficient to diagnose the complex, at least in outline, independent of the information given by the patient. I should like to explain in as much detail as possible how I came to this diagnosis.

¹¹ The incorrectly reproduced associations are in italics. + = correct reproduction. r. = here the patient repeated the stimulus-word quickly in the reaction. One frequently meets this phenomenon in and after complex-reactions.

669 In anticipation, I should mention that the probable mean (Kraepelin) of all the reaction-times of the experiment is 2.4 seconds. This mean is definitely too high for an intelligent and educated person. The mean obtained for twelve educated subjects is 1.5 secs. Since it is mainly emotional influences that prolong the reaction-time,¹² we may infer, from this high figure, a rather strong emotionality in the patient. The reader is asked to keep in mind this figure of 2.4 secs. during the following discussion of the reactions.

67⁰ 1, *head / thoughts*, is wrongly reproduced. The complex of the illness may have had an influence here.

67¹ 3, *water / drinker, to drink*, shows a verbal deviation: *drinker* has been corrected to *to drink*. The father was a heavy drinker. The three following reaction-times are all longer than 2.4 secs.; furthermore, there are two stimulus-word repetitions. From *drinker* a perseverating emotional charge may be assumed.¹³

67² 5, *angel/heaven*, may have recalled the obsessional idea of the neighbour who died without the sacrament.

8. to plough	to sow	2.2	⊥
g. wool	to sPin	3.4	- 14
10. friendly	loving	3. ⁶	good
11. table	woman	4. ⁶	
12. to ask	to reply	2.4	⊥
13. state	church	2.2	⊥
14. sulky	brave	1.8	friendly
15. stalk	flower	1.8	⊥

673 What disturbance prolonged the reaction time of *wool* I cannot say. Experience shows that *friendly* (10) very easily produces erotic reminiscences. The remarkable *table / woman* (11), which the patient cannot explain, seems to point to the erotic significance of R. 10. Sensitive people, as all neurotics are, always take stimulus-words personally. It is therefore easy to assume that the patient would like to be the "loving, good woman." That the word *friendly* has a certain tendency to be reproduced becomes apparent from its reappearance in 14.

¹² Cf. jung, "The Reaction-Time Ratio in the Association Experiment," etc. ¹³ I cannot deal here with the justification of these inferences. See ibid.

¹⁴ ⊥ = not reproduced.

(Feeling-toned ideas have, of course, a stronger tendency to be reproduced than others.)

16.	to dance	to jump	1.8	+
17.	lake r.	water	2.4	+
	18. ill	healthy	2.0	+
	19. pride	haughty	5.0	+
20.	to cook	to roast	2.0	+
21.	ink	pot	2.0	+
22.	wicked	good	3.0	
23.	needle	prick	2.2	+
24.	to swim	water	2.0	+
25.	journey	railway	2.2	+
26.	blue	red	1.8	+
27.	bread	knife	2.0	+
	28. to threaten	naughty	8.0	

674 *To dance* (16) tends to arouse erotic reminiscences. This assumption is not unjustified here because the following reaction is disturbed.

675 *Ill* (18) and *pride* (19) may easily have been taken personally. *Pride* shows distinct complex-characteristics, *wicked* (22) and *to threaten* (28) obviously aroused feelings too. The response *naughty* to *threaten* sounds like an association to a child's idea. Has a schoolgirl's reminiscence perhaps been aroused here? *To threaten* can in any case arouse many feelingtoned associations. People with lively complexes are usually somehow afraid of the future. One can therefore often see that they relate *to threaten* to the threatening uncertainty of their future. Naturally, there are often underlying concrete associations as well. One must not forget that a word like *threaten* is seldom used; owing to this "difficulty" it has a somewhat exciting influence; this does not necessarily mean that a complex underlies it. It seems to me wiser, however, to consider the influence of a complex than of a "difficulty." (Cf. Freud's analyses!)

2g.	lamp	light	1.8	⊥
30.	rich	poor	1.8	⊥
31.	tree	green	1.2	⊥
32.	to sing	to dance	2.0	⊥
33.	pity	poor	2.0	⊥
34.	yellow	flower	4.2	green

1. STUDIES IN WORD ASSOCIATION

35. mountain r.	work ¹⁵	2.	+
36. to Play	children	8	to dance
37. salt	bread	2.2	+
38. new	old	2.	
		8	+

67⁶ *To dance* (16), mentioned in the previous sequence, returns here twice, thus revealing a clear tendency to be reproduced, in accordance with its not inconsiderable emotional charge. In this way frequent repetitions can give away a great deal. A gentleman whom I had asked to be a subject for the experiment was convinced he would not give away any complexes. On the way to me he worked out what he would answer to my stimulus-words; it occurred to him at once that he would say "Paris," a word that seemed to him to have absolutely no personal meaning. True enough, he repeated "Paris" many times during the experiment, declaring this word to be absolutely fortuitous. Six months later he confessed to me that at the time of the test he had still been under the impression of an event that had strongly affected him and which had occurred in Paris. At that time, however, he had thought that Paris had no significance at all for him. I have no reason to doubt this man's truthfulness. *Yellow* (34) certainly had a personal effect, judging from the surrounding complex-disturbances. The patient has a sallow elderly complexion. Women are very sensitive to such things, particularly if an erotic complex is present.

677 That *children* (36) is not reproduced but replaced by another erotic term seems to be worth mentioning.

39. habit r.	nasty or bad	12.2	vicious habit
40. to ride r.	to drive	2.4	⊥
41. wall	room	3. ⁰	
42. silly r.	clever	2.8	
43. exercise-book	book	3. ⁰	⊥
44. to scorn	disdain	15. ²	to desPise
45. tooth	abscess	1.4	⊥

67⁸ In this sequence we meet several serious complex-disturbances. With *habit* (39) and *to scorn* (44), the patient made defensive movements and stamped her foot. An "ugly" or "bad" habit can easily be interpreted in a sexual sense: e.g.,

15 [The association in German seems to have been suggested by *Bergwerk*, 'mine.']

is a "nasty" habit, a "vicious habit." People Indulging in such "vicious habits" are "scorned."

679 *Silly* (42) may be personal or may still belong to the range of the emotional charge perseverating from *habit*. Here her gestures by no means contradict a sexual complex. *Habit* could in some circumstances also mean "the drink habit" and thus have aroused the complex of the drunkard father.

46. <i>correct</i> r.	<i>I should always like to say just the opposite</i>	7. ⁶	<i>incorrect</i>
47. <i>people</i> r.	<i>father</i>	6.0	⊥
48. to stink	<i>fragrance</i>	4. ⁸	⊥
49. <i>book</i> r.	<i>pen</i>	4.4	<i>exercise-book</i>
50. <i>unfair</i> r.	<i>sense</i>	3. ⁶	<i>fair</i>
SI. frog	<i>green</i>	2.4	⊥
52. to separate	<i>marriage</i>	2.2	⊥
53. hunger	<i>thirst</i>	1.4	⊥
54. white	<i>black</i>	1.8	⊥

680 If the patient, as we assume, takes the stimulus-words personally and has an erotic complex as indicated, then it is understandable that to *correct* (46) "she would always like to say the opposite," as this fits her behaviour; it also fits the father's dipsomania. Ideas that are determined twice or more do not exclude each other; according to Freud they are even the rule.

681 That *people* (47) is associated with *father* is striking. The reaction seems to be within the field of the emotional charge of *correct*. This could lead to the conclusion that there is some connection, unclear up to now, between her self-reproaches and *father*. (This connection will become clear later on.)

682 What sort of interference acted on *book* / *pen* (49) is not easy to say. *Book*, pronounced as it is spelled [*Buch*], means "belly" [*Bauch*] in the Swiss dialect. In a sexual complex such an assimilation could easily occur. I have seen it repeatedly in other subjects.

683 The consistent decrease of the reaction-times from *correct*, 7.⁶ secs., however, indicates a serious complex-interference that begins with this stimulus-word and gradually decreases during the next seven reactions. *Unfair* (50) seems to have been taken personally, and this fits well with her self-recrimination.

55. cattle r.	cow	4. ²	+
56. to attend	disobedient	4. ⁰	
57. pencil	to sharpen	3. ⁰	+
58. dull	weather	1.8	
59. plum	tree	3. ⁸	pointed
60. to meet	certain	1.4	+
61. law	state	2.	+
62. dear	good	8	+
63. glass	wa-water	4. ⁰	+
64. to quarrel	argument	1.6	child
65. goat	milk	2.	+

⁶⁸4 I have no explanation for the disturbance at 55, *cattle*, *Disobedient* (56) reminds one of the previous *naughty*, which may be related to the pupil already mentioned. The disturbance of the following unrelated reaction indicates the perseverating emotional charge. R.59, *Plum / tree*, does not seem to have passed by smoothly, judging by the length of the reaction-time. The word here used for *Plum* is not an everyday word; it is, however, unlikely that for this reason it takes an educated subject such a long time to react. (Wehrin's idiots have average figures varying between 3.0 secs. and 37 secs. Therefore 3.8 seems far too long for an educated person.) The German *Pflaume* (plum) is, like Swiss *Zwetschge* (plum), a popular sex-symbol in our colloquial language.

⁶⁸5 *Dear* (62) can easily indicate an erotic complex. At *glass* (63) the complex of the dipsomaniac father apparently comes to the surface again with the strong emotional charge attached to it (hence the disturbance of the two following reactions).

66. large	small	2.6	+
67. potato r.	floury	6.0	
68. to grind	mill	2.0	+
69. part r.	small	11.6	
70. old	ugly	3. ⁰	+
			+
			young, un-attractive
71. flower	beautiful	2.0	scent
72. to beat	rod	2.8	
73. cupboard	table	2.8	+

⁶⁸⁶ *Large* (66) is as a rule taken personally. The patient is very short. With an erotic complex, she is, as we have already seen, 29⁸

bound to be much concerned with her body. This might explain the disturbance of the following reaction.

⁶⁸⁷ For *part* (69), the reaction-time is very much extended. It is usual to interpret "part" as "genital." Here the strong emotional charge is characteristic for this association. It is not surprising under this constellation that *old* (70) is given a personal erotic meaning. How strongly emphasized in this patient is the question of physical beauty and her own ageing can be seen from the perseveration *beautiful* (71). *To beat / rod* (72) can again have been specially constellated by the obsessional idea that she had caused her pupil's death.

74. wild	child	2.4	⊥
75. family	large	2.4	⊥
76. to wash r.	to clean	3. ⁰	⊥
77. cow	to milk	1.8	⊥
78. stranger	nostalgia	14. ⁸	⊥
79. happiness r.	unhappiness	3. ⁰	⊥
80. to tell	story	1.6	⊥

⁶⁸⁸ The minor disturbance at 76, *to wash*, can be explained by the preceding erotic concepts *child* and *family*. *Stranger* (*7⁸*) apparently aroused a personal association, to be explained later on.

81. propriety	intellect	4. ⁶	⊥
82. narrow r.	small	3. ²	⊥
83. brother	sister	1.0	⊥
84. damage r.	neighbour	4. ⁰	⊥
85. stork r.	church	2.4	⊥
86. false r.	unfaithful	3. ⁰	⊥
87. fear	anxiety	2.4	⊥
88. to kiss	mouth	2.2	⊥
89. fire	blaze	1.8	⊥
go. dirty	sticky	2.2	⊥
g1. door	fold	1.6	⊥

⁶⁸⁹ The sound association of 81, *propriety / intellect* (*A n-stand / Verstand*) is most striking. Let us remember the disturbances produced by *habit!* There we suspected the "vicious habit" of masturbation. Here too this complex could have been aroused. In this case *intellect* is not fortuitous. According to a

popular belief masturbation destroys the reason, the "intellect." One has also to bear in mind the patient's bemoaning that she is afraid of losing her reason.

69⁰ *Narrow / small* (82) is still under the influence of the preceding reaction: *small* probably belongs to the body-complex in view of its being repeated (66); *narrow* may, under the constellation of the preceding association, refer to the *introitus vaginae* and therefore be connected with *small*, which indicates her figure; the ominous "part" too is *small* (this assumption will be confirmed). *Damage* (84) is probably taken personally; *neighbour* fits neatly. She has done immense damage to the neighbour by being guilty of her dying unabsolved. Under the sexual constellation, however, "damage" can also have been taken personally; one does personal and mental damage to oneself by masturbation (see above). The neighbour then provides a cover (see Freud's similar conclusions). Behind the neighbour the patient herself may be hidden. That an emotional charge interfered here becomes apparent from the following disturbances. At 86, *false / unfaithful*, a definite erotic reminiscence can easily have come to the surface in an elderly spinster.

92. to choose r.	teacher	4.4	⊥
93. hay	straw	1.8	⊥
94. <i>still</i>	<i>stool</i>	13. ⁰	<i>child</i>
95. mockery	scorn	1.4	⊥
96. to sleep r.	to wake	3.4	⊥
97. month	year	1.6	⊥
98. coloured	gaudy	2.4	⊥
99. dog	cat	1.2	⊥
100. to talk	to be silent	1.4	⊥

69¹ To *to choose* (92) women like to associate the thought of marriage.

69² The patient's father was a teacher. She is a teacher. It would be easy to assume that she has marriage with a teacher in mind. The father-complex may, however, also have to be considered here (see below). *Still / stool* (94) is a striking sound association. The explanation is given by the erotically charged term *child*. A child can be "still"; but the dead are also still (obsessive idea: she has caused the pupil's death by ill-treating him). Behind this there may be erotic connections, associated

with German "stillen" (to suckle). (Cf. 49, *book*, and subsequent comment.) The same word (*stillen*) can be used for quieting a child or quieting sexual desire. *To sleep* (96) has many erotic associations. The patient cannot sleep, for instance; sleeplessness in younger people, however, is often the expression of lack of sexual satisfaction (Freud). Anyone inexperienced in the field of pathological association psychology will probably shake his head at the above suppositions; he will perhaps see in them not just hypotheses but sheer phantasms. The judgment on them will perhaps be the same as on Freud's *Interpretation of Dreams*.

693 Let us next summarize the result of the association and reproduction test. As I have already said, the patient did not give any information about herself; I am therefore entirely dependent on the objective data of the test and on my experience.

694 The probable mean of the reaction-times is 2.4 secs. Forty-four per cent of the reaction-times exceed 2.4 secs. Amongst these are figures of up to 15.2 secs., pointing to the dominance of emotion or, in other words, a considerable lack of control of the psychic material.

695 In the analysis we indicated the existence of various complexes. The erotic complex appears to play a dominant role. Here I give a tabulated survey of the complex-reactions. The following examples should be understood as related to an erotic complex:¹⁶

10. <i>friendly</i>	<i>loving</i>	3. ⁶	<i>good</i>
11. <i>table</i>	12. <i>woman</i>	4. ⁶	
13.		2.4	
14.		2.2	
16. to dance		1.8	
17. lake r.	to jump	1.8	+
17. <i>yellow</i>	water	2.4	
35. mountain r.	[<i>tower</i>	4.2	+
3 ⁶ .	work ¹⁷	2.8	
		2.2	<i>green</i>
			+

¹⁶ In order to set the complex-disturbances in relief, I am adding all the perseveration phenomena and also the gradually decreasing times of the subsequent reactions.

¹⁷ [See supra, n. 15.]

1. STUDIES IN WORD ASSOCIATION

39. habit r.	<i>nasty or bad</i>	12.	<i>vicious habit</i>
40. to ride r.	<i>to drive room</i>	2	+
41. wall	<i>disdain</i>	2.4	
44. to scorn		3. ⁰	<i>to desPise</i>
45.		15. ²	
59. plum	<i>tree</i>	1.	+
62. dear	<i>good</i>	4	<i>child</i>
66. large	<i>small</i>	3. ⁸	+
67. potato r.	<i>flour</i>	4. ⁰	
68.	<i>y</i>	2.6	+
69. part r.	<i>small</i>	6.	
70. old	<i>ugly</i>	0	<i>young, un-attractive</i>
71. flower	<i>beautiful</i>	2.	<i>scent</i>
72. to beat	<i>rod</i>	2.0	
73.		12. ⁸	
74. wild	<i>child</i>	2. ⁸	+
75. family	<i>large</i>	2.4	
76. to wash r.	<i>to clean</i>	3. ⁰	+
81. propriety	<i>intellect</i>	4. ⁶	
82. narrow r.	<i>small</i>	3. ²	+
83.		1.0	
86. false r.	<i>unfaithful</i>	3. ⁰	+
87.		2.4	
88.		2.2	+
89.		1.8	
92. to choose r.	<i>teacher</i>	4.4	+
93.	<i>stool</i>	1.8	+
94. still		13. ⁰	<i>child</i>
95.	<i>to wake</i>	1.4	
96. to sleep r.		3.	+
97.		4	
		1.	

69⁶ These associations, which presumably have a sexual background and which show all the characteristic complex-disturbances, could be interpreted as follows:

69⁷ The patient feels herself to be old and ugly, is very sensitive about her sallow complexion, above all pays anxious attention to her body; in particular she does not like being so small. Presumably she has a great desire to get married; she would certainly be a loving wife to her husband and she would like to have children. Behind these not very suspicious erotic symptoms, however, there seems to lie a sexual complex that the

patient has every reason to repress. There are signs that allow the conclusion that she pays more than usual attention to her genitals. In a well brought-up and educated woman this can only refer to masturbation; masturbation, however, in the wider sense of a perverse self-satisfaction.

69⁸ Masturbation is one of the most frequent sources of self-reproach¹⁸ and self-criticism. This complex, or, better, this aspect of the sexual complex, is also indicated by the following associations:

14. <i>sulky</i>	<i>brave</i>	1.8	<i>friendly</i>
19. <i>pride</i>	<i>haughty</i>	5. ⁰	+
22. <i>wicked</i>	<i>good</i>	3. ⁰	
23.		2.2	
24.		2.0	
42. <i>silly r.</i>	<i>clever</i>	2.8	
43. <i>exercise-book</i>	<i>book</i>	3. ⁰	+
46. <i>correct r.</i>	<i>I should always like to say just the opposite</i>	7. ⁶	<i>incorrect</i>
47. <i>people r.</i>	<i>father</i>	6.0	+
48. <i>to stink</i>	<i>fragrance</i>	4. ⁸	
49. <i>book r.</i>	<i>pen</i>	4.4	+
50. <i>unfair r.</i>	<i>sense</i>	3. ⁶	
51.		2-4	<i>exercise-book</i>
52.		2.2	<i>fair</i>
53.		1.4	

699 To the complex of the alcoholic father can be related:

3. <i>water</i>	<i>drinker, to drink</i>	2.4	<i>glass</i>
4.		3. ⁶	
63. <i>glass</i>	<i>wa-water</i>	1.6	⊥
64. <i>to quarrel</i>	<i>argument</i>	2.4	<i>discord</i>
65. <i>goat</i>	<i>milk</i>	2.0	<i>to milk</i>

7⁰ From this tabulation it can be seen that the sexual complex is well in the foreground. Although, as I have already mentioned, a direct confirmation of this interpretation was not to be had from the patient, I took the complex-diagnosis as confirmed for the reasons I have just given.

¹⁸ The reproaches are originally restricted to the sexual complex but, according to our experience, are soon applied to a wider field.

701 I told her therefore that I was sure her obsessional ideas were nothing but excuses and shiftings, that in reality she was tortured by sexual ideas.

702 The patient denied this explanation with affect and sincere conviction. Had I not been convinced through the association experiment of the existence of a particularly marked sexual complex, my certainty would probably have been shaken. I appealed to her intelligence and truthfulness: she assured me that if she knew of anything of the kind she would tell me, because she well knew it would be silly to conceal such thoughts from the doctor. She had thought of getting married, "as everyone else did, but not more." After this I let the patient go and asked her to come again in two days' time.

2. PSYCHOANALYSIS

703 For psychoanalysis the patient's mental condition is important, but still more important is the mental condition of the doctor. Here probably lies the secret of why Freud's psychoanalysis is disregarded by the world of science. He who approaches a case with anything but absolute conviction is soon lost in the snares and traps laid by the complex of hysterical illness at whatever point he hopes to take hold of it. One has to know from the very beginning that everything in the hysteric is trying to prevent an exploration of the complex. Where necessary, not only the patient's interest and his regard for the doctor fail, but also his thinking, memory, and finally even his language. But precisely these peculiar defence-mechanisms give the complex away.

704 Just as hesitating, faulty reproduction and all the other characteristic disturbances always occur in the association experiment whenever the complex is touched on, so in the analysis difficulties always arise whenever one gets close to the complex. In order to bypass these difficulties, Freud, as is well known, induces "free associations." It is a very simple method and one has only to practice it for some little time to become reasonably familiar with it. In this case I carried out psychoanalysis strictly on Freud's lines. I made the patient take an easy-chair and sat down behind her, so as not to confuse her. Then I asked her to tell me calmly everything that came into her mind, no matter what it was about. The patient laughed;

PSYCHOANALYSIS AND ASSOCIATION EXPERIMENTS surely one could not say every piece of nonsense that ca] into one's mind. But I adhered to my request. Then she tri several times to say something, suppressed it, however, ea time with the excuse that it was silly-I would laugh at t and think she was an ungrateful person who could only oll banalities. I did nothing but encourage her to continue to tc: and eventually the patient produced the following senteno "I think I shall never get well-now you are sure to laugh but I am convinced that I shall never get well-you cam hypnotize me-you will no more cure me than any other dl tor has-it will only get worse, because now I have to reproa myself that with my nonsense I am only unnecessarily wasti your time." This idea was not quite unjustified because t patient always blurted out the sentences after long interva so that it took us almost half an hour to come to this mea~ result. She continued: "I am thinking now of my people home, how hard they work and how they need me; while I;: here, good for nothing but my silly ideas-you too will o tainly become infected by them-now I am thinking that cannot sleep, that last night I took] g. of Veronal, althou you have forbidden it-I am sure I shall never be able to sle(How can you expect to cure me?-What do you want me to t you? [Here a certain restlessness became noticeable.] But cannot tell you every piece of nonsense that comes into t head. [Increasing restlessness, shrugging of the shoulders, mat stamping movements with her foot now and then, shakes hi self as if in great indignation.] No, this is nonsense-I dOl know of anything else now-really, I don't know of anythi else. [Very restless, wriggles and turns in her chair, makes (fensive movements by shaking her thorax to and fro and mat elbow movements as if pushing something away.] At last s jumps up and wants to go, she cannot think of anything e at all! With gentle force I make her sit down in the chair al remind her that as she has come to me to be cured, she ml follow my directions. After a long debate on the use and pI pose of my method, she at last consents to stay and contim but soon the movements of indignation and defence are sumed, she literally wriggles in the chair; occasionally s straightens herself with a forcible movement, as if she had cm to a decision after the greatest struggle with herself. At last s

says meekly: "Oh, something silly came into my head-you are sure to laugh-but you must not tell anybody else-it is really nothing-it is something quite simple-no, I can't tell you, never-it has nothing at all to do with my illness-I am only wasting your time with it-really, it doesn't mean anything at all-have I really got to tell it? Do you really insist on it? Oh, well, I may as well tell you, then I shall be rid of it. Well,once I was in France-no, it's impossible, and if I have to sit in this chair for another four weeks [with sudden determination] well, I was a governess in France-there was also a maidservant-no, no, I cannot tell it-no, there was a gardenerfor goodness sake, what will you think of me? This is really sheer torture-I have certainly never thought of such a thing!"

7⁵ Between these painful ejaculations the following story at last emerged with innumerable stoppages and many interruptions, during which she asserted that this was the first and last session with me.

7⁶ Her employer also had a gardener, who once said to her that he would like to sleep with her. While saying this he tried to kiss her, but the patient pushed him away. When she went to bed that evening she listened at the door and wondered what it would be like if he did come to sleep with her; then a frantic fear overtook her that he might really come. Once in bed she was still compelled to think of what it would be like if he came, then reproached herself anew for thinking such things. The thought of what it would be like to sleep with the gardener did not, however, leave her, although she was again and again shocked at finding herself capable of such thoughts. In this mental turmoil she was unable to get to sleep until the morning.

7⁷ The first session took no less than an hour and a half. Its result was a sexual history! What was particularly interesting to me was its quite spontaneous appearance with the same gestures that I had immediately noticed in the patient at the first consultation. These tic-like phenomena had a very close and easily understandable connection with the repressed sexual matters! I arranged the following session for two days later, which was at once accepted, the patient looking very relieved and not saying another word about leaving.

7°8 On the day of the appointment I was busy with some urgent work when the patient came and therefore sent her a message, asking her to come in the evening instead. She, however, sent the reply that she could not possibly wait, she had to speak to me urgently. I thought something special had happened and went to her. I found her in great distress: she had not slept at all, not a minute, she had had to take drugs again, etc. I asked her whether she had been brooding again over her obsessional ideas: "No, something much worse; now I have my head full of that nonsense that I told you about last time. Now I can think only of these stories and therefore cannot close an eye; because of them I toss and turn all night long and cannot get rid of these thoughts for a minute. I have definitely got to talk to you now; it gives me no peace." She went on to tell me that last time she had gone home very much relieved and calmed down, almost in a gay mood, and had hoped she would now at last be able to sleep, but then a story came into her mind that she should have told me last time, but which she had thought was not really of any importance. She had determined now not to "act so silly" as last time, but freely to tell everything she thought of. Then the confession would soon be over. So I resumed the analysis, hoping it would go off smoothly without the endless preliminaries of the time before. I was, however, completely mistaken. The patient repeated the interjections of the first session almost verbatim. After an hour and a half of mental torture I brought the following story to light: In the same house where the patient was a governess, there was also a maid¹⁹ who had a lover, with whom she had sexual intercourse. This girl had also had sexual intercourse with the gardener. The patient often discussed sexual topics with her and in particular the sex life of master and mistress. The patient and the maid even investigated their beds for sperm stains and other signs of sexual intercourse! Every time, after such amusements, the patient suffered the severest self-reproaches on her indecency and spent sleepless nights, during which she turned and tossed about because of torturing reproaches and voluptuous fantasies.

19 Cf. the reference to this maid in the first session.

7⁹ When, after tiresome resistance, the story was out at last, the patient declared: now she had come to the end, this was all, nothing else came to her mind now. If only she could sleep; the telling of these stories did not help at all.

7¹⁰ Two days later she came to the third session and said: After the previous session she had been rather quiet again, but as soon as she was in bed at night another new story had come to her mind which had tortured her incessantly, with the obsessive reproach that again she had not told me everything in the session. She was sure now that today she could tell me the story quickly, without the continuous resistance as in the first two sessions. The third one, however, proceeded exactly in the same way as the two previous ones: incessant interjections, excuses, etc. Particularly conspicuous was the tendency to present the matter as perfectly natural, as if there was nothing to it. It was about a second maid who was in service with the same employer. The master had a valet who pursued the girl. He did not, however, succeed in seducing her. At last, one evening, when there was a party in the house, he managed to entice the girl into the garden. The couple was, however, surprised by the mistress at the critical moment. At this the youth is said to have exclaimed: What a pity, he was just ready! The patient heard this story from the first maid. At first she made out not to have the slightest interest in the story, as if she found it downright repulsive. This, however, had been a lie, because in fact she had had the greatest interest in it; she had several times tried to bring the maid back to this topic in order to hear every detail. At night she had hardly been able to sleep from curiosity, and had incessantly had to ask herself the questions: What did the two want in the garden? In what posture could they have been found by the mistress? What had the youth been ready for? What would have happened if the mistress had not come? Although she knew the answers perfectly well, she could not stop asking herself these questions over and over again. At last she was compelled to think over persistently what she would have done in such a situation. This excitement lasted for several days.

7¹¹ We have mentioned being struck by her matter-of-fact presentation of the story. She said, for instance, very reluctantly that the lad was after the maid. From the reluctance it could be

expected that something rather unpleasant was to come, she continued as follows in an indifferent tone: "The lad, just in love with the girl. This is nothing unusual? This happens often?—oh, now there is something again—no, that cannot—" etc. While telling the story she always tried from time to time to belittle and talk herself out of her belief in the importance of an event by inserting such generalizing rhetorical questions.

⁷¹² From now on, during the whole period of the analysis (three weeks), the original obsessional ideas were absent; their place had been taken by sexual ideas. The memories underlying the obsessional ideas that had already been dealt with constantly tormented the patient. She was so obsessed by these sexual reminiscences that she was never able to find peace until she had told the story again. She expressed great amazement at this change; the stories came like beads on a string, as if they had been experienced yesterday. Things occurred to her of which she had previously been quite unconscious but which she now again recalled (Freud's hypermnesia). Of course, these admissions have to be taken with the same reserve as the familiar "I don't know." The patient may quite well have unconsciously cultivated all her sexual ideas without remembering them, and spun them out right up to the moment when she had to speak about them objectively. In her stories one can often see immediately what is to come from her gestures, while she still repeatedly asserts that she certainly does not remember anything more. Her everyday person and her sexual person are just two different complexes, two different aspects of consciousness [they] do not want to or must not know anything of one another. The split of the personality here is, however, only hinted at in every vigorous complex, the peculiarity of which is a striving for autonomy). But it is only a step to the classic examples of split personality, all of which are, of course, produced by the mechanisms demonstrated by Freud.²⁰

⁷¹³ With these three sessions a certain conclusion was reached in so far as one could not avoid relating the obsessional idea that she had caused the death of her former pupil to the self-reproaches connected with the sexual stories. This appears

²⁰ Cf. Jung, "On the Psychology and Pathology of So-called Occult Phenomena (1902).

was also felt by the patient when she spontaneously mentioned that many years had already passed since these events, and the thought that she had caused the pupil's death had long ceased to torment her. Probably for the purpose of escaping from the unbearable sexual ideas, she transferred the guilt from this field to that of her educational methods. The mechanism, which is well known, is this: if one has continually to reproach oneself in one sphere, one tries to compensate for these deficiencies in another sphere, as if the same deficiencies were present there as well; this is particularly obvious in masturbators (compulsive brooding, cleanliness, and orderliness). It therefore seems to be not incidental that precisely these stories, underlying a past obsessional idea, were told first. Since there were in present consciousness no obsessional ideas directly supported by these stories, there were no special resistances present. Hence, the stories were relatively immaterial.

7⁴ I refrain from presenting the subsequent sessions in detail; they all followed the pattern already described. No admonition, no pointing out the absurdity of her stereotyped resistance, could make the patient talk more quickly and spontaneously. Every new session was a new torture, and at almost everyone the patient declared that this was the last. Usually during the following night, however, there came new material that tormented her.

7⁵ The reminiscences of her time as governess were succeeded by a series of unsavoury stories that had served as a topic for conversation with the neighbour for whose death without the sacraments the patient reproached herself. The neighbour was a person about whose dubious past a number of rumours were current. The patient, who is a very decent girl and comes from a respectable family, known to me, had in her own view a dubious past herself and reproached herself for it. Therefore it is not surprising, psychologically, that she was immediately attracted by the interesting neighbour. There the *chronique scandaleuse* of the day used to be discussed, and in this connection the patient had quite a number of obscene stories and jokes to tell me, which I need not repeat here. For this also she reproached herself. When the neighbour quickly succumbed to an illness, the patient transferred the reproaches, which actually were about her sexual curiosity, to the death of the

neighbour, who had died without absolution because the patient had during her visits enticed her to sinful conversations. The type of reminiscence and of reasoning seems to suggest that this obsessional idea is simply a new version of the earlier obsession about the death of the pupil. The religious obsession took her first to the priest and then to the doctor. She felt that she had infected both of them with her obsessions. She had therefore done something similar to what she had done to the neighbour whom she had destroyed simply by being what she was, as she had originally also destroyed the pupil. Underlying all this is the general idea that she is a horrible creature who infects everything with her depravity.

⁷¹⁶ During the following sessions the patient dealt mainly with a series of stories that she had recently discussed with a girl friend. The friend has an office job in a big shop. There she hears quite a number of juicy things from the men, each of which she retails to the patient while they are still warm. On one occasion the friend said she intended to have sexual intercourse just simply to see what it was like. This thought mightily excited the patient; she told herself incessantly that she too would like to have it. This, however, was sufficient reason for renewed self-reproaches. From this incident onwards there was an increasingly clear trend towards referring sexual subjects to herself; during almost every session obscene jokes and the like had to be told again. From the ideas referring to herself there came first all the reminiscences of former love-affairs and longings for affection. The recounting of these on the whole rather harmless events went off fairly smoothly. Only one incident had a stronger emotional charge. She was in love with a young man about whom she knew very little and thought he was going to marry her. Later, however, he left her without a goodbye and she never heard from him again. For a long time she kept on waiting for him and always hoped he would write to her. To this refers 78, *stranger / nostalgia*, 21 14.⁸ secs. As already mentioned, the patient could not then explain the significance of this reaction. While the old love stories were told without any major difficulties, once this phase had passed

²¹ [German *fremd/ Heimweh*; "fremd" is an adjective the literal translation of which ('strange') would be misleading. The noun had therefore to be used, although not strictly apposite.]

resistance set in. The patient definitely wanted to leave, she had no more to tell. I told her that I had not heard anything about her earlier youth. She thought she would soon be finished with that, there was not much to tell about her youth. She had hardly finished this sentence when she was compelled to repeat several times her vehement tic-like defensive gestures, an unmistakable sign that much more very important material could be expected. With the greatest resistance and the most painful contortions she told in a jerky manner of a book that she had found at home, when she was ten years old, the title of which was *The Way to Happy Matrimony*. She asserted that she had no longer any idea what was in it. But as I continued to be relentless, recollections recurred after a while, and it turned out that the patient still remembered every detail, frequently even the wording. She gave a detailed account of the first sexual intercourse and its complications; the academic description without any personal reference seemed to me peculiar and unusual. I suspected that something must be concealed behind this fapde. It was not long before the patient related that at the age of fourteen she had found in her elder brother's pocket a small book in which was reprinted a letter. The letter was written by a young wife to an intimate friend and discussed the secrets of the wedding night in a very obscene and lascivious manner. Apparently I was on the right track, as this story showed. The patient's next recollection concerned erotic dreams that she had had only quite recently. The dreams were outspoken ejaculation dreams and represented sexual intercourse undisguised. This was followed by the confession of having several times tried to hold the dream-image and to masturbate. Then it turned out that masturbation had also occasionally been practised before this. With the masturbation was linked a persistent thinking about her own genitals; she is compelled to wonder whether she "is properly built," whether perhaps she has not a too narrow introitus; she also has to investigate this state of affairs with the finger. She frequently has to look at her naked body in the mirror, etc. She has a long series of fantasies on sexual intercourse, she is compelled especially to imagine in every detail how she would behave during the first intercourse, etc. **In** this connection she also confesses to feeling a strong libido (which at the beginning she

had emphatically denied). She would very much like to get married, and therefore attaches sexual fantasies to most of the men she meets. She also imagines herself in the leading part of all the sex stories she has collected. Thus she tells, for instance of a naïve young acquaintance, a girl who, on a trip in a crowded railway compartment, had to sit on her teacher's lap. The girl afterwards laughingly related that the teacher never forgot his role, he even carried a ruler in his trousers pocket. About this story the patient thinks that she too would enjoy it if a teacher took her on his lap, but she would know what the ruler in the trousers pocket meant. (The previously not completely explained reaction [92] to *choose / teacher* may have been constellated partly by this story.)

⁷¹⁷ With great reluctance she also admits that at the age of fourteen she had once laid herself upon her younger sister "as if she had been a man." At last, in one of the latest sessions, came the narration of an event which in every respect had the significance of Freud's youth trauma. At the age of seven or eight she had repeatedly listened to the sexual intercourse of her father and mother. Once she noticed that her mother struggled and did not at all want to let the father come to her again. For a long time after that she could not face her parents any more. Then her mother became pregnant and gave birth to her younger sister. She bitterly hated the little sister from the very beginning, and only much later was she able to overcome a deep aversion to the child. It is, of course, not quite unlikely that the patient imagined herself as one of the acting persons in this story and that she adopted the role of the mother. This very plausible connection easily explains the strong emotional charge in all associations to the father.

⁷¹⁸ Of course, the psychic trauma of such an observation becomes a complex with a very strong emotional charge in a child's mind, which is bound to control the thinking and acting for years to come. This was, in a classic way, the case with this patient. It gave a quite definite direction to her sexual function.²² This becomes obvious from the analysis of her repressed material; it is always chiefly connected with digging

²² With this one can also compare the fact that many sexually perverted persons (fetishists) have acquired their abnormality through an incidental sexual event (see Krafft-Ebing, *Psychopathia Sexualis*).

out and imagining situations of sexual intercourse. Surprisingly, in spite of her sexually extraordinarily lively fantasy, she never became deeply involved with men and anxiously repulsed every attempt at seduction. But instead she was attracted, with an almost magical force, to doubtful females and dirty topics of conversation which, at her level of education and intelligence, one would not have expected. The two last sessions were particularly instructive in this respect. She produced the choicest selection of most repulsive obscenities that she had occasionally heard in the street. What these obscenities, the narration of which I must be spared, had in common were various abnormalities of sexual intercourse (e.g., too wide, or too narrow intromissions, sexual intercourse of a little hunchback with a huge fat woman, etc.). The number and the extreme vulgarity of these jokes appeared to me almost incredible for such an educated and decent lady. The phenomenon, however, is explained by the early perverted direction of the sexual function, which is mainly concerned with finding out unclean sexual practices, i.e., the symbolic repetition of eavesdropping on sexual intercourse. This complex, caused by listening to the sexual act, has throughout her life determined a multitude of sexual actions and associations with their peculiar manifestations. This, for instance, is the reason why the patient performs a sort of sexual intercourse with her little sister, why her listening at the door to hear whether the gardener is coming still haunts her, why she has to carry out the disgusting job of examining her employers' bed, why she has to seek the company of morally dubious people, etc. Her defensive movements and the peculiar pushing forward of the abdomen also show how the effect of the complex spreads in all directions. It is worth noting, too, that she appears at each session in a different dress.

⁷¹⁹ Using the sexual function in this way is bound to be incompatible with her otherwise gently disposed character; a rejection and repression of sexuality as absurd as it is repulsive must have taken place, because it is impossible that an educated and sensitive woman can combine these obscenities with the other contents of her mind. These things can only be tolerated when repressed. But they do exist, they actually have a separate ex-

istence, they form a state within the state, they constitute a personality within the personality. Expressed in other words, there are two mental attitudes present, kept apart by strong emotional barriers. The one must not and cannot know anything of the other. This explains the peculiar disturbances of reproduction that counteract the analysis. The ethically superior mind has not the associations of the other at its disposal; she must therefore think she has forgotten these ideas and that she has never known such things. I am therefore inclined to accept that the patient was really convinced that nothing more came into her head, that it was not a lie when she asserted with the greatest persistence that she had no more to say.

⁷²⁰ But even if a complex is still so far repressed, it must yet have a constellating influence on the contents of normal consciousness, for even the deepest split of consciousness does not reach the indivisible basis of the personality. Thus the repression must leave a certain imprint on the conscious processes; the normal consciousness must somehow explain away the emotional condition that a repressed complex leaves behind. What is simpler, therefore, than to produce an idea compatible with normal consciousness as an explanation for the persistently self-reproachful and discontented mood? To explain away the pangs of conscience related to the sins of the governess phase, the patient displaces her self-reproach on to her method of teaching, which she feels must have led to a disastrous result; otherwise she would not persistently experience the feeling of self-reproach when she recalls incidents of that time. As we have already seen, the origin of this obsession acts as a pattern for the obsessional guilt about the neighbour's dying unabsolved. The accumulation of obsessive ideas about the doctor and the priest has its good reason in the fact that these people were not at all indifferent to her sexuality, as the patient admitted to me. By having a sexual effect on her they become in a way accomplices in her wickedness; she therefore expects them to feel equally guilty.

⁷²¹ After this analysis we can understand the role, still unclear in the associations, that the father plays in her erotic complex. In general the analysis supports to the widest extent the hypotheses suggested by the associations. The associations actually

served as signposts among the maze of ever-changing fantasies that at every stage threatened to put the analyst on the wrong track.

⁷²² The analysis was carried out every other day for three weeks and lasted one and a half to two hours at a time. Although at the end of the three weeks the patient had neither achieved proper sleep nor peace of mind, I discharged her and heard no more of her until the end of November. During the last days of November 1905 she suddenly came to see me and presented herself as cured. After the termination of the treatment she had still been very agitated for about four weeks. Sometimes she was tortured at night by her sexual images, sometimes again by obsessional ideas. In particular the obsession about the neighbour frequently recurred and did not give her any peace until she went to the daughter of the dead woman to make her tell her about the death scene for the *n*th time. When the daughter told her again, as usual, that the mother had died peacefully, the patient suddenly became convinced that the woman had after all received the last sacraments. With this all obsessional ideas suddenly disappeared. Sleep returned and was only occasionally somewhat disturbed by sexual images.

⁷²³ What had brought about this happy ending of the treatment?

⁷²⁴ It is obvious that the daughter's story, which the patient had heard many times without any effect, was nothing but the vehicle for the final removal of the obsession. The actual turn for the better occurred at the beginning of the treatment, when the sexual images replaced the obsessional ideas. The confession of her sinful thoughts may have given considerable relief to the patient. But it seems unlikely that the cure can be ascribed entirely to their verbal expression or to the "abreaction." Pathological ideas can be definitely submerged only by a strong effort. People with obsessions and compulsions are weak; they are unable to keep their ideas in check. Treatment to increase their energy is therefore best for them. The best energycure, however, is to force the patients, with a certain ruthlessness, to unearth and expose to the light the images that consciousness finds intolerable. Not only is this a severe challenge for the patient's energy but also his consciousness begins to accept the existence of ideas hitherto repressed.

7²⁵ The split-off contents of the mind are destroyed by being released from repression through an effort of the will. So do lose a great deal of their authority and therefore of their hold and simultaneously the patient regains the feeling of being master of his ideas. I therefore put the emphasis on arousing and strengthening of the will and not on mere "abreacting," Freud originally did.

7²⁶ It appears, from some recent publications, that Freud's theory of obsessional neurosis is still consistently ignored. I therefore give me great satisfaction to draw attention to Freud's theories-at the risk of also becoming a victim of persistent amnesia.

SUMMARY

7²⁷ 1. The complex that is brought to light through the associations offered by patients with psychogenic neuroses constitute the *causa morbi*, apart from any predisposition.

2. The associations may therefore be a valuable aid in finding the pathogenic complex, and may thus be useful for facilitating and shortening Freud's psychoanalysis.

3. The associations supply us with an experimental insight into the psychological foundation of neurotic symptoms: hysteria and obsessive phenomena stem from a complex. The physical and psychic symptoms are nothing but symbolic manifestations of the pathogenic complexes.

THE PSYCHOLOGICAL DIAGNOSIS OF EVIDENCE¹

I

⁷²⁸ It is a matter of common knowledge that the evidence of witnesses, that most unpredictable element in legal proceedings, has recently become the object of experimental research. Perhaps the most credit belongs to William Stern, whose extensive "Contributions to the Psychology of Evidence"² is a real treasure-house from both the theoretical and the practical points of view. The aim of these papers is obvious; the ultimate goal is a general improvement in human memory, the utter unreliability of which is not apparent without experiment. The reports of Stern's experiments on legal evidence have gradually found their way to most of the major universities and have thus become widely known. It is therefore probably not necessary to deal with them in detail in this paper. In Stern's school the main object of investigation is the reliability of evidence; it uses the technique of the examining magistrate for the purposes of experiment. The question, however, with which we shall deal here, though not less important from the legal point of view,

¹ [First published as "Die psychologische Diagnose des Tatbestandes," *Schweizerische Zeitschrift für Strafrecht* (Bern), XVIII (1905), 369-408, and again in *Juristische-psychiatrische Grenzfragen* (Halle), IV (1906): 2, 3-47; republished as a pamphlet the same year under the same auspices, and again in 1941 by Rascher, Zurich and Leipzig.

[For a preliminary report of the case described in Part II (pars. nolf.) see "On the Psychological Diagnosis of Facts," *Psychiatric Studies*, Vol. 1 of the *Collected Works*. Jung wrote that report on the actual evening of the day during which he had conducted the test herein described more fully.

[While *Tatbestandes* means 'facts,' as translated in the title of the preliminary report, it may mean 'evidence' in a forensic context. Cf. Freud's "Tatbestandsdiagnostik und Psychoanalyse," translated in the Standard Edn., IX, as "Psychoanalysis and the Establishment of the Facts in Legal Proceedings" (main title) and as "Psycho-analysis and Legal Evidence" (page headings).]

² [I.e., the series *Beiträge zur Psychologie der A llssage*, which Stern published in Leipzig.]

is at the same time of medical and psychological significance; it concerns the "diagnosis" of a criminal case by study of the psychological make-up of the witness.

7²⁹ This new field of research is best explained by proceeding in an historical fashion; the problem is thus most easily understood even by the layman in psychology.

7³⁰ Wilhelm Wundt, stimulated by Galton,³ introduced into German psychology a simple experiment which we propose to call the "association experiment." The experiment consists essentially in the experimenter calling out some random word to the subject, in reply to which the subject has as quickly as possible to say the first word that comes into his or her head. A large number of repetitions of this procedure yields a series of pairs of words which one can call *associations!* The word called out is known as the *stimulus-word*, the reply as the *reaction*. As can easily be seen, this experiment, which appears so academic, was of course originally used only for psychological purposes far remote from any practical use. The main interest lay in the logical relation of word-pairs. There were also questions on how far back one could trace the associations, and whether they had already developed in the subject at an early age or not until later in life. The first relevant German paper, by Trautsholdt, on "Experimental Investigations into the Associations of Ideas,"⁵ deals exclusively with this topic. Later investigations by others of the Wundt school, such as those described in the papers by Scripture⁶ and Cordes,¹ were also concerned with purely theoretical questions. The experiment produced positive results and gained practical importance only when the psychiatrists took the matter in hand. This progress is connected with three well-known names: Kraepelin, Sommer, and Ziehen. These three research workers proceeded almost independently from one another and each of them in his own way. Kraepelin, who belonged to the school of Wundt, dealt first with certain theoretical questions, with which we are

³ "Psychometric Experiments" (1897).

⁴ Strictly speaking, these are of course not associations, only remote verbal reflections of the purely psychological process of association.

⁵ "Experimentelle Untersuchungen über die Assoziationen der Vorstellungen" (1883).

⁶ "Ober den assoziativen Verlauf der Vorstellungen" (1889).

⁷ "Experimentelle Untersuchungen über Assoziationen" (1899).

not concerned here. Ziehen made a special study of the results of the experiments with children. Sommer used the findings as an aid to psychiatric diagnostics.⁸ This summary shows the manifold aspects of this simple experiment. As every layman would imagine, the possibilities of reaction to stimulus-words are apparently innumerable. It was therefore a great achievement to be able to prove that certain restricting laws are in operation.

This proof is the result of the excellent study by Aschaffenburg,⁹ a pupil of Kraepelin. He was able to show by means of experiments, as interesting as they were laborious, that mental and physical fatigue exert a definite influence on associations, as can be clearly demonstrated by statistics. It became apparent that under the influence of fatigue there was in particular an increase in what are called *sound associations*¹⁰ (e.g., *dish / fish* *red / bread* *wood / good*). Aschaffenburg took this important fact as a starting-point, and he then showed that similar associations occurred in a mental disease, namely in *mania*. The question of the common psychological cause of the same phenomenon in these heterogeneous psychic states remained for the time being obscure. In 1901 Bleuler inaugurated research into associations at the Psychiatric Clinic in Zurich. These investigations led in 1904 to the discovery that sound associations are due to disturbances in attention.¹¹ A second result was that the content of the reactions was not *merely coincidental* but *inevitable*; i.e., what came into the minds of the subjects was not meaningless and incidental material but was determined according to a law by the individual content of the subject's ideas. This may be illustrated by the following example.

One of my subjects was a young man who had had an unpleasant dispute with his family a short time before the experiment. He wanted to marry a girl of whom his parents did not approve. As an obedient son he had to give her up, hard though it was for him. These events dominated his interests

⁸ For further details, see "The Psychopathological Significance of the Association Experiment," *infra*.

⁹ "Experimentelle Studien über Assoziationen" (1896-1904).

¹⁰ On the clinical side, Heinrich Schiile (1886; pp. 84, '9) has drawn attention to the "predominance of assonances" in cerebral exhaustion.

¹¹ Jung and Riklin, "The Associations of Normal Subjects," *supra*.

at the time of the experiment. It is therefore not surprising that numerous reactions were influenced by the recollection of this experience, as the examples show.

<i>Stimulus-word</i>	<i>Reaction again</i>
to kiss	and again no
bad	not now
time	am I
mature	ah!
to love	father and son
son	mother (wild=furious)
wild	she now has
tears	I cannot offer to her yes,
protection	if only there were I did
war	not keep
faith	and never again would
once	have to happen she is
miracle	anaemic another one
blood	I need not
choose	she has none
to part	I was, of her
right	a woman's dress
fond	I was not
wool	yes, now she is
unfair	
stranger	

733 On rereading these reactions it can be seen at once that their contents are not meaningless and that these are not random choices out of the thousands of possible reactions, but just those that indicate the ideas occupying the foreground of the individual's interest. It is, as already mentioned, the story of an unhappy love-affair. Such a recollection, which is composed of a large number of component ideas, is called a *complex of ideas*. The cement that holds the complex together is the *feeling-tone* common to all the individual ideas, in this case unhappiness. We are therefore speaking of a *feeling-toned complex of ideas*,¹² or simply of a *complex*. In our case the complex has the effect that the subject does not react by arbitrary or random connections of words but derives most of his reaction

¹² This term is a pleonasm, because there are no complexes of ideas other than emotionally charged ones. The stronger the complex is, the more vivid an emotional tone one has to infer.

from the complex. The influence of the complex on thinking and behaviour is called a *constellation*¹³

734 The reactions of our subject are thus *constellated by a comPlex*.

735 Does this behaviour work according to a law, and are the reactions in all subjects constellated by complexes?

73⁶ There is no one who has no complexes, just as there is no one who is without emotions. Yet human beings differ immensely in the strength of their emotions. In accordance with the intensity of their emotions people's thinking and behaviour are constellated by their complexes, and so are their associations. One is bound to ask, with some surprise, whether revealing or concealing one's complexes is not a matter for individual decision. By no means everyone will disclose his secrets so openly and without embarrassment as this young man did. True, this young man was an exception; he had confidence in the experimenter and said everything just as it came into his head. By no means everyone behaves like this; on the contrary, many are strictly on their guard not to say anything that might be compromising. Others are more casual and just fit one word to another without thinking of any deeper connections. Does a complex constellate the association even in a case where one is not thinking of anything in particular and certainly not of one's secrets? Theoretically, the question has definitely to be answered in the affirmative, because nobody can do anything that is impersonal; there is certainly no psychic manifestation that has not an individual character. Practically, however, it is not so easy to answer the following question: Is it also possible to demonstrate the constellation by complexes in associations in which the subject either does not want to give himself away or is not thinking of anything in particular?¹⁴

737 In spite of having formulated the appropriate questions, psychology has up to now been unable to prove anything of individual significance in the associations. It was our experiments that first succeeded in finding the approach to this goal.

¹³ The concept in this case originates with Ziehen, *Introduction to Physiological Psychology* (orig. 1891). Freud's "symptomatic behaviour" means the same thing.

¹⁴ "The Reaction-time Ratio in the Association Experiment," supra.

73⁸ As already mentioned, not every subject reacts as openly as the case described above; as a rule the associations are at first sight quite impenetrable and sound impersonal and safe, like those that follow here.

to dance	not	to sing	beautiful
ill	not	pity	not at all
angry	friendly	detest	rascals
needle	nail	people	religion
rich	rather	stink	abominable
tree	branches	unfair	atrocious

739 These associations appear to have an impersonal character and are thus very different from those quoted earlier. This might therefore lead to the assumption that they are nothing but casual, entirely incidental word-connections. On questioning the subject, however, we learn that this is by no means the case. It is not accidental that the subject responds to *to dance* with *not*, but it corresponds to a quite special individual situation. The man who was my subject could not dance, a fact that annoyed him, particularly because a friend was very good at dancing and thus won the love of a very "eligible" girl. My subject also wanted to marry an "eligible" girl, but did not succeed, and this angered him even more than not being able to dance. It worried him so much that he nearly became *ill* with it, but he did *not* really become ill in spite of his despair. The girl is *rather rich*. He does *not at all* deserve any *pity* for his lack of success because everybody has to work for his fortune. And because the lady who turned him down was Jewish, he came to *detest* the rascals (i.e., the Jews). Since the Jewish *peoPle* have a different *religion* from his, the problem of religion is of course also particularly important for him. Towards the end his anger breaks through more plainly with the expostulations *abominable* and *atrocious*.

74⁰ Thus here too we find the complex and its constellation quite distinct. Up to now we have relied entirely on the statements of the subject. But now let us look more closely into the contents of the reactions.

74¹ It is definitely striking that the reactions to *to dance* and *ill* are *not*, just as remarkable as that the subject says *rascals*

in answer to *detest*, and *not at all* to *pity*. Surely one could at these points think of much more innocent and objective connections which seem to be nearer at hand, e.g.,

to dance	music, dance-hall, ball, etc.
ill detest	disease, doctor, etc. respect,
pity	contempt, etc. for the poor, the sick, or compassion, etc.

74² The unusual content of the reaction therefore already allows us to infer a constellation by complex. So it is, for instance, striking if an elegant young man reacts to *goat* (*potato*) *cow*, each time by *agriculture*. The explanation is that he is a student of *agriculture* in his first term. I could easily pile up examples, but this is not necessary; for even without them it is feasible to conclude from the unusual content of a reaction that there is a constellating complex. This can be done even without getting information from the subject afterwards. If, for instance, a marriageable girl responds to *to kiss* with *sister's kiss*, it is not difficult to guess what is meant by that.

74³ But this does not exhaust the possibilities of suspecting and proving the influence of a complex, even without later information. Besides the content of the reaction, we have another very fine criterion for the complex-constellation; this is the *reactiontime*. We always measure the time elapsing between pronouncing the stimulus-word and the reaction with a 1/5-second stopwatch. As might be expected, these times vary in an apparently random fashion. Closer inspection, however, soon shows that very long reaction-times nearly always occur in quite definite places. The following example shows which are the critical spots:

head	hair	(secs. 1.4
green	lawn	1.6
<i>water</i>	<i>deep</i>	5. ⁰
to stab	knife	1.6
long	table	1.2
<i>shiP</i>	<i>sinking</i>	3.4
to ask	to reply	1.6
wool	to knit	1.6
sulky	friendly	1.4

<i>lake</i>	<i>water</i>	4. ⁰
ill	healthy	1.8
ink	black	1.2
<i>to swim</i>	<i>to be able to</i>	3. ⁸

1.8 seconds. But besides these there are four unusually long times, ranging from 3.4 to 5.0 seconds. If we ask the subject now why he hesitates at these points, we learn that once in a moment of despair he had seriously contemplated suicide by drowning. The stimulus-words *water*, *ship*, *lake*, and *to swim* stimulated this complex. During the short interval between stimulus-word and reaction something unpleasant (the complex) had crossed the subject's mind, and the result was a slight hesitation. The same phenomenon is noticeable in everyday conversation when we ask someone something that is unpleasant either to us or to the other person; we dither a little and hesitate over the question or with the answer. The hesitation here is quite involuntary and a kind of reflex. It is noteworthy that the same hesitation also occurs at the moment of the reaction, when we are quite unaware of the complex-releasing effect of the stimulus-word. Hundreds of cases have taught us this. From this we see that the stimulus-word can also release complexes of which we are not aware at the moment, which may even be separated from consciousness by amnesia, such as is very often the case in hysteria. By measuring the reaction-times we therefore have another means of detecting complex-constellations, even without co-operation from the subject.

called the *reproduction method*.¹⁵

subject whose complex we wish to investigate. When this series is complete, we ask the subject to repeat his reaction to every single stimulus-word. Here memory often fails. Then we go into the question of whether the points where incorrect or incomplete reproductions are given are random or determined. For the sake of simplicity we give here the previous example again.

¹⁵ "Experimental Observations on the Faculty of Memory," supra.

<i>stimulus-word</i>	<i>reaction</i>	<i>reproduction</i> ¹⁶
head	hair	+
green	lawn	+
<i>water</i>	<i>deep</i>	<i>to swim</i>
to stab	knife	+
long	table	+
<i>shiP</i>	<i>sinking</i>	<i>steamer</i>
to ask	to reply	+
wool	to knit	+
sulky	friendly	+
<i>lake</i>	<i>water</i>	<i>blue</i>
ill	healthy	+
ink	black	+
<i>to swim</i>	<i>to be able to</i>	<i>water</i>

747 The reproduction fails for *water*) *shiP*) *lake*, and *to swim*, i.e., for the same stimulus-words for which long reaction-times had originally been recorded. This shows that memory fails in the places where there is a complex in operation. We do not want to deal here with the interesting theory concerning these disturbances; this has already been done in the paper mentioned above. It should merely be remembered that memory is seriously deranged by an affect, as nobody knows better than an examining magistrate. Let us summarize briefly: We can demonstrate the complex-constellation objectively by the unusual or in any way striking content of the reaction, by the prolongation of the reaction-time, and by incorrect reproduction.

748 If we apply these three criteria to the associations, we soon find, however, that the matter is not as simple as it looks, because we see that, though these criteria apply to certain associations, they make no sense at all in, for instance, the following cases:

to stab	knife	1.6	+
angel	pure	1.2	+
long	trunk	2.8	tree
ship	man	1.2	+
to plough	field	1.4	+
wool	sheep	1.6	+
friendly	lovely	1.6	+
table	leg	4. ⁰	chair

¹⁶ The plus sign means that the reproduction was correct. Incorrect reproductions are given.

4. long	knife	9. ⁰	(as 3)
5. ship	steam	7. ⁰	(as 3)
6. to plough	field	4.2	garden

75² From the seventh reaction on there were again normal reaction-times and correct reproductions. In this example we can observe various features. The subject does not know in the least how to react to *water*. The reaction-time extends as it were to infinity. Ultimately, of course, she would come to some sort of a reaction, but to a forced one, which is of no use. We therefore never wait longer than about 30 seconds. What prevented the patient from reacting was the unpleasant recollection of the suicide attempt which cropped up here. In *angel/inn* the reaction-time is extremely long, because *angel* reminds her at once of the suicide attempt again, of dying and the next world, and this time with such an intensity that the emotional tone of the complex lasts over the next three reactions. The gradual subsiding of the emotional tone from reaction 3 on can clearly be seen in the reaction-times.

753 We have discussed here the most important disturbances that the complex produces in association and reproduction, and have now to deal with the question of how much of these theoretical findings can profitably be used for practical purposes.

754 In the first place, we have gained with this experiment a most valuable tool for psychology. With it we can demonstrate the existence of certain complexes of individual significance for our subjects, a fact that is bound to become of great theoretical importance. Secondly, the experiment is important for psychiatric practice in that, especially in hysteria, in which as a rule the whole mental life is disturbed, it provides us with the most valuable indications for finding the pathogenic factor, since in hysteria a complex is always at work,¹⁸ The experiment serves us equally well in the elucidation of another mental disorder, *dementia praecox*.

7:55 The latest application of our experiment was suggested by Wertheimer and Klein¹⁹ two pupils of the well-known cri m-

¹⁸ See in particular Riklin, "Analytische Untersuchungen der Symptome und Assoziationen eines Falles von Hysterie" (1905)

¹⁹ "Psychologische Tatbestandsdiagnostik" (1904). [For further comment on this work, see infra, Appendix, no. 5, n. 2.]

inal psychologist Hans Gross. This is its application to the delinquent—the exploration of the complex underlying a crime. Just as any subject who submits to the experiment unconsciously gives himself away, as we have shown, so the criminal, who has knowledge of certain facts, is bound to do the same. This, it is hoped, will make it possible to prove by experiment whether or not a person has any knowledge of certain facts. As everyone will appreciate, this question is of enormous practical importance.

75⁶ While the paper by Wertheimer and Klein mentioned above made only general suggestions about this, Wertheimer has dealt in another paper²⁰ with relevant experiments carried out in Kiilpe's laboratory at Wiirzburg. The experiment was set up as follows.

757 The subject was shown a picture, the contents of which he had to commit to memory (e.g., a picture of a religious service in the chapel of a crypt). The stimulus-words were in some cases chosen from the picture (names of objects shown or otherwise obvious associations with it), but in other cases irrelevant words with no recognizable relation to the picture were used. These stimulus-words were called out to a number of subjects. The reaction-times were recorded with exact instruments (megaphone and chronoscope). The subjects had previously been instructed not to give themselves away, i.e., not to give any associations revealing that they had seen the picture. The results are in keeping with our previous exposition. The stimulus-words arousing the complex (relating to the picture) yielded an unusually large number of *long* reactiontimes, and in these cases the reactions also gave a strange impression; there was something deliberate about them. It also often happened that the complex-characteristics appeared in reactions to irrelevant stimulus-words. In these cases a stimulus-word relating to the complex had appeared immediately before. Wertheimer was also able to confirm that the more emotional involvement there was, the more marked were the reaction-times and the qualitative and perseverative phenomena.

75⁸ Since the Wertheimer-Klein publication similar experiments

20 "Experimentelle Untersuchungen zur Tatbestandsdiagnostik" (1905).

which provided similar results have been carried out by Hans Gross²¹ and by Dr. Alfred Gross²² of Prague. What underlay these experiments was the knowledge or lack of knowledge of a certain room and its furniture. Alfred Gross has discussed very clearly the general aspect of the problem,²³ especially with regard to its juridical application.

759 I should like to mention first, among the critical comments, that by William Stern:

The problem is certainly very interesting from a purely psychological point of view, and the suggested procedure is to be welcomed as a remarkable extension of our methods of approach, but it seems to me that there is a powerful objection to the practical forensic application of the method. In court there is no really sharp distinction between those people in whose minds the facts of the case are present and those in whom they are completely absent, since nearly everyone who has to do with a case in a law court, whether as the defendant or as a witness, knows either what he is accused of or why he is being interrogated, no matter whether he was actually in any way involved. Even the mind of someone falsely accused is, from the very first examination by the magistrate, continuously burdened with ideas concerning the matter. Every suggestion must call to consciousness the ideas with which he is preoccupied, just as if he were guilty, and must also evoke emotional reactions which in their manifestations, even as part of an experiment, can hardly be distinguished from those of guilt; it is well known that blushing, which so often occurs as a result of baseless accusations, has before now been interpreted as a symptom of guilt. Is there not a similar great danger in the psychological experiments suggested by Wertheimer and Klein?²⁴

760 I feel obliged to support this objection fully, and should in particular like to stress that the innocent as well as the guilty has the greatest interest in reacting so as to show to the best advantage. The guilty man is afraid to give himself away, and the innocent to put himself in the wrong, by reacting in an awkward manner. The critical reactions will therefore in both

21 "Zur psychologischen Tatbestandsdiagnostik" (1905) and "Zur Frage des Wahrnehmungsproblems" (19<>5).

22 "Zur psychologischen Tatbestandsdiagnostik als kriminalistisches Hilfsmittel" (19⁰5-6).

23 "Die Assoziationsmethode im Strafprozess" (1906), p. 19-24

"Psychologische Tatbestandsdiagnostik" (19<>5-6). p. 145.

cases be accompanied by strong emotional tone, which interferes in a characteristic way with the associations. This might make it difficult to distinguish between guilty and innocent. We shall come back to this question in more detail in the second part of the paper.

7⁶¹ In a recent publication Stern discussed my paper "The Reaction-time Ratio in the Association Experiment," in which I gave a detailed analysis of the experiment. Stern considers it of doubtful value to let the subjects explain the associations afterwards, as I made them do. I am ready to admit that the method is in any case difficult and dangerous. For this reason I chose as subjects for the analysis three people whose life and psychological make-up were known to me, and who were themselves psychologically experienced, especially in the observation of association. One could not ask everyone for an explanation of his associations, because they are not casual things but the most intimate and affective ones, on which even an honest self-criticism may fail to function. A certain special experience in the experimenter and also a fair knowledge of certain aspects of psychopathology are necessary with subjects who are not used to psychological experiments. These are the principles of Sigmund Freud's ingenious psychoanalysis.²⁵ Only when one has completely assimilated Freud's method is one able with any certainty to consider associations from a psychoanalytical point of view. It has to be conceded to Stern that an inexperienced experimenter can easily make the gravest mistakes with this delicate material. In any case, even Freud has been accused of interpreting into a subject's statement more than is in it. To this reproach, however, it must be said that very likely everyone would respond with a canalized association rather than a spontaneously created association when asked what comes to mind in connection with a certain idea; this, of course, applies also to any retrospective elucidation.

7⁶² In his discussion of Wertheimer's suggestion Kraus²⁶ puts forward the idea that the method has not been sufficiently tried out. I would draw Kraus's attention to the fact that a number of papers were published from the Psychiatric Clinic of Zurich

25 Breuer and Freud. *Studies on Hysteria* (orig. 1895); Freud. *The Interpretation of Dreams* (orig. 1900).

26 "Psychologische Tatbestandsdiagnostik" (1905).

University which discuss the method in considerable detail. That the method lends itself to the discovery of complexes seems to me beyond doubt. When it comes, however, to applying the method to someone giving evidence, one cannot be too careful. Therefore I agree with Kraus when he foresees great difficulties in applying the experiment in judicial procedure.

7⁶³ Kraus continues: "But I must ask, can the examiner claim the right to base any judgment on the inextricably entangled web of my associations?"

7⁶⁴ The author may forgive me if behind this question I suspect insufficient appreciation of the problem of association. A careful study of the existing literature would have taught him that the "web of the associations" is precisely not "inextricably entangled." If it were we should be at our wit's end, and we could refrain *a priori* from searching for laws among the infinite number of chance events. The experiment is simply based on the fact that there actually are laws determining the possibilities which *more and more* exclude the unaccountable.

7⁶⁵ If we know these laws, then we also know the intimate association-processes of the subject, whether he likes it or not. Kraus thinks one would have for that purpose to have "that rare gift for psychoanalysis of which Freud brings amazing evidence in his remarkable papers." Freud is certainly a man of genius, but his psychoanalysis is, in its principles at least, not an inimitable art, but a transferable and teachable method, the practice of which is greatly helped by the association experiment, as can perhaps be seen from the papers published from our Clinic. ²⁸

7⁶⁶ I repeat what I have already said elsewhere: The truth of this experiment is not obvious, it has to be tested; only someone who has used it repeatedly can judge it. Modern science should no longer recognize judgment *ex cathedra*. Everybody

²⁷ Bleuler, "Upon the Significance of Association Experiments"; Jung and Riklin, "The Association of Normal Subjects," supra; Wehrlein, "The Associations of Imbeciles and Idiots"; Jung, "An Analysis of the Associations of an Epileptic," supra; also, Riklin, "Die diagnostische Bedeutung des Assoziationsversuches bei Hysterischen" (1904) and "Analytische Untersuchungen der Symptome und Assoziationen eines Falles von Hysterie" (1905).

²⁸ Alfred Gross replied in detail to Kraus's deliberations in "Zur psychologischen Tatbestandsdiagnostik" (1905).

criticized Freud's psychoanalysis²⁹ because th had neither applied nor even understood the method, and y it ranks among the greatest achievements of modern psycholog

767 W eygandt, ³⁰ too, thinks that there is still a long way to l before it will be possible to use the method in forensic pr cedure. He also thinks it desirable that the experiments shou continue, especially with uneducated subjects. Weygandt ft ther draws attention to the fact that the criminal probably do not observe the scene of the crime so closely that stimuh words for the tests can simply be taken from the objects sit ated there. It is also likely that the emotional tone necessa for interfering with the association is precisely what the ll bitual criminal lacks.

768 These objections must be unreservedly acknowledged.

II

769 The practical application of the association method is be illustrated by a case on which I was consulted in my capaci as a doctor. Here is the history of the case.³¹

770 One evening in September 1905 an elderly gentleman can to see me. He was evidently agitated and asked for a consult tion on an important matter. He told me that he lived with young man of eighteen, his protege. For several weeks he h; noticed that on a number of occasions larger or smaller amoun of money had been missing from the strongbox. Although I was somewhat absent-minded and not particularly careful money matters, he was quite sure that there was a deficit of least 100 francs. He reported the matter at once to the polic but there was no evidence at all against anyone. Recently the had been some changes among the servants; it was thus possib that one of the maids had taken the money. Now it had al occurred to him that his protege might have stolen from hir If he knew that the young man was the thief, he would c whatever he could to prevent the police getting to know of j in that case he would rather deal quietly with it himself

²⁹ See n. 25, supra.

³⁰ "Zur psychologischen Tatbestandsdiagnostik" (1905).

³¹ For a preliminary report of the case, see "On the Psychological Diagnosis Facts," *Coll. Works*, Vo! 1.

order to avoid embarrassment for the family of his protege, who were highly respectable. For the purpose of coming to a decision in this awkward dilemma he wanted me to hypnotize the young man and question him, while under hypnosis, as to whether he was the culprit or not. I rejected this suggestion because such an undertaking is not only technically most difficult but also fruitless. But I suggested the association experiment. Fortunately the young man had intended once before to consult me because of some minor nervous complaints. Thus the guardian was able to send him to me under the pretext of a consultation. Before long the young man turned up and consented to the experiment.

Experimental Procedure

77¹ **In** order to stimulate the complex as strongly as possible, I prepared a sheet of stimulus-words in which I distributed thirtyseven words relevant to the possible facts of the matter. The guardian had informed me that the money was always kept hidden in a drawer amongst shirts and ties beneath a small board. The drawer was in a chest and was kept locked. **It** was possible that it had been opened with a master key. **In** the same room there was also a trunk in which money was occasionally kept. A linen-cupboard also stood near the chest of drawers. The suspect youth had recently bought a watch and given some small presents to his sister. He might have got the money from the theft; his guardian, however, did not know, because he hardly ever bothered about his protege's finances. There were no other significant features in the room where the thefts had taken place. As critical stimulus-words I chose: *to give a present) watch) to give) drawer) sister) burglary) writing case) sin}2 to threaten) key) to steal) board) to look for) to lock up) master key) to hide) thief) to find) wrong) shirt) to watch) tie) trunk) to hit) to catch) police) to moan [accuse]}*3 *chest of drawers) arm [poor]*,34 *to arrest) jail) false,*35 *anxiety) linen-cupboard) to punish) month}*6 *criminal.* These thirty-seven stimulus-words touching the complex were distributed amongst sixty-three "irrele-

32 The delinquent comes from a religious family. 33 [German *klagen* has both meanings.]

34 [German *arm* or *Arm* has both meanings.]

35 *False* means that he has stolen from his benefactor. 36 *So* many months in jail.

vant" stimulus-words, special care having been taken so that an irrelevant stimulus-word was frequently put immediately following a critical one. This was done because of the fact that the emotional charge often perseverates into the post-critical reaction. In this way it could be hoped that the complexconstellation would emerge fairly clearly. I am now going to describe the experiment as it took place. Between the sections I shall insert explanatory remarks. At the end I shall give a statistical survey to bring the experiment to life. The association experiment was complemented by a reproduction test.

77² I should like to point out that the probable mean³⁷ of the reaction-times in this case, in which the subject belongs to the educated class, is 2.0 seconds. Excessively long reaction-times therefore are those above 2.0.

1. head	nose	2.0	↓
2. green	blue	1.2	⊥
3. water	air	1.6	blue
4. to stab	painful	2.0	⊥
5. murder	manslaughter	1.4	⊥
6. long	short	1.8	⊥
7. five	six	1.4	⊥

These reaction-times show no peculiarities as yet, though one might perhaps mention the incorrect reproduction for *water* as suspect, suggesting a complex-constellation. It is, of course, impossible to explain every minute complex-interference by means of an obviously incomplete analysis carried out in retrospect, as in this case.

<i>8. to give a present</i> ³⁸ g.	<i>gen-generous</i> ³⁹	2.0	to give
wool	cloth	1.4	+

The reaction to the first complex-stimulus-word fulfils the for above criteria interference by the influence of a complex.

³⁷ The method of the "probable mean" (Kraepelin) consists in putting the numbers into a sequence according to their magnitude and then simply taking the middle number. As to the advantages of this method, cf. Jung, "The Reaction-time Ratio in the Association Experiment," supra.

³⁸ The intentionally inserted stimulus-words relating *to* the complex are italicized in each case.

³⁹ The words indicating the complex are also italicized. [In this case, the reaction was stammered: German *frei-freigebig*, 'free-freely giving.']

The reaction itself is characterized by a slip of the tongue. The reaction-time is not short and the reproduction is incorrect. No after-affect on the following association.

10. <i>watch</i>	mechanism	2.	+
11. <i>table</i>	leg	2	woo d

The second complex-stimulus-word *wat-ch* produces a foreign word⁴⁰ as a reaction, which is somewhat unusual. The reaction-time is excessive. The post-critical reaction is incorrectly reproduced, so that a perseverating emotional charge may be suspected.

12. <i>to give</i>	<i>to steal</i>	2.6	+
13. <i>chair</i>	-leg	2.0	
14. <i>sulky</i>	morose	2.8	+

In 12, the complex is openly expressed with an excessive reaction-time. The post-critical reaction-times are rather long. The reproduction is not disturbed.

15. <i>drawer</i>	wood	1.6	+
16. <i>sister</i>	brother	1.8	
17. <i>lake</i>	water	1.	+
18. <i>ill</i>	well	4	+

Here no obvious complex-influence on the two critical stimulus-words is apparent. The missing reproduction for *ill* may be due to something other than the theft-complex.

19. <i>burglary</i>	<i>theft</i>	1.8	+
20. <i>to cook</i>			
21. <i>ink</i>	paper	2.6	+

Here we have all the criteria of the complex-constellation. The perseveration was so strong that it led to a failure, an absence of the post-critical reaction. The reaction-time for 21 is still very long.

22. <i>evil</i>	good	2.0	-
23. <i>writing-case</i>	paper	2.0	-
24. <i>to swim</i>	good-don't know	2.0	freely, doing well

⁴⁰ [Orig. *Mechanismus*, not a German word.]

⁴¹ Cf. "The Reaction-time Ratio in the Association Experiment."

⁴² The minus sign indicates that the reaction could not be remembered.

The critical stimulus-word interfered again with the post-critical reaction and its reproduction by means of a perseverating emotional charge.

25. <i>Sin</i>	disgrac	1.8	+
26. blue	e black	1.4	
27. bread	water	1.	+
28. <i>to threaten</i>		6	
29. <i>key</i>	lo-hole	2.6	⊕
30. rich	poor	1.2	⊕

Sin obviously did not, or not appreciably, arouse the complex. *To threaten*, however, is followed by the failure to react characteristic of emotion and by lack of reproduction. This powerful effect of the stimulus-word may perhaps also be ascribed to the fact that 27 already contains the expression of a complex constellation: bread and water = jail. In 29 the disturbance is very obvious; the reaction is disturbed by a slip of the tongue, and the reaction-time is excessive.

31. tree	green	1.2	+
32. <i>to steal</i>	<i>to take</i>	2.	
33. <i>board</i>	wood	4	+
34. yellow	black	2.8	

To take does not contradict the complex. I do not know whether the long reaction-time following *board* stems from this² complex word or by perseveration from *to steal*. The reactiontime after *yellow* is, however, still excessive, which might indicate some slight perseveration from *board*.

35. mountain	high <i>to</i>	1.8	+
36. <i>to look for</i>	<i>find</i>	1.6	
37. salt			+
38. new	old	2.0	

The characteristic perseveration, with inhibition of the following reaction, originates with *to look for*. *To find* does not contradict the complex; on the contrary.

39. <i>to lock up</i>	<i>to imprison</i>	2.6	to release
40. to ride	river	2.0	+

The critical stimulus-word distinctly influences not only the expression of the complex, but also leads to a mishearing of the subsequent stimulus-word; as shown also in the reproduction

(*riding: reiten* = Rhein). Mishearing of the stimulus-word is a not infrequent phenomenon in a complex-constellation.

41. <i>master key</i>	<i>key</i>	1.6	+
42. <i>stupid</i>	<i>intelligent</i>	3. ⁰	

Key, as an associative response to the complex, must not, of course, be overvalued. The prolonged reaction-time in R.42 is more telling.

43. <i>exercise-book</i>	<i>book</i>	1.8	+
44. <i>to hide</i>	<i>to find</i>	2.0	+
45. <i>tooth</i>	<i>painful</i>	1.4	+

To find is a frequent association to *to hide*, so it must not be too highly valued as a complex-association. It looks as if *to hide* has only just touched the complex. The response to *to look for* was also *to find* (36). Such comparisons are useful, even if they do not reveal very much. Occasionally, however, they are valuable if one is trying to detect an unknown complex.

46. <i>right</i>	<i>false</i>	2.2	±
47. <i>thief</i>	<i>burglar</i>	4. ⁶	criminal
48. <i>to find</i>	<i>to steal</i>	2.6	to look for
49. <i>book</i>	-	-	statute-book

With *thief*, serious complex-disturbances set in which I need not elaborate.

50. <i>wrong</i>	<i>right</i>	1.2	+
51. <i>frog</i>	<i>water</i>	2.2	tadpole
52. <i>to separate</i>	<i>tadpole</i>	2.6	±

Strong perseveration appears to be connected with *wrong*. But it is more likely that this disturbed sequence is still under the influence of R.47ff, as can often be seen in strong emotion. If one watches the subject during the experiment, one can frequently see facial expressions at complex-points that at once reveal the strong emotional charge. This was the case here. From 47 on the subject became restless, gave embarrassed titters, moved his chair to and fro, rubbed his hands or hid them in his pockets. This shows that the disturbances in the associations, as well as other symptoms, are only expressions of the total effect.

53. hunger	thirst	1.4	+
54. shirt	white	2.0	cloth
55. child	small	1.8	+

Shirt seems to have made a hit.

56. to watch	to miss	1.8	<i>s-conceal</i> ^{42a}
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The influence of the complex is here particularly obvious in the reproduction. The slip of the tongue *s* could be an anticipation of *conceal*, or should *s* have become *steal*?

57. necktie	cloth	1.6	+
58. dim	dark	1.6	
59. trunk	to pack ⁴³		+
60. to hit	to miss	1.	
61. statute	-book	8	+
62. lovable	faithful	1.	
63. to catch	to miss	8	certain
64. to quarrel	to love	1.	

From this series we see the part that *to miss* plays. It occurs only in response to complex-stimulus-words, when it is in each case incorrectly reproduced. It seems to be one of those coverwords that not infrequently appear in this experiment. What is hidden beneath it seems to be the thief's fear of a surprise. The words relating to the locality of the incident, *tie*, *trunk*, appear to be of little influence.

65. police	thief	3. ⁶	+
66. large	small	1.6	
67. to moan [accuse]	to sigh	1.6	+
68. to paint	beautiful	3. ⁸	
69. chest of drawers ^H	comfortable	2.8	+
70. old	new	1.2	

Police is a direct hit; *to moan* has its after-effect. *Chest of drawers* is translated [see n. 44] after a long reaction-time; the hit has thus been parried.

+

^{42a} [German: *aufpassen/verfehlen ... st-verstecken*. with *stehlen* conjectured.] ⁴³
 Unfortunately the reaction-time could not be assessed here because of a breakdown of the stop-watch.

H [German *Kommode*. and the original reaction *bequem* has the same meaning, 'comfortable: as *kommode*.]

I. STUDIES IN WORD ASSOCIATION

71. flower	heath	2.0	+
72. arm [<i>poor</i>]	leg	1.6	⊥
73. wardrobe	cupboard	2.0	⊥
74. wild	brook	2.0	⊥
75. family	<i>sister</i>	2.2	⊥
76. to wash	clean	1.8	⊥
77. cow	bull	1.8	⊥
78. strange	<i>to watch</i>	2.2	⊥

In this sequence *poor* (cause of the theft?) has no arousing effect. The choice of *sister*, however, for family, which had not been intended to be a complex-word, does not seem to be coincidence. *To watch* as an association to *strange* is odd; is there perhaps the faint thought behind it that someone must have watched and reported him, so that now even a stranger (myself) knows of the deed? Of course, the suspicion is not proof; one has, however, to keep such trains of thought in mind in the interpretation.

7g. <i>to arrest</i>	<i>thief</i>	3.4	⊥
80. story-telling	fairy-tale	2.0	⊥
81. manners	custom	1.8	⊥
82. narrow	broad	1.8	⊥

To arrest was a direct hit; then there was a slowly declining charge (reaction-times!).

83. brother	<i>sister</i>	1.4	+
84. jail	<i>prison</i>	4. ²	
85. stork	child	2.2	+
86. <i>false</i> (cannot understand the stimulus-word at first, then) <i>rich</i>		4.0	+

Rich is a peculiar reaction to *false*; if, however, a subject has stolen a considerable sum from his benefactor, then the response is no longer quite incomprehensible.

87. anxiety	<i>silly</i>	2.	
88. beer	wine	4	+

It was easy for the subject to persuade himself that his anxiety about giving himself away with the experiment was silly.

8g. fire	shot	2.0	+
go. dirty	clean	1.4	
g1. door	trap-	1.6	+
g2. <i>linen-cupboard</i>	woo	3. ⁰	
93. hay	d	1.6	+
	grass		

Linen-cuPboard appears, to draw conclusions from the long⁺ reaction-time, not to be quite without meaning.

94. quiet	calm	2.0	+
95. mocking	irony	1.6	+
96. <i>to punish</i>	<i>to release</i>	2.4	+

An obvious complex-constellation.

97. <i>month</i>	week	1.8	+
98. coloured	green	6.2	+

Month, under the constellation of punishment, had obviously a strong affect.

99. <i>criminal</i>	<i>thief</i>	2.2	murderer
100. to talk	to be silent	2.6	to speak

773 The total result of this experiment appeared so convincing to me that I told the subject point-blank that he was a thief. The young man who, up to now, had shown an embarrassed smiling face, turned suddenly pale and protested his innocence with great excitement. I then pointed out to him several points in the experiment that seemed to me particularly convincing. Thereupon he suddenly burst into tears and confessed.

774 Thus the experiment was a complete success.

775 This success, however, has to be examined critically. Above all, one has to keep in mind that the thief is not a hard-boiled habitual criminal but a sensitive young man who is also apparently tortured by his bad conscience (the complex). His complex had high emotional charges, which clearly affected the associations and in this way made the diagnosis of the theft possible. Had he had weaker emotional charges, the disturbances would also have been less, and the diagnosis would have been that much more difficult. Another circumstance that helped was that the culprit reacted in the manner of educated people, with single words and relatively short reaction-

times. Had he been uneducated, or even somewhat mentally defective, he would have preferred to respond with sentences or definitions, which are also always connected with rather long reaction-times. In this association-type⁵ the subjects deliberate the reaction and formulate it as "suitably" as possible, which is apt to put the complex-constellations in the background.

77⁶ Not only the success of the method, however, but also the method itself has to be critically examined, inasmuch as we are not yet at all sure whether the critical stimulus-words cannot cause disturbances in innocent persons as well. The stimuluswords are partly such that even without a special complex they can arouse emotions or touch other complexes as well. There are also some words among them that are not in current use and that therefore have few ready connections in the language. Lastly, not all the rather long reaction-times are necessarily due to the influence of a complex, since they can just as well be caused by the rarity of the stimulus-word"⁶

777 The rarity and complexity of the stimulus-words are, of course, also affect-arousing, in so far as they demand more attention. Many people also become inhibited because of the fear of appearing foolish, particularly uneducated women, who, in any case, get very easily embarrassed. It may therefore, *a priori*, be assumed that complex-characteristics may appear at moments when emotions have been aroused purely because of these difficulties. Then, a case is easily imaginable in which, by means of intended complex-stimulus-words, complex-symptoms are produced that are not, however, related to the suspected or expected complex but to a similar one that incidentally interferes with the one for which we are looking. Such a case can give rise to the most serious misinterpretations. Finally, disturbances can be produced by one group only of the complexstimulus-words, so that one remains in doubt whether the subject is guilty or innocent. This can also occur if another complex interferes with the expected one.

77⁸ In the face of these difficulties it has to be plainly admitted

45 See Wehrlin, "The Associations of Imbeciles and Idiots."

46 In this respect there are characteristic differences between words. e.g., the probable mean for concrete nouns is 1.67 secs., for general concepts 1.95 secs., adjectives 1.70 secs., verbs 1.90 secs. See "The Reaction-time Ratio in the Association Experiment."

that one hundred stimulus-words are definitely too small a sample to confirm beyond doubt the existence of a complex and to exclude the influence of interfering complexes. In our case, the attempt succeeded that one time because the situation was simple; another time, however, it could easily fail. The obstacles that arise in these experiments are shown by the controls that I set up to check the list of stimulus-words specially chosen for the case of theft. [See pp. 344, 346.]

779 I took as subjects two educated young men with whom I was closely acquainted. The one whom I am going to describe as the Informed knew the significance of the experiment carried out on him; the other was completely unaware of it. I am calling the latter the Uninvolved. The experiment was carried out on both of them in exactly the same way as on the Culprit. I must point out that for every subject one has always to think in terms of *his* probable mean-time.

<i>Mean-time of:</i>	<i>Secs.</i>
Culprit	2.0
Informed	1.4
Uninvolved	1.8

On the whole, the differences in these figures have an individual significance only.

780 For the sake of brevity I have to restrict myself to discussing only the critical reactions, and just indicating the complexes of the controls.

8. *to give a present* passes smoothly for the Uninvolved; the post-critical reaction-time of the Informed is prolonged beyond the mean.

10. *watch* produces a failure in the Uninvolved, thus a complex-symptom. This subject is at present going through an unpleasant *waiting period* which seems to him to last very long (therefore the extended reaction-time for *long*). *Watch* arouses the same idea in him. The time for the Informed is also somewhat above the mean. The post-critical reactions are incorrectly reproduced by both controls as well as by the Culprit; therefore, the influence of a complex is likely. We can see that here all three of them are suspect. The analysis shows us, however, that for the Uninvolved the feeling-tone of the waiting time is very strong so that perseveration may be assumed. For

<i>ulus-Word</i>	CULPRIT		INFORMED		UNINVOLVED	
	<i>Reaction</i>	<i>R-T Rep.</i>	<i>Reaction</i>	<i>R-T Rep.</i>	<i>Reaction</i>	<i>R-T Rep.</i>
head	nose	2.0 + 1.2	neck	In +	feet	1.0 + 0.8
green	blue	+ 1.6 blue	blue	o~ + In	yellow	+ 1.0 +
water to	air	2.0 + 1.4	ship	In + 1-	sky	2.2 + 1.2
stab	painful	+ 1.8 +	knife	In +	parade	+ 2.2
murder	manslaughter	1.4 +	deed	0.8 +	death	wide
long five	short	2.0 to give	short	Q8 +	short	1.4 + +
<i>to give a</i>	six		six	1.2 +	seven to	1.4 +
<i>present</i>	<i>gen-generous</i>		to give		give	
wool						
<i>watch</i>	cloth	1- + 2.2 +	dress	2.0 + 1.6	sheep	1.6 + +
table	mechanism	1- wood 2-	hand	+ 1.0 chair		1.2 bed
<i>to give</i>	leg	+	bench to	1.4 +	chair to	1.4 +
	<i>to steal</i>		take		give	
					a present	
, chair ,	-leg	2.0 +	table	1.0 +	seat cheeky	2.4 leg
sulky	morose	2.8 +	good· na	1.8 +		1.6 +
			tured table			
· <i>drawer</i>	wood	1.6 +	table	1.8 +	<i>chest of drawers</i>	1.2 +
· <i>sister</i> .	brother	1.8 + 1-	brother	~ + 1-	brother	1.4 +
lake	water	+ 2n	water	+ In +	river	1.8 sky
● <i>ill</i>	well <i>theft</i>	1- +	healthy	1- + In	healthy	1- + 2.0
● <i>burglary</i>			<i>theft</i> gas	+ 1- +	<i>thief</i>	+
● <i>to cook</i>			paper	In + 1-	to eat	1.4 +
● <i>ink</i>	paper	2- + 2n	good	+	pen	2.6 to write
● <i>evil</i>	good	+ 2n +	paper		good	1. +
· <i>writing-case</i>	paper				envelope	4
· <i>to swim</i>	good, don't know	2.0 freely, doing well	water	1.8 +	to dive	2.6 +
						1.2 +
<i>·sin</i>	disgrace	1.8 +	deed	2.8 +	pardon	2.2 +
i. blue '.	black	1. +	green	1.4 +	Zurich	1.6 water 1.8
bread	water	4 +	envy	1.2 to bake	corn	to eat 2.6
<i>1. to threaten 1</i>		1.6 +	hand	0.8 +	murder	crime 1.8 +
<i>hey</i>	la-hole	2.6 +	foam	1.2 drawer	<i>burglary</i>	1.6 + 1.4
) . rich	poor	1. +	poor	0.8 +	poor	fruit 1.8 thief
· tree	green <i>to</i>	2. +	shrub	1. +	fruits	1.8 table 2.8
· <i>to steal 1.</i>	<i>take</i>	2. +	carpet	2 +	<i>to punish</i>	+ 2.0 valle ^y
<i>board 1.</i>	wood	4 +	wood		carpenter	
yellow	black	2. +	green	3.0 to take	Uri	
)' mountain 1.	high	1.8 +	valley <i>to</i>	1.6 +	peak	
<i>to looh for 7.</i>	<i>to find</i>	1. +	<i>find</i>	2.8 +	<i>to find</i>	In + 1-
salt		6 +	pepper	1.2 +	pepper	+ 1.2 +
g. new	old	2.0 +	old	0.8 +	old	1- +
<i>9. to loch up</i>	<i>to imprison</i>	2.6 to release	money	0.8 +	<i>caught</i>	
				0.8 +		
d. to ride	river	2n + 1-	to drive	1.2 + 1-	to fall <i>thief</i>	3.2 + 2.0
<i>1. master hey</i>	<i>hey</i>	+ 3 +	<i>hey</i>	+ 1.0 +	intelligent	+ 1.0
2. stupid	intelligent	1- +	clever	In +	pupil	2.8 +
3. exercise-book	book		pen			
4. <i>to hide</i>	<i>to find</i>	2.0 +	to play	1.2 + 1-	to find	1.2 + 1.8
5. tooth	painful	1.4 +	wild'	+ o~ +	dentist	+ 1.8 +
6. right	false	2.2 +	wrongt	1- + In	false	1.6 +
7. <i>thief</i>	<i>burglar</i>	4.6 criminal 2.6	<i>to steal</i>	+	<i>burglary</i> a	2.4 to look for
8. <i>to find</i>	<i>to steal</i>	to look	<i>to looh for</i>		find	
		for				

the Informed, on the other hand, setting up house plays a prominent role at present: he has lately been intensely occupied with the question of furniture. The feeling-toned background for the furniture-complex is his fiancée.

12. *to give* passes smoothly for the controls. For the Uninvolved, however, the post-critical reaction is disturbed. We learn that he depends on someone else's favour (*to give a present*) during this waiting period, which is very unpleasant for him.

15. *drawer* produces the reaction *chest of drawers* in the Uninvolved, which one might actually have expected from the Culprit. The association of *drawer* and *chest of drawers* just happens to be a very common association by contiguity which would not mean very much even for the Culprit. One could, however, easily be misled by it.

16-32. These sequences are very instructive. 16. *sister* releases the same response from all of them, but the Culprit has the longest reaction-time.

19. The reaction to *burglary* is very "suspicious," particularly in the Uninvolved. It is not known to me that he has ever stolen anything, nor has he admitted any such offence. Even if he carried such guilt within him, his reaction is *de facto* worthless with regard to the complex in question, although the assumption would be tempting. The strong aftereffect on the subsequent reaction is, however, absent in the controls.

23. *writing-case* produces disproportionately long reactiontimes in the controls. Therefore the utmost caution is indicated here. The analysis could not trace the influence of a complex in the controls. Perhaps the "difficulty" of the word was mainly responsible.

25. *sin* hits the controls harder than it does the Culprit. 28. *to threaten* has a special effect on the Uninvolved, but not nearly as much as on the Culprit.

29. *key*. The reactions of the controls contain straightforward complex-words.

32, *to steal* reveals strong complex-influence in the controls. In the Informed it is a jocular reminiscence of the furniture-complex; in the Uninvolved the interference stems mainly from his reaction *to punish*, originating from the fact that he

<i>stimulus-Word</i>	CULPRIT		INFORMED		UNINVOLVED	
	<i>Reaction</i>	<i>R-T Rep.</i>	<i>Reaction</i>	<i>R-T Rep.</i>	<i>Reaction</i>	<i>R-T Rep.</i>
49. book		statutebook 1.2 +	cover	1.2 +	to read	1.6 pupil
50. wrong	right		right (noun)	0.8 +	right (noun)	1.8 +
51. frog	water	2.2 tadpole 2.6	leg	1- + 1.2	toad 2.0	1.0 + 1.2
52. to separate	tadpole	+	to know	+ ~ +	combine	1.8 +
53. hunger	thirst	1.4 +	thirst	1.8 + 2-	thirst	1.6 stork
54. shirt	white	2.0 cloth	waistcoat	+ ~ +	to dress	5.0
55. child	small	1.8 +	small	1- + 1- +	mother	2.0
56. to watch	to miss	1.8 de-hide	to attend	1- + 1- +	to retain	+
57. necktie	cloth	1.6 +	bow clear	1.2 + ~8	collar	
58. dim	dark	1.6 +	key	+ 2.2 +	bright to	1.4 +
59. trunk	to pack	+	to find		lock to	1.4
60. to hit	to miss	1.8 certain	law		shoot	1.4 +
61. statute	-book	1.8 +	dear		crime	3.0
62. lovable	faithful	1.8	chance		hatred	1.0 +
63. to catch	to miss	2.4 +			thief	3.0
64. to quarrel	to love	3~ to get	to argue	IB + 1-	to fight	1.4 +
65. police	thief	3~ + hold of	soldier	+ 0~ +	crime	3.8 offence
66. large	small to	+ 1- +	small	1.8	king	1.8 +
67. to moan [accuse]	sigh		to weep		law court	2.0 judge
68. to paint	beautiful	3.8 + 2.8	colour	1.6 +	artist	2.0 ++
69. chest of drawers	comfortable	+	drawer	1.8 +	furniture	3.8 +
70. old	new	1.2 + 2-	young	~ + 1-	young	1.6 + 2.0
71. flower	health	+ 1- +	blossom	+ ~ +	garden	+ 1.4 +
72. arm [poor]	leg	2- + 2-	rich	1- + 1- +	rich	4.0 furniture
73. wardrobe	cupboard	+ 2.2 +	cover	2- + 1- +	clothing	2.2 +
74. wild	brook	IB + 1.8	tame	1- + 1- +	lion	3.0 +
75. family	sister	+ 2.2 +	party	1- + 1- +	house	1.6 +
76. to wash	clean bull	3~ + 2-	to comb		to comb	1.4 +
77. cow	to watch	+	ox		milk	1.8 +
78. strange	thief		native		native	1.8 +
79. to arrest	fairy-tale		thief		criminal	1.2 +
80. story- telling			story		story	
81. manners						
82. narrow	custom	IB + 1-	custom	1.4 +	insolence	1.8 + 1.2
83. brother	broad	+ 1- +	wide	1.2 +	broad	+ 1.6 +
84. jail	sister	4.2 +	sister	1.0 +	sister	2.8 thief
85. stork	prison	2.2 +	freedom	1.2 thief	criminal	1.6 + 1.8
86. false	child	4~ +	child	1.4 +	child	+ 1.4 +
87. anxiety	rich	2- + 1-	true	1- +	honest	1.6 + 1.8
88. beer	silly	+ 2~ +	grief	1.2 +	distress	+ 1.2 +
89. fire	wine	1- + 1- +	wine	1.2 +	wine heat	1.6 + 1.8
90. dirty	shot	3~ +	tavern	1.6 +	neat	+
91. door	clean		cleanly	1.0 +	house	
92. linen- cupboard	trap- wood		hinge	1.2 +	furniture	
93. hay			does not know the word			
94. quiet						
95. mocking	grass	1- + 2~	straw	1.0 +	straw	1.2 + 1.2
96. to punish	calm	+ 1- +	c-m	1.2 +	calm	+
97. month	irony	2- + 1.8	ridicule	1.0 +	gay	5.2 disgrace 2.2
98. coloured	to release	+ 6.2 +	just	1.6 +	offence	criminal 1.8 +
	week		January	1.2 +	year	4.2 +
	green		multi- coloured	1.2 +	water	
QQ. criminal	thief	2.2 murderer	punishment 1.4 +		guilty	3.8 murderer

considers the loss of his job, which he had suffered, as a punishment.

With these examples it can be most impressively shown what unexpected difficulties the use of the test would have to face, even though it can theoretically be taken as certain that disturbances in associations are as a rule related to emotion- and emotions to complexes; which complexes, however? This is the great question.

33. The strongest reaction to *board* is from the Culprit, although the contents of the reaction do not give anything away. The incorrect reproduction of the Uninvolved, however, is again disturbing. It is the result of the perseveration of R.3².

36. The most striking effect of *to look for* is on the Culprit (perseveration!).

39. *to lock up* produces very suspicious reactions. In the controls other complexes again interfere; in the Informed it is the furniture-complex, this time in obvious connection with the question of the money needed for new furniture. For the Uninvolved it is again the complex about his unsatisfactory social position, which I cannot discuss here in greater detail. It is, however, remarkable that at this point the controls utter words indicative of complexes; the perseveration in the Uninvolved also corresponds to this.

41. *ma.^{ster} key* acts in the same way, distinguishable from the Culprit's reaction only by lack of perseveration.

44. The action of *to hide* is also not distinguishable. There is interference by complexes in the controls as well.

47. *thief* has definitely the strongest effect on the Culprit, although the reactions of the controls are also complex-words. 4⁸. Again, *to find* releases a feeling-toned reminiscence in the Uninvolved which confuses the result.

50. *wrong* and 54. *shirt* are uncertain.

56. *to watch* releases a complex (a love-affair) in the Uninvolved, thus distorting the result.

57. *necktie* and 59. *trunk* are uncertain.

60. *to hit* has the strongest effect on the Culprit.

63. *to catch out* and 65. *police* act in a very suspicious way, particularly in the Uninvolved; the complex of a secret loveaffair interferes here.

67. *to moan [accuse]* is uncertain. 347

In 69. *chest of drawers*, the controls react with *drawer* and *furniture* more adequately than the Culprit with *comfortable*. Yet this reaction can easily be understood as a diversion, as a means of masking the complex. In strongly charged complexes, e.g., in hysteria, such diversions are the rule.

72. One might expect a similar result with *arm [poor] / leg*. 79. *to arrest* and 84. *jail* release the strongest reaction in the Culprit.

86. *false* and 87. *anxiety* act most strongly on the Culprit. 92.

linen-cupboard, 96. *to punish*, and 97. *month* are uncertain. The

Uninvolved has for *month* the complex of the waiting-period, hence the strong perseveration.

99. The effect of *criminal* is not clear.

⁷⁸¹ The result of the control-experiments is depressing: Obvious complex-symptoms can be seen at the critical points, not only in the Informed but remarkably often also in the Uninvolved, who really should have no theft symptoms at all. As it happened, however, he had two dominant complexes that could also be aroused by the stimulus-words pertaining to the theft complex. This brings home to us a fundamental weakness of the experiment: this is the multiplicity of meanings that the stimulus-words can have. One can hardly imagine how many associations, both concrete and symbolical, such words can arouse. Even for the sole purpose of narrowing the range of these possibilities, wide practical experience is required. We can come somewhat nearer to this goal by compiling as many stimulus-words as possible and by taking those that are as specialized as possible as critical stimuli. A test with only one hundred reactions is definitely inadequate.

⁷⁸² But, one is bound to ask with amazement, how could I dare to accuse the young man of the theft in view of such an uncertain state of affairs? Above all it must be stressed that, in addition to the practical test, there exists something that cannot be put on paper: namely those inponderables of human contact, those innumerable and immeasurable facial expressions which, to a large extent, we do not even consciously perceive, which affect only our unconscious, but which are most powerfully convincing. Apart from this indescribable quality that belongs to the experiment *in vivo* there is, however, some

more tangible evidence that can be considered convincing above all, there is the total result which, however, does not appear in the tables and which becomes obvious only by using statistical methods. Let us first consider the average of the (reaction-times).

⁷⁸³ For certain reasons, which I cannot enlarge on here, we take the arithmetical mean.

<i>Mean for ...</i>	<i>CulPrit</i>	<i>Informed</i>	<i>Uninvolved</i>
<i>stimulus-words</i>			
neutral	1.9	1.0	1.9
critical	2.8	1.5	2.5
post-critical	3.8	1.4	1.8

⁷⁸⁴ Reduced to the level of the mean value of the Culprit's neutral reactions, the picture is as shown in Graph A (p. 350)

⁷⁸⁵ From Graph A it can be seen that the Culprit is quite different from the controls in that his mean for post-critical reaction is excessively high and even greatly surpasses the mean of the critical reactions. That means, psychologically speaking, that the Culprit's emotions during the critical reactions were much stronger than those of the controls and therefore perseverated with greater intensity. Although the critical mean value of the Informed nearly corresponds to that of the Culprit, the postcritical mean value falls below this level, just because in the Informed the emotions connected with the complex are missing. For him it is nothing but a complex of ideas concerning the experiment. This is even more obvious in the Uninvolved, for whom, as we have seen, the theft-complex is not in question and there is only a complex that occasionally interferes at the same stimulus-words. Actually, the critical mean of the Uninvolved should not have exceeded the neutral mean at all. That this does happen, however, stems from the fact that critical and post-critical stimulus-words together comprise not less than 65 per cent of all the stimulus-words. For this reason alone the critical stimulus-words are very likely to arouse the unconnected complexes.

⁷⁸⁶ This graph also shows how the mere knowledge of the

⁴⁷ The reasons are given in detail in "The Reaction-time Ratio in the Association Experiment."

4.0 3.8 3.6 3.4 3.2 3.0 2.8 2.6 2.4 2.2 2.0 1.8 1.6 1.4 1.2 1.0 0.8 0.6 0.4 0.2 0.0			
	neut. crit. post-crit. Culprit	neut. crit. post-crit. Informed	neut. crit. post-crit. Uninvolved

Graph A: Mean Values of Reaction-Times

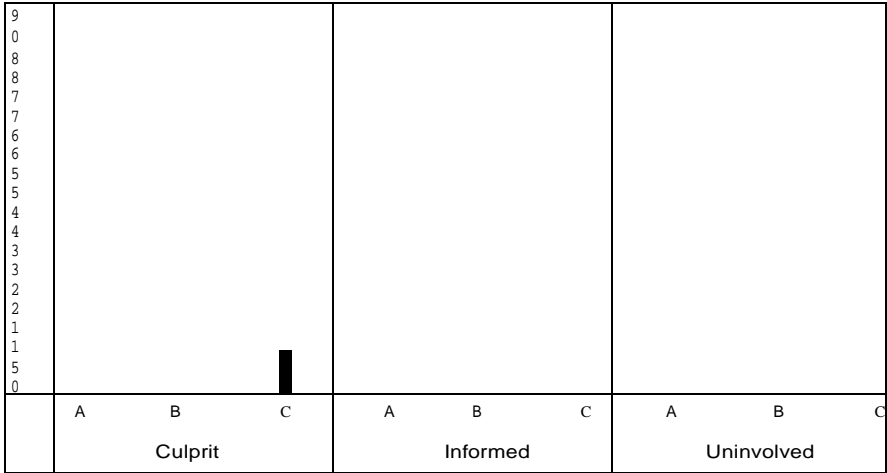
complex can compromise the result.⁴⁸ In spite of all difficulties, however, the graph shows considerable material indicting the Culprit.

⁷⁸⁷ As we have seen, incorrect reproductions are also among the complex-symptoms. The Culprit reproduced 20 per cent of the reactions incorrectly, the Informed 5 per cent, the Uninvolved 21 per cent [see Graph BJ.

⁷⁸⁸ As Graph B shows, the Culprit made mistakes in not less than 90 per cent of the reproductions of the critical and postcritical responses, the Informed in 80 per cent, and the Uninvolved in 71 per cent.

⁷⁸⁹ Here again we see the strongest weight of evidence in the Culprit, although the figures for the controls are also unexpectedly high.

⁴⁸ We have here, however, to consider that the reduction of the Informed to the level of the Culprit is not a quite unobjectionable procedure, because the times can only be extended upwards and not downwards. Finally, it is also characteristic that the innocent can act quickly, that is, without hesitation.



A = Total of incorrect reprod. in % of total reprod. B = Incorrect reprod. (%) for critical and **post-critical** reactions.
 C = Incorrect reprod. (%) for neutral reactions.

Graph B: Incorrect Reproductions

79⁰ The question of how often there are reactions to critical stimulus-words that may indicate the complex is an interesting one. According to Wertheimer's data we could expect significant findings. Here we must take into account that any grouping from this point of view is extremely arbitrary. In the graphs I have always emphasized the critical reactions by the type. As can be seen, I have proceeded in a very generous way. This is one source of error: another is the fact mentioned above that the reaction may, contrary to expectation, conceal the complex instead of revealing it. For the Culprit, there are 49 per cent indications of complexes in critical and post-critical reactions, for the Informed 32 per cent, and for the Uninvolved 46 per cent. True, the figure for the Culprit is the highest, but this does not prove very much.

79¹ The circumstance that the scene of the crime was somewhat commonplace presented a great difficulty in the experiment; it need not always be so. On the contrary, the scene could in another case be of such a special kind that there would inevitably

be a large number of complex-stimulus-words which would appear harmless to the Uninvolved, while the Culprit would continually avoid complex-constellations; as our experience shows, that cannot happen without characteristic disturbances. So much can already be seen from Gross's and Wertheimer's experiments.

⁷⁹ **In** summarizing, I must point out that the Culprit is distinguished only by the quantitative aspects of his complex symptoms, and that this lends support to the diagnosis of the theft. Had the association method not become a most valuable diagnostic aid for psychopathology, making it possible to get access to pathological complexes, and had we not acquired a certain experience in carrying it out, I would not have ventured on that bold diagnosis. It was, however, the analogies with psychopathology that convinced me. I cannot therefore blame anyone who is not equally convinced. Far be it from me to dash cold water on the interesting and undoubtedly promising efforts and expectations of success in the psychological diagnosis of the criminal case; I am not sorry, however, with this case, to have been put in the position of giving a warning against undue optimism. I am giving it in the interest of this incomparably fine psychological method of investigation, which could easily be brought into discredit by drastic failures. The association method is a delicate tool which, up to now, is suitable for use only by experts, and one has on countless occasions to pay dearly for one's mistakes if one is not very experienced. Thus, as the method stands at present, one must not expect too much of it; it has, however, possibilities all of which can hardly be foreseen. The present article is meant not only as a warning but also as an encouragement to practise the association method, which is one of the most fruitful in all psychology.⁴⁹

⁴⁹ (The last sentence was omitted in the 1906 version.)

ASSOCIATION, DREAM, AND HYSTERICAL SYMPTOMI

I. THE ASSOCIATIONS

793 I should like to support and clarify the views on the nature of anomalies of association in hysteria expressed in two others of these Studies² by presenting further investigations. The subject of this research is the following case:

A 24-year-old girl of fair intelligence and average education, physically healthy. The mother suffers from osteomalacia, which has completely crippled her. Otherwise nothing of hereditary relevance can be established. The patient is the youngest child, the only daughter, and has four elder brothers. Healthy up to school age. Very sensitive at school but made good progress. During the second year at school, twitching of the right arm began which soon made writing impossible; then the twitches became generalized until at last a hysterical chorea developed. The patient even became the focus of a small epidemic of chorea among the pupils. The chorea manifested itself in tic-like attacks, said to have lasted 1-2 minutes each. The patient thrashed about and stamped, and occasionally screamed as well. There was no disturbance of consciousness during the attacks, which occurred 15-20 times a day. Menstruation set in at the age of 15 years. With the first period the attacks of chorea ceased quite suddenly (two years before this, the parents had consulted a specialist, who had said that the attacks would stop with menstruation). During the same week, however, dull sensations in the head set in, always towards evening. The sensations gradually assumed the character of heat, which got considerably worse during

¹ (Originally published as "Assoziation, Traum und hysterisches Symptom," *Journal für Psychologie und Neurologie*, VIII (1906): 1-2, 25--60. Republished in *Diagnostische Assoziationsstudien*, Vol. II (1909), 31--66 (VIII. Beitrag). Trans. lated by M. D. Eder as "Association, Dream, and Hysterical Symptoms," *Studies in Word-Association*, pp. 354-95. See supra, par. 1, n. 1.]

² lung, "Psychoanalysis and Association Experiments," supra; Riklin, "Cases Illustrating the Phenomena of Association in Hysteria" (1906).

each period. The complaint increased with the years. At last the heat-sensations began at about 10 o'clock in the morning and gradually increased until they became unbearable. During the last three years the complaint became so bad that the patient was tortured by heat sensations in the head almost all day long. Innumerable attempts at cure by every conceivable method had no success at all. In the morning the patient was occasionally still able to help a little with the housework. From 10 o'clock on she walked restlessly about, persistently complaining about her head. Gradually she became afraid of other people and shunned all social contacts. During the summer she spent the hot weather in the cellar. In the winter she could not stand a heated room. Patient consulted me during the summer of 1905. This was followed by rapid deterioration. She was afraid of going mad, and had hallucinations of white and black figures at night. Was incessantly trying to be admitted to this institution. "Was admitted in the autumn of 1905.

Condition: Well-nourished, graceful person. Expression of suffering which appears to be aimed at arousing sympathy; listless behaviour without any energy at all, which is also expressed by a spidery, sloping handwriting. Incessantly complains of heat sensations in the head. Complaints uttered in a whining tone of voice. The patient describes her sensations as follows: "My whole head is blocked up to the neck and quite hot, I must have a temperature of 104 ° in the head, it is quite tense as if choking; my throat is hot, dry, and parched, and I feel strangled. The feeling of dryness and heat at the back of my throat is terrible. It is always worse after a meal. At the same time my body is quite cold, my hands blue, my feet like ice. It seems to me if I could only once bleed properly from the *nose* I would feel easier. I keep imagining myself *bleeding from the nose and mouth*, a whole wash-basin full; I keep imagining *big clots of blood*. *I am also always dreaming of blood*. Often I dream I am wading in blood, the whole room is full of blood or *blood is gushing out of my nose, mouth, eyes, and ears*. Just as often I dream of *liTe*; then everything is *ablaze*."

When going off to sleep she often imagines she sees a black man who stretches his black hand towards her and clutches her arm. Occasionally she also dimly sees white female apparitions.

Since January 1905 menstruation has ceased, there is severe constipation; flatulence, alleged to have persisted for several months, which makes the abdomen protrude noticeably. The patient finds sitting unbearable, therefore remains standing or walks up and down the room. Profound loathing of meat, avoids everything that

makes her hot. She has only to hear steam being let into the radiators and she feels worse. She washes in cold water several times a day and practises gymnastics in her room. These activities are very important for her. In a strange contrast to this are her aversion and dread of regular work, which she thinks is very bad for her condition. She shows a pathological love of orderliness and cleanliness (formerly, she says, she had for a time a compulsion to touch, so much so that she constantly had to touch all the objects in the room while walking about). The patient has no insight at all into the psychological nature of her complaint but is firmly convinced of an organic change in the head; she cannot, however, help laughing when explaining that one of her doctors took her for a case of Graves's disease. She has, of course, no idea of the causes of her illness, as little as the doctors who had hitherto treated her.

794 There can hardly be any doubt that this is a case of hysteria. The long duration of the illness and the lack of alteration in the syndrome, not quite usual in hysteria-i.e., the unchanging character of the main symptoms-point to a deep-seated paralysis of psychic energy and a complete subjugation of the personality by the illness. The patient has been ill for seventeen years. In considering the peculiarity of the case one must take into account the fact that there has been a continuous development from the "St. Vitus's dance" (choreatic tic) into the present condition. It cannot be assumed that the chorea was cured, but everything speaks for the fact that under the influence of the first period it was simply replaced by another manifestation of the basic illness. Her completely childish and asthenic personality shows all the characteristics of the infantile Meige-Feindel tic.³

795 For the sake of clarity I am now going to describe the association experiments that I carried out with the patient. The patient had treatment from October 1, 1905, to December 21, 1905. The experiments were made during this period. The treatment resulted in a certain success, which had considerable influence on the experiment. The tests were carried out each time in a room that had been only moderately heated (13°C. = 55.4 OF.), because the patient could not stand more than about 11°C. = 51 OF. for any length of time.

3 [See Meige and Feindel. *Tics and Their Treatment* (orig. 1902.)]

I. STUDIES IN WORD ASSOCIATION

THE ASSOCIATION TESTS

Test I

June 23, 10 a.m. With reproduction test.

<i>Stimulus- word</i>	<i>Reaction</i>	<i>Reaction- time (in Y;:-secs.)</i>	<i>Repm- duction</i>
1. head	-ache	6	
2. green	-PIP	33	
3. water	-	-	
4. to sting	bee	9	
5. <i>angel (Engel)</i>	-court (-hof)3a	105	-
6. <i>long</i>	knife	65	-
7. <i>ship</i>	steamship	35	-
8. <i>to plough</i>	field	21	garden
9. wool	to knit	75	
10. friendly	-ness	11	
11. table	-leg	3 ⁰	
12. to question	-	-	
13. state	-	-	
14. stubborn	stubborn person	4 ⁰	
15. stalk	flower-stalk	11	
16. to dance	dance-floor	10	
17. lake	Lake Zurich	29	
18. sick	-	-	
19. pride	conceit	19	
20. to cook	cookery school	13	
21. ink	ink-pot	9	
22. bad	badness	39	
23. pin	pincushion	10	
24. to swim	swimming-school	45	
25. <i>travel</i>	travelling-rug	60	
26. blue	Blue Street	35	
27. bread	breadless (unemployed)	20	
28. <i>to threaten</i>	punishment	60	to punish
29. lamp	lampshade	11	
30. rich	riches	21	
31. tree	fruit-tree	23	
32. to sing	singsong	16	
33. pity	regret	35	

38 [See supra, par. 655, n. 9.]

<i>Stimulus- word</i>	<i>Reaction</i>	<i>Reaction- time (in Yri-secs.)</i>	<i>Repro- duction</i>
34. yellow	yolk	26	
35. mountain	Mount Utli	23	
36. to play	chess	16	
37. salt	sal t -cellar	12	
38. new	Neumiinster	15	
39. morals	morality	4 ⁶	
40. to ride	riding-school	18	
41. wall	wallpaper	12	
42. silly	silliness	45	
43. exercise-book (<i>Heft</i>)	school-book (<i>Schulheft</i>)	15	
44. to despise			
45. tooth	eye-tooth	15	
46. right	to make right	25	
47. people	People's Press	23	
48. to stink	jackdaw	50	
49. book	school-book	15	
50. unjust			
51. frog	tree-frog	25	
52. to separate (<i>Scheiden</i>)	divorce (<i>Ehescheidung</i>)	3 ²	
53. hunger	to eat	19	
54. white	snow	18	
55. cattle	herd of cattle	3 ²	
56. to attend	attention	3 ⁰	
57. pencil	pencil-holder	3 ¹	
58. dull			
59. plum	plum jam	66	
60. to hit			
61. law			
62. love	unloving	15	
63. glass	water-glass	8	
64. to argue	to quarrel	23	
65. goat	goat's milk	12	
66. grand	grandeur	15	
67. potato	potato-flour	20	
68. to paint	oil-painting	21	
69. part	part-payment	26	

<i>Stimulus- word</i>	<i>Reaction</i>	<i>Reaction- time (in)t-secs.)</i>	<i>Repro- duction</i>
70. old (<i>alt</i>)	Altstetten	49	
71. flower	bunch of flowers	51	
72. <i>to strike</i>	hammer-stroke	3°	
73. cupboard	linen-cu pboard	21	
74. wild	wild duck	21	
75. family	family dinner	26	
76. to wash			
77. cow	cow's milk	10	
78. guest	guest-book	3°	
79. luck	good luck	53	
80. to tell	tale	15	
81. manners	training in manners	55	
82. narrow			
83. brother			
84. shame (<i>Schade</i>)	shame-joy (<i>Schadenfreude</i>)	10	
85. stork	stork's nest	26	
86. false	falsehood	37	
87. anxiety	feeling of anxiety	20	
88. to kiss	sister's kiss	65	
89. fire	great fire	28	
90. dirty			
91. door	lock	21	
92. to elect	election for the Co-op	55	
93. hay	hay-cart	19	
94. still	rest	39	
95. <i>ridicule</i>	ridiculous price	10	ridiculously cheap
96. to sleep	sleeplessness	17	
97. month	monthly meeting	15	
98. coloured			
99. dog	fai thful dog	15	
100. to talk (<i>reden</i>)	consultation (<i>Sprechstunde</i>)	67	

79⁶ This test was given during the consultation. Let us first look at the associations from the statistical angle. I am limiting myself to the classification into internal and external associations, sound reactions, failures, and indirect associations.⁴ This rough classification suffices for our purposes. The patient produced:

Internal associatiONs	16%
External associations	60
Sound reactions	9
Failures	
Indirect associations	1
Incorrect reproductions	4

797 External associations form an exceptionally large majority. The patient, though not unintelligent, lacks higher education (she has only had an elementary education and was often absent from school). A glance at the reactions shows that the external associations consist mainly of combinations of motor verbal patterns, of word compounds. Besides these we also find quite a number of word complements (sound reactions). The large number of failures is striking. If we compare the figures with the average figures for educated women:⁵

	<i>Women</i>
	<i>Average for Educated</i>
Internal associations	External 35. ⁰
associations	Sound reactions 5 ^{8.0}
Failures	3.3
	1.4

we see that the patient's figures show a much more superficial mode of association; they approximate to the figures of the distraction experiment. Average of the distraction experiment with 100 metronome beats per minute:

Educated Women excluding the Predicate Type

Internal associations	20.
External associations	8
Sound reactions	62.
Failures	8
	13. ²
	0.4

4 Cf. "The Associations of Normal Subjects," supra, pars. 20ft 5 Ibid. Table F.

79⁸ Thus one might think that the attention was distracted during the experiment. This leads to the question of the cause of the distraction, i.e., what was it that had a disturbing influence? No external causes could be found. Therefore the possibility of a psychological interference must be considered. We need not go far in our search, because the patient is already full of a subject that makes every interest in her environment fade, namely, the complex of ideas regarding her illness. All her attention is riveted to her symptoms and only a small remnant is available for the association experiment; hence the superficial reaction-type. She is so much absorbed by her illness that she hardly allows the meaning of the stimulus-word to reach her; in most cases she is quite satisfied simply to grasp the outer form of the word and her intellectual effort is confined to finding a commonplace association to the stimulusword. She listens with only "half an ear" and lets the stimuluswords, as it were, slip away from her. She cannot bring herself to devote her attention to the experiment; this is apparently not interesting enough compared with the complex. The small amount of self-control sometimes dwindles to nothing (failures), and this actually often happens wherever a commonplace combination of words is not ready on the tip of her tongue; this also often occurs when the stimulus-word has aroused emotionally charged associations, as we shall see later. As soon as she realizes that the reaction is not at her fingertips, she completely refrains from forcing one. Here the experiment reveals the meaning of the clinically conspicuous aboulia, which, as usual, consists in the fact that the whole interest is absorbed by the complex, i.e., by the hysterogenic complex underlying the manifest illness, so that nothing remains for the environment.⁶

799 The probable mean of the reaction-times of the experiment is 5.2 seconds; it is thus very high. We believe that such prolonged intervals are due to certain emotional inhibitions.

800 As in the case reported in "Psychoanalysis and Association Experiments," an analysis of the patient was impossible because she appeared quite indifferent and did not want to deal with any questions that did not concern her symptoms. The repres-

⁶A similar case of diversion phenomenon is reported supra, pars. 170ff., where, however, quite a recent affect formed the cause of the interference.

sion, i.e., the inhibition arising from the pathogenic complex, was at that time still too strong.

patient went home again. As already mentioned, the illness grew rapidly worse. Three months later she was admitted to this hospital.

Test II

October 5, 5 p.m.

1. head	headache	1.6
2. green		
3. water	water-works	2.8
4. to sting	stinging-nettle	2.4
5. angel		
6. long	long-winded	2.2
7. ship		
8. to plough		
g. wool	cotton-wool	2.2
10. friendly	friendliness	3. ⁰
11. table	table-mate	2.2
12. to question	question-mark	6.6
13. state		
14. stubborn	stubborn person	3. ²
(<i>trotzig</i>)	(<i>Trotzkopf</i>)	
15. stalk	flower-stalk	6.0
16. to dance	dance-floor	4. ⁰
17. water	water-lily	g.0
18. sick	sickly	3.4
Ig. pride		
20. to cook		
21. ink	ink-blotter	4. ⁶
22. bad	badly	
23. pin	pincushion	2.4
24. to swim	swimming-pool	4. ⁰
25. travel		
26. blue		
27. bread		
28. to threaten		

⁸⁰² The patient gave up completely at No. 28, declaring she could not stand any more. She could not be induced to stay in the consulting room any longer. Therefore it was not possible to make a reproduction test. An analysis was equally

impossible. Nevertheless a number of points emerge from the result. Above all, one is again struck by the peculiar character of the associations: there is nothing but word combinations and there are numerous failures. Expressed in percentages there are:

<i>Tests</i>	<i>I</i>	<i>II</i>
Internal associatIOns	16%	0%
External associations	60	4 ⁶ .4
Sound reactions	9	14.2
Failures	14	39. ²
Indirect associations	1	0

⁸⁰₃ This is quite an unusual picture; The patient's behaviour during the test was characteristic. She held her head in both hands, and from time to time she sighed because of the unbearable heat in her head, caused by the heated room (55°F.! The patient is unaware that she experiences 55 ° as pleasantly cool in summer, while she finds the same temperature unbearable in winter. The operative factor in the air temperature is the mere concept!) During the test she obviously was completely absorbed by the complex. It is not surprising therefore that she could not spare any attention for the tedious experiment. Thus we have a distraction phenomenon again, but in a considerably higher degree than in Test 1. The deterioration of her condition decidedly increased the distraction of her attention; i.e., her attention is, even more than previously, directed towards the complex, so that she participates less in the experiment. To direct the attention towards the experiment is obviously very strenuous for her, so that she is already tired after 28 reactions and has to abandon the test. Her available energy has been reduced to a minimum. This is already shown in the enormous number of failures, which have almost tripled compared with the first test. She again fails at stimulus-words that do not immediately arouse a commonplace combination of words. But not all failures can simply be due to the lack of commonplace word combination (e.g., for *to cook* there are the common combinations *cooking-stove*, *cooking*, etc.; for *state* there are *statecraft*, *state-house*, etc.; for *travel*, *travelling bag*, etc.). Nor can all the long reaction-times be accounted for by verbal difficulties (e.g., *water*, with g.o secs., with which there are many common combinations). We must also consider the

possibility of these disturbances being caused by affects that may be due to unconscious inhibitions arising from the pathogenic complex underlying the illness.

⁸⁰⁴ The probable time-mean of the test is 5.2 seconds (the failures taken as 20.0 secs., though usually we waited up to 30 secs.). The probable mean is therefore very high.

Test III

October 9, 5 p.m. With reproduction test.

1. lamp	lamp-chimney	1.8	
2. rich	riches	1.8	
3. tree	tree-trunk	1.4	
4. <i>to sing</i>	<i>singsong</i>	3. ²	<i>operetta</i>
5. <i>pity</i>	—	—	<i>pitiful</i>
6. yellow	golden-yellow	3. ²	
7. mountain	mountain range	4. ⁸	
8. <i>to Play</i> (<i>spielen</i>)	<i>operetta</i> (<i>Singspiel</i>)	6.6	<i>ball</i> (<i>Spielball</i>)
9. salt	salt-cellar	6.8	
10. new	new moon	3. ⁰	
11. <i>morals</i>	—	—	<i>morality</i>
12. <i>to ride</i>	<i>riding-school</i>	3. ⁰	
13. wall	wall-painting	4. ⁶	
14. silly	silliness	4. ⁰	
15. <i>exercise-book</i> (<i>Heft</i>)	<i>school-book</i> (<i>Schulheft</i>)	2.2	
16. <i>to despise</i>	—	—	<i>desPicable</i>
17. tooth	toothache	2.0	
18. right			
19. <i>people (Volk)</i>	<i>fair (Volksfest)</i>	2.0	
20. <i>to stink</i>			
21. book	school-book	3. ⁸	
22. unjust			
23. frog	tree-frog	2.4	
24. <i>to separate</i> (<i>scheiden</i>)	—	—	<i>divorce</i> (<i>Ehescheidung</i>)
25. hunger	hunger-pangs	5. ⁰	
26. white	snow-white	2.0	
27. cattle	herd of cattle	4. ¹	
28. <i>to attend</i>	attention	2.4	
29. pencil	pencil-holder	6.6	
30. dull			

31. plum

32. to hit

805 This test shows some changes compared with the previous ones. The result expressed in percentages is as follows:

<i>Tests</i>	<i>II</i>	<i>III</i>
Internal associations	0.0%	3.1%
External associations	46.4	59.3
Sound-reactions	14. ²	6.2
Failures	39. ²	31.2
Incorrect reproductions		18.7

806 Here we have one more distraction-experiment. The probable time-mean is

<i>Test I</i>	<i>Test II</i>	<i>Test III</i>
5.2 secs.	5.2 secs.	4.6 secs.

807 Compared with the second test there is some shortening of the reaction-time, which is probably to be explained mainly by the relative reduction in the failures. This result may perhaps permit the conclusion that the patient had pulled herself together a little. This seems also to express itself in the fact that in spite of the early failure in the association test she was willing to do the reproduction test. This test also went four reactions further than the previous one (28, 32). The number of sound reactions has not inconsiderably decreased, to the benefit of the external and internal associations. This also allows us to infer some improvement in her concentration.

Test IV

	October 17, 5 p.m.	With reproduction	test
1. law	against the law	5.0	.
2. love	unloving	3.0	
3. glass	glass-cupboard	2.0	
4. to argue			
5. goat	goat's milk	2.8	
6. grand	grand city	4.8	
7. potato	potato-field	5.6	
8. to paint	painter's studio	5.4	
9. part	partner	3.0	
10. old	old town	9.6	
11. flower	flowerlet	2.4	
12. to strike			

13. cupboard	linen-cupboard	5. ⁶
14. wild		
15. family	family dinner	4. ⁰
16. to wash		
17. cow	cow's milk	3. ²
18. guest	guest-book	3.4
19. luck	good luck	2.8
20. to tell		
21. manners	training in manners	2.8
22. narrow		
23. brother		
24. shame (<i>Schade</i>)	shame-joy (<i>Schadenfreude</i>)	3. ⁶
25. stork (stimulus-word first misunder- stood-then failure)		
26. false	falsehood	8.2
27. anxiety	feeling of anxiety	3. ⁰
28. to kiss	sister's kiss	4. ⁰
29. fire	fire-blackened	6.8
30. dirty	dirty marks	7. ⁰
31. door	trap-door	4. ⁸
32. to choose		
33. hay		
34. still		

808 This test was carried out at a time when the patient was not so well (one of those fluctuations that are not unusual in the course of hysteria). The test certainly again looks like a distraction experiment. Apart from one exception (*to kiss / sister's kiss*) the patient so to speak never bothers with the meaning of the stimulus-word but contents herself with the perception of the outer word-form. There were no mistakes in reproduction. The test yielded two reactions more than the previous one (32, 34). In percentages:

<i>Tests</i>	<i>II</i>	<i>III</i>	<i>IV</i>
Internal associations	0.0%	3. ¹ %	2.9%
External associations	46.4	59.3	5. ⁸
Sound reactions	14.2	6.2	5. ⁸
Failures	39. ²	31.2	3 ² .3
Incorrect reproductions	—	18.7	0

~6r:

The probable time-mean is:

<i>Tests</i>	//	///	<i>IV</i>
	5.2	4. ⁶	5.4
	secs	secs	secs

Bog Thus we again have an increase in the reaction-time, which we may ascribe to the unfavourable attitude of the patient at that moment. The lack of incorrect reproductions may, in view of the small number of reactions, be accidental, but it is also possible that this time the patient remembered the reactions in order not to make any mistakes with the reproduction later on.

Test V

November 9, 5 p.m. With reproduction test.

1. ridiculous			
2. <i>to sleep</i>	<i>rest</i>	1.	<i>tired</i>
3. <i>month</i>		8	<i>time</i>
4. coloured	Negro	6.3	
5. dog	domestic animal	3.4	
6. to talk	to tell a story	4.8	
7. coal	to iron	4.0	
8. moderate			
9. song	tune	3. ⁶	
10. to assume	fact	10.0	
11. <i>pain</i>	<i>s ill</i>	5. ²	<i>illness</i>
12. lazy	to work	5.	
13. moon		4	
14. to laugh	merry		
15. coffee	breakfas	2.2	
16. wide	t	3. ⁶	
17. air	measure	5. ⁰	
18. to frighten	warm	7. ⁶	
19. plate	anxiety	7. ⁰	
20. <i>tired</i>	to eat	4.	<i>bed</i>
21. <i>intention</i>	<i>to sleep</i>	4	?
22. to fly	<i>to damage</i>	7-4	
23. eye			
24. strong	vigorous	2.6	
25. fruit			
26. <i>to be busy</i>	<i>industrious</i>	3. ⁰	<i>to work</i>
27. sail	ship	7. ⁰	

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28. modest	content	6.4	
29. ground (does not understand stimulus-word at first)	land	10.	
30. to whistle	sound	0	
31. purpose	cause	6.	
32. <i>hot</i>	yes, yes, in here	4	<i>light</i>
33. hand	limb	3.	
34. <i>to wake</i>	<i>awake</i>	4	<i>to get up</i>
35. apple	don't know	4. ⁰	
	<i>Affeltrangen</i>	3. ⁰	
	<i>(Place)</i>	3. ⁰	
36. naughty		13. ⁶	
37. mouth	teeth	7. ²	
38. to drink	liquid	4.4	
39. <i>bed</i>	<i>tired</i>	7. ²	<i>to sleep ?</i>
40. <i>pretty</i>	<i>beautiful</i>	4. ⁰	<i>terrible</i>
41. <i>danger</i>			
42. to visit			
43. <i>worker</i>	<i>occupation</i>	6.	<i>to be</i>
		4	<i>occuPied</i>
44. high	mountain	4. ⁶	
45. axe	wood	9.4	
46. to remember	to watch	2.0	
47. path	a walk	5. ⁰	
48. round	sphere	2.4	
49. <i>blood</i>			<i>red</i>
50. devoted			
51. precaution	to watch		
52. <i>funny</i>	<i>story</i>	4. ⁸	<i>to laugh</i>
53. market	to shop	3. ⁰	
54. <i>to forget</i>	<i>thought</i>	5.4	<i>story</i>
55. drum	noise	5. ⁰	
56. free	free-spoken	6.6	
57. carriage	to ride	3. ²	
58. to eat	appetite	5. ⁰	
59. insolence			
60. fast	to walk	2.4	
61. chimney	smoke	2.6	
62. enjoy	pleasure	3. ²	
63. parson	sermon	2.4	
64. light	weight	3. ⁶	
65. neck	slim	7. ⁰	

66. to wish	present	5. ⁶
67. stone	hard	8.8
68. noble	rich	5.4
69. hose	rubber	2.6
70. to love	beautiful	9.4 ?
71. tile	roof	3.4
72. mild	temperature	4. ⁸
73. <i>greed</i>	craving for money	6.4
74. to search		
75. blanket		
76. good		
77. leaf		
78. to torture	illness	6.0
79. station	to go on a journey	4. ⁸

810 This test shows quite a different association type compared with the previous tests. It is as if the patient had suddenly found a different attitude.⁷ The percentages are as follows:

<i>Tests</i>	<i>I</i>	<i>III</i>	<i>IV</i>	<i>V</i>
Internal associations	0%	3. ¹ %	2.9%	5 ⁶ .9%
External associations	4 ⁶ .4	59.3	5 ⁸ . ⁸	18.9
Sound reactions	14. ²	6.2	5. ⁸	1.2
Failures	39. ²	31.2	3 ² .3	21.5
Indirect associations	0	0	0	1.2
Incorrect reproductions	-	18.7	0	21.3

811 Looking at the association tests, the results of which we have given here in figures, we see that the patient's reactions have assumed a normal character. She now goes into the meaning of the stimulus-word and thus produces a preponderance of internal associations.⁸

812 The abnormal component parts have rather diminished, so that, for instance, the number of sound reactions does not exceed the normal mean. Only the number of failures is still abnormally high; it has, however, considerably decreased compared with the earlier tests. The patient's perseverance has increased remarkably, in that this test lasts longer by 45 reactions

⁷ This is not actually the case, however, because already in Test I the patient showed the beginnings of a less superficial association type.

⁸ Thus the patient now shows a reaction-type that we not infrequently see in uneducated people: a great many internal associations, few external ones, and very few sound reactions.

than the previous one. The time-mean is 5.4 seconds, as in the previous test. The reaction-time is thus still very long.

⁸¹₃ This test was carried out three weeks after the previous one.

In the meantime the treatment had clearly improved the patient's condition. Therefore one may ascribe the improvement of the association type also to this fact. In the previous tests we mainly stressed the lack of entering into the meaning of the stimulus-word, the absolute preponderance of external associations, the enormous number of failures, and the rapid onset of fatigue as pathological signs and as an abnormal domination of the patient's interest by the complex. The improvement in the condition is thus particularly expressed, from the psychological point of view, in the fact that the patient again takes a more or less sufficient though quickly tiring interest in objective processes. The treatment is resolving her possession by the complex. Her personality is gradually being freed from the tyranny of the illness and is again able to assimilate objective material, in other words to adapt itself again to the environment. As stigmata of hysteria the following are, however, still present: the enormous number of failures; the long reaction-times and other complex-characteristics, i.e., signs of a pathological emotionality, which is, as we know, the psychological foundation of hysteria.

Test VI

December 1, 5 p.m.

With reproduction test.

⁸¹₄ The test comprised one hundred reactions. It was concluded not because of the patient's fatigue, but because I considered one hundred reactions enough to analyze. I shall describe and discuss the test in individual sections.

⁸¹₅ I should like to remark at the outset that the probable time-mean of this test is 5.2 seconds. It is thus not lower than the preceding ones. In spite of this apparent similarity, however, the temporal aspects are in their averages entirely different from those in the previous tests. For the purpose of discussing these relations I am splitting each test up into sequences of six to ten reactions, and for each sequence I have calculated the arithmetic time-means.⁹ I have arranged the means thus obtained in curves below.

⁹ The failures were calculated at 20 secs. each.

Test I. The curve fluctuates very much. Near the beginning there is a line of relatively short times which, after various fluctuations, rises higher and higher. Towards the end there are very strong increases in reaction-times which, however, are again somewhat shortened, but do not reach the initial level. The curve gives the impression that the patient has noticed the excessive times and therefore pulled herself together for a few reactions. Test I was carried out during the consultation. As reported in the case-history, the condition afterwards rapidly deteriorated. This deterioration shows in the curve of ...

Test II. Here the curve starts rather high, and after pulling itself together for a short time it rapidly collapses.

In *Test III* the curve begins low. The patient had (as she told me at the time) made a resolution to take great pains this time to answer quickly. The carefully gathered energy, however, does not last; the reaction-times increase progressively until they become very high. The observation of this weakness probably induced the patient to a little spurt at the end which, however, exhausts the remains of her energy.

Test IV. The curve starts a little higher than last time (the patient was, as we mentioned before, indisposed psychologically at the time of this test). Here too there is a steady increase in the reactiontimes.

Tests I-IV mainly yielded external associations and failures. We can already see from the curves that this mode of association is linked with rapidly increasing reaction-times.

Test V. Here the curve begins very high (perhaps to be explained by the fact that the patient was still discouraged by the previous tests and therefore had some resistance against the experiment). It decreases quickly, however, and then, after a stronger fluctuation stays near the centre, though rising slightly. Then there is a more noticeable and longer-lasting final spurt, which, however, ends in a quick and steady increase of the reaction-times. The final spurt has completely exhausted the patient's energy.

Test VI. In this last test (after two months' treatment) the curve begins at a medium height and then falls quickly to a very low level, which is fairly well maintained during the whole test without any appreciable fluctuations and only towards the end shows a tendency to rise. Test V shows, at least in its middle parts, a tendency towards steadiness, which is finally reached in Test VI. Tests V and VI are, however, those that show a normal mode of association. Thus the normal type appears to go with the tendency to steadiness in the reaction-times. At the same time a very low level is reached and maintained in Test VI.

I should like to mention that the one hundred stimulus-words given in Test I were used a second time in Tests II-IV and a third time in Test VI. As the curves show, repetition of the tests had no noticeable effect in reducing the reaction-times. Tests II-IV made one rather suspect the contrary. According to Kraepelin's findings, a relatively rapid shortening of the reaction-time is actually to be expected because of a fixation of the reactions. In Test VI, however, there are not only no fixations but entirely different reactions (in accordance with the new attitude that had first appeared in Test V).

816 As has repeatedly been indicated in the discussion of the curves, the increased reaction-times are linked with a strong tendency towards fatigue, i.e., with a complete inability to detach the attention from the syndrome. The patient has great difficulty in directing her attention to anything but her illness for any length of time; because of the exertion she tires very quickly. The curves representing the time-extensions are therefore also curves representing weakness of energy. This immediately becomes obvious when we turn them over and read them from right to left. Then they look like the *work-graPhs* of an easily tiring neurotic (will-fatigue!). In particular we notice the facilitation and the increased reaction-times in curves I, V, and VI, the final spurt in curves I, III, and V. In curves I and VI the progressive fatigue is clearly marked. This shows that in certain cases the association experiment also gives information on energy and fatigue.

Analysis of the Associations Obtained in Test VI

I am setting the associations of Test VI side by side with those of Tests I-V for the purpose of analytical comparison (time in seconds):

<i>Tests</i>		<i>I</i>		<i>II-IV (V)</i>		<i>VI</i>
1. head	-ache	1.2		headache	1.6	pa-head-pains 1.8
2. green	-pip	6.6				forest 3.2
3. water				water-works	2.8	deep 1.4
4. to sting	bee	1.8		stinging- nettle	2.4	bee 2.8
5. <i>angel</i>	-court	21.0 [?]10				
6. <i>long</i>	knife	g.o [?]		long-winded	2.2	road 5. ⁰
7. <i>ship</i>	steamship	7. ⁰ [?]				ocean 4. ⁰
8. <i>to</i>	field	4.2 [garden]				to demand/ to give 7.4
<i>plough</i>						

¹⁰ Failure or incorrectness of reproduction is indicated in square brackets.

I. STUDIES IN WORD ASSOCIATION

g. wool	to knit	15. ⁰	cotton-wool	2.2	(stimulus- word not understood)	
					to knit	10.2
10. friendly	-ness	2.2	friendliness	3. ⁰	-	[people]
11. table	(does not at first un- derstand stimulus word, then:) -leg	6.0	table-mate	2.2	room	g.o

1: *head*, of course, arouses the complex in that the patient has localized the main symptoms in the head. Although the times are not long, we find a disturbance by a slip of the tongue in Test VI instead. The two previous reactions have the superficial character that we not infrequently find in complex-reactions and that are meant to make light of the complex.

3: *water* appears still to belong to the field of the perseverating feeling-tone.

S: *angel* shows complex-characteristics. The patient is not religious but still childlike. She has often during recent months had thoughts of dying; she even had one evening hallucination of the "black bone-man" stretching out his hand towards her. This is reason enough for the complex-interference. We have, however, to go even deeper. The patient has an intimate and confidential relation to her mother. The two women are moreover tied together through severe illness. The mother suffers from osteomalacia and is totally crippled. The mother is for the daughter not only an example in a moral respect but perhaps also a foreboding of her own fate. The fear of having to expect a fate similar to that of the mother may not be very far from the patient. Lastly, one has to remember the fact that young girls and hysterics talk of *dying* when they want *to love*.

The disturbances last from *angel* to 8. In Test I there was even an amnesic island.u

In 8, another stimulus-word was substituted in Test VI to make the complex more precise: *to demand* is followed by 7.4 seconds, the next stimulus-word *wool* is misunderstood, with 10.2 secs. With *to demand* I get the patient to produce further ideas:

The patient literally says: "I thought you (the author) demanded too much of me, it is *too much* if you are always wanting me to get well." It seemed to me that the patient was somehow "skipping over

11 Cf. "Experimental Observations on the Faculty of Memory," supra.

it," although in hysterics the thought of the doctor who carries out the treatment tends to be associated with strong emotional charges,¹² Therefore I simply said: "*The demand.*" The patient starts slightly, saying: "I don't know what you mean-I really cannot think what you can still want of me." Then she suddenly bursts out into loud laughter, blushes, and says no more. The progress of this analytical detail is as follows: First the patient accuses me of demanding too much of her, then there are the familiar negativistic excuses and lastly, behind laughter, a strong emotionally charged thought which may not be difficult to guess. The laughter is diagnostically important: it often indicates in psychoanalysis that a complex has been touched. It is obvious that no one but the patient *demands anything* that is *too much*. Freud says: "Many of my neurotic patients who are under psychoanalytic treatment are in the habit of confirming the fact by a laugh when I have succeeded in giving a faithful picture of their hidden unconscious to their conscious perception; and they laugh even when the content of what is unveiled would by no means justify this. This is subject, of course, to their having arrived close enough to the unconscious material to grasp it after the doctor has detected it and presented it to them."¹³

10. *friendly* seems to be critical in Test N, but not in Tests I and VI.

Analysis: First there are strong inhibitions CI don't know anything," etc.). Then "I was thinking of you, sir. You were not nice to me last time." This reminiscence refers to a definite incident, when the patient had transposed her bad temper on to me and alleged afterwards that I had been in a nasty mood ("transitivity" in affect). This idea seems enough to explain the disturbance. I indicated before that the patient transposed the "demanding too much" on to me, she also fits me out with *her* bad temper and accuses me of being unfriendly to her. She thus *demands* that I should be friendly to her, and if I am as usual I am not friendly enough, for she still complains of my unfriendliness. So she wants even more friendliness from me; that allows me to conclude that the patient is erotically not indifferent to me. Of course, I cannot give in to this demand. Thus the patient demands too much. She only acquired this aspect of the complex while she was here. The complex disturbances may therefore increase at *friendly*.

¹² Transference [*Transposition*] to the doctor; see Freud, "Fragment of an Analysis of a Case of Hysteria" (orig. 1905).

¹³ *Jokes and Their Relation to the Unconscious* (orig. 1905), p. 170.

<i>Tests</i>	<i>I</i>	<i>II-IV</i>	<i>VI</i>
12. to question		question-mark 6.6	answer 5. ⁸
13. state			state-house 11.6
14. stubborn (<i>trotzig</i>)	stubborn person (<i>Trotzkopf</i>) 8.	stubborn person 3.2	character 6.0
15. stalk	flower-stalk 2.	flower-stalk 6.0	flower-stalk 10.6
16. to dance	dance-floor 2.	dance-floor 4.0	ball 5.4
17. lake (water)	Lake Zurich 5. ⁸	water-lily g.o.	deep 7. ²
18. <i>sick</i>		sickly 3.4	<i>hosPital</i> 6.2 very
Ig. pride	conceit 3. ⁸		yearning/ nostalgia 7.4
20. to cook	cookery 2. school 6		kitchen 3. ⁶
21. ink	ink-pot 1.	ink-blotter 4.6	to write 2.0

In 12, *to question*, obvious complex-disturbances are aroused that involve the subsequent reaction as well.

Analysis: "I thought the Doctor was asking me a lot, I know absolutely nothing more-I certainly don't know anything else." The patient said this with emphasis and an angry ill-humoured face, which was in striking contrast to her usual politeness and submissiveness; then she suddenly burst out into loud laughter, which she tried to suppress by expressing anger: "Oh, what a strain!" "This is impossible!" "I have never thought of that!," because she did not think of the special and, for a young girl, so immensely important meaning of the word *question* at the moment of the reaction. She thinks this meaning has only now occurred to her; "of course, she never thinks of such a thing otherwise." Thus we have here a further indication of the presence of an erotic complex.

16: *stubborn* is very suitable to bring out a reference to the ego.

Particularly if the reaction to it is *character* or *quality* or *misbehaviour*, we may suspect the subject of the experiment behind it. With *character* the reference to the ego becomes obvious, hence probably also the stronger disturbances, compared with the previous reactions.

Analysis: "People are often stubborn-for instance, I was, too, when I was a child. Once I was rather stubborn and did not want to go to school any more-I was twelve years old then, I think. From then on I did not go to school"

It is known that the patient could no longer go to school because of her St. Vitus's dance; now she interprets this illness as misbe-

ASSOCIATION, DREAM, AND HYSTERICAL SYMPTOM haviour, and

here she even says she did not go to school any more out of *stubbornness*. But if we ask her in another context why she no longer went to school, then she says she was very ill at that time. For the moment we must be satisfied with this information. The twelfth year of life has, however, another significance which is infinitely more important, as we shall see later on.

Like *stubborn/stubborn person*, 16, to *dance/dance-floor* skips over the deeper meaning. Only the reaction *ball*, which goes more thoroughly into the meaning of the stimulus-word, brings about a distinct complex-disturbance. *Dance-floor*¹⁴ is something that is abhorrent to the circles to which the patient belongs, while *ball* is actually the legitimate opportunity to start erotic relationships. The patient is compelled to laugh when she is asked for associations to *ball*; she therefore may well have erotic ideas.

In 19, *yearning* was given as a stimulus-word in Test VI. *Analysis*: The patient declares stubbornly and with obvious resistance that absolutely nothing but *nostalgia* comes to her mind in response to *yearning*. I insisted something would occur to her. To this, suddenly loud laughter, which is at once angrily suppressed:

"Oh no, now that spoils it for me-this is boring!" We had the same reaction to *demand*. There is probably a strongly repressed erotic desire.

<i>Tests</i>		<i>I</i>		<i>II-IV</i>		<i>VI</i>	
22. bad	badness	7. ⁸		badly	3. ⁸	<i>disobedient</i>	7.6 [chi
23. pin	pincushion	2.0		pincushion	2.4	<i>child/work</i>	7.8 [de,
24. to swim	swimming-school	g.o		swimming-pool	4. ⁰	public baths	6.4
25. travel	<i>travelling-rug</i>	12.0 ?		-		railway	4. ⁸
26. blue	Blue Street	7. ⁰		-		colour	1.8
27. bread	breadless (unemployed)	4. ⁰		-		baker	2.0
28. to threaten	(does not understand stimulus-word) <i>punishment</i>	(to 12.0 punish)				to expect/ visit	3. ⁶

Here ends Test II

¹⁴ [German *Tanzboden*, lit. 'dance-floor,' has the sense of a low-class dancehall.]

Test 111

29. lamp	lampshade	2.2	lamp- chimney	1.8	light	4. ⁰
30. rich	riches	4. ²	riches	1.8	money	6./1
31. tree	fruit-tree	4. ⁶	tree-trunk	1.4	garden	3. ⁶
32. to sing	singsong	3. ²	singsong	5. ²	concert	5. ²

22: *bad* is taken personally; *disobedient* seems to express the complex best.

Analysis: "I was bad to you the other day-years ago too I was often bad-and disobedient at school, etc."

23: The association *child/work* is peculiar and cannot be explained by the patient. The reproduction yields the more suitable association *dear*. Preceding is the school-complex, which is most closely connected with the concept of *work*. I should like to remind the reader that the stimulus-words *to work* and *worker* in Test V produced complex-disturbances. Moreover, the patient always stresses that she is not "lazy," she would like to do the right kind of work; she also complained of certain relatives who said of her that all she was suffering from was "laziness." The stimulus-word *child* is a word which, as a rule, has a critical effect in the erotic complexes of women.

There are complex-characteristics in 25: *travel*.

Analysis: "Oh, I am thinking of a nice journey to Italy that I should like to do one day"-long interval. With great embarrassment: "Honeymoons are spent in Italy, too."

28, Test VI: *to expect*.

Analysis: "I don't expect anything-absolutely nothing-yes, health-and-," loud laughter again which the patient tries angrily to suppress. Thus the same reaction again as to *demand* and *yearning*.

30: *rich*.

Analysis: "I should like to be rich, then I could stay here a long time for treatment"; then there are strong inhibitions that bar any further ideas. For the patient "to stay a long time for treatment" equals "to remain for a long time in a personal relationship to the doctor."

Tests		I	II-IV		VI	
33. pity	regret	7. ⁰	-	[pitying]		
34. yellow	yolk	4. ⁸	golden- yellow	3. ²	canary- bird	5. ⁰
35. moun- tain	Mount Utli	4. ⁶	mountain- range	4. ⁸	mountain- range	10.8

36. <i>to play</i>	chess	3. ²	operetta	6.6 [ball]	ball	6.8
37. salt	salt-cellar	2.4	salt-cellar	6.8	to cook	2.2
38. new	Neumiinster	3. ⁰	new moon	3. ⁸	house	7. ⁰
39. morals	morality	9. ²			[morality] <i>hope/happy</i>	8.2 [joy]
40. to ride	riding-school	3. ⁶	riding-school	3. ⁰	path	1.8
41. <i>wall</i>	wallpaper	2.4	wall-painting	4. ⁶	room	5. ²
42. <i>silly</i>	silliness	9. ⁰	silliness	4. ⁰	se-sensible	7. ⁴
43. exercise	school-book	3. ⁰	school	2.2	copy-book	5. ²
	-book (<i>Heft</i>)		-book		(<i>Schreibheft</i>)	

R.33: *pity*.

Analysis: "I cannot imagine at all what *pity* might have to do with me-oh perhaps with my illness-people ought to pity me."

I give here only one example of the inhibitions the patient had about this word: in fact, the resistance lasted much longer and also showed itself in a suffering facial expression. The tendency to arouse pity is of great significance in the history of the patient's illness. Through her illness she achieved not having to go to school any more. Later on she was the "pitied" centre of the whole family. The patient must have some, though dim, awareness of this role; it may perhaps be the origin of the strong resistance.

35: *mountain*.

Analysis: Does not want to know anything about it, she has nothing to do with mountains, this is no concern of hers. She has also never been on a mountain, although she would like to go once to the Alps, but this is, of course, impossible because of her illness, and then she cannot even travel by rail, she cannot stand it.

The patient speaks quite negatively, as if a mountain-trip was of no importance to her. A few days before the test I made a trip into the mountains, after which the patient was unhappy because I had not taken her with me; she had never seen the mountains close to. She completely repressed this incident, without actually any obvious reason, unless "travelling" was of a certain complex-significance. She has all sorts of erotic fantasy relations to the doctor. A journey with the "erotic symptom figure" is a metaphor for a "honeymoon." This is probably the reason why this event was sexually repressed.

38: *new*.

Analysis: The patient has become an intimate friend of a lady who moved into a *new house*, to which the patient takes a peculiar liking. She envies the lady particularly for the way she runs her house. "I shouldn't mind something like that." This interest seems to be symptomatic. The analysis meets with great resistances ("one

often moves into a new house—we at home also have a new apartment," etc.). I now ask pointedly: "When does one move into a new house?" This rather general question causes the patient great embarrassment, she blushes and confesses: "When one gets married." Thus she has assimilated the "new house" to her erotic complex.

39. (Test VI): *hope*. The analysis at once produces lasting giggles and that says enough. The laughter here is, however, very inadequate. R.23, *child* also produced a disturbance. We shall come back to this complex at 69.

4²: *silly*. The analysis yields self-reproaches about the time when the patient left school for good (12th year of her age). She reproaches herself for not having learned enough because of lack of energy, and for being therefore "silly."

Tests		I		II-IV		VI
44. to <i>desPise</i>	-		-		[despica- ble]	people 7. ²
45. tooth	eye-tooth	3. ⁰ ?	toothache	2.0		mouth 3. ⁶
46. right	to make right	5. ⁰ ?	-			to check (up on) 6.6
47. people (Volk)	People's Press (Volksblatt)	4. ⁶	fair (Volkstest)	4. ⁰		crowd 5. ⁰
48. to stink	jackdaw	10.0 ?	-			to die / ceme- tery 3-4
49. book	school-book	3. ⁰	school-book	3.8		to read 2.2
50. unjust	-		-			wedding/ church 3. ²
51. frog	tree-frog	5. ⁰	tree-frog	2.4		green 2.0
52. to <i>separate</i> (<i>scheiden</i>)	divorce (<i>Ehescheid- ung</i>)	6.4	-		[divorce]	divorce 4. ⁰
53. hunger	to eat	3. ⁸	hunger- pangs	5. ⁰		dog/to ba-rk 6.8
54. white	snow	3. ⁶	snow-white	2.0		snow 3. ²
55. cattle	herd of cattle	6.4	herd of cattle	4. ²		herd of cattle 9-4

44: to *desPise*.

Analysis: The patient always feels slighted; she felt her incomplete education as something for which she must be despised; people also despised her for her illness, which they interpreted as laziness. Is there perhaps anything else in her illness that makes her particularly despicable? We know that sexual self-reproaches tend to be connected with this.

4⁰: *right* also shows disturbances. The analysis yields only gen-

difficult to interpret. Is there perhaps anything in her activities that is not or was not "right"?

53 (Test VI): *dog* has a very long reaction-time (6.8 secs.). *Analysis*: The patient has dreamed of dogs, which probably have an erotic significance (see below!).

<i>Tests</i>		<i>I</i>	<i>II-IV</i>		
56. to attend	attention	6.0	attention	2.4	
57. pencil	pencil-holder	6.2	pencil-holder	6.6	
58. dull					
59. plum	plum jam	8.3			
60. to hit					<i>VI</i>
			<i>End of Test III</i>	attention	2.8
				black	5.0
			<i>Test IV</i>	weather	2.0
61. law	-		against	5. ⁰	8.0
			the law		3.6
62. love	unloving	3. ⁰	unloving	3. ⁰	
63. glass	water-glass	1.6	glass-cupboard	2.0	
64. to argue	to quarrel	4. ⁶			
65. goat	goat's milk	2.4	goat's milk	2.8	
66. grand	grandeur	3. ⁰	grand city	4. ⁸	5.4
67. potato	potato-flour	4. ⁰	potato-field	5. ⁶	

57: pencil.

Analysis: The patient thinks of those tests when I sat opposite her and, while she did addition, occasionally made marks with a blue pencil in her exercise-book.^{14a} Nothing else occurs to her after this idea. These tests took place shortly before Test VI. It may thus only be a reminiscence which, however, must somehow be constellated. One might perhaps suspect a masturbation-complex or another sexual fantasy. During the whole time of the treatment I avoided the topic of sex as much as possible, and only towards the end did I come to speak of it. If, therefore, a masturbation or other physical sexual complex was present, it was not aroused during the treatment (i.e., by Test VI), and thus could become more or less dormant,

Ha [This apparently refers to a performance or calculation test, devised by Kraepelin, and still in use at the Burghölzli. The patient has to add pairs of digits and write the sum down in an exercise-book, in which the experimenter enters a mark at each minute in order to indicate the patient's rate of performance. Dr. C. A. Meier has kindly supplied this information.]

child	2.0
bottle	8.0
discord	7. ⁸

fire/house	3. ⁸
ocean	11.0
dish (food)	6.8

particularly when it was not being activated. Tests I-IV took place at the beginning of the treatment, when the complexes were still very active. Test VI was not carried out until the third month. This might explain the lack of complex-characteristics in this part of Test VI. In Test I the after-effect may last up to R.6I.

In R.62, the more obvious hint, *child*, has a strongerperseverating effect than the former superficial *unloving*.

Tests	I		II-IV		VI	
68. to paint	oilpainting partpayment	4. ²	painter's studio	5. 4	picture	2-4
69. part	Alt-stetten bunch of flowers	5. ²	partner	3. ⁰	birth/ difficult	4. ⁰
70. old (<i>alt</i>)	<i>hammer-</i> <i>stroke</i> linen-	9. ⁸	old town	6.6	old man	3. ⁰
71. flower	cupboard wild duck	10.2	flowerlet	2-4	garden	5. 4 2.2
72. to strike	family dinner	6.0	linen- cupboard	5. ⁰	to sit/ tired room	7. ⁰
74. wild		4. ²			lion	3-4
75. family		5. ²	family dinner	4. ⁰	large	5. ²
76. to wash					kitchen	6.0
77. ^{cow}	cow's milk	2. 0	cow's milk	3. ⁴	man/pater- familias	8.8
78. guest	guest-book	6.0	guest-book	3-4	spare room	5. ⁰
79. luck	good luck	10.6	good luck	2.8	joy	5. ²
80. to tell	story	3. ⁰			story	3. ⁰

69 (Test VI): *birth/difficult*.

Analysis: "My mother had difficult labours; she has told me that her illness was caused by childbearing" (let us remember here 23, *child/dear*, and 39, *hope/happy*). Although R.69 does not show any external complex-characteristic that is especially conspicuous, it contains a clear description of the complex. The mother's fate is bound to be a warning to the daughter, because it is easy for her to be afraid that if she gets married she might also become a victim of osteomalacia. It would not be surprising then if the sexual fantasies carried rather gloomy emotional charges and therefore could be maintained only under a certain mental reservation, i.e., in the repression, because then there would not be any pleasurable expectation attached, but a strong feeling of unpleasure. This realization came perhaps rather early and had its share in the construction of the syndrome.

76: *to wash* with its conspicuous disturbances can have been con-

stellated by *family* or by her obsessive cleanliness (see also the analyses of the dreams!).

77: That there is something attached to *family* becomes obvious in *man/paterfamilias*, 8.8 secs.

<i>Tests</i>	<i>I</i>		<i>II-IV</i>		<i>VI</i>	
81. manners	training in manners	11.0	training in manners	2.8	morals	2.4
82. narrow					space	3. ⁶
83. brother					siblings	7. ⁸
84. shame (<i>Schade</i>)	shame-joy (<i>Schaden- jreude</i>)	2.0	shame-joy	3.6	loss	8.2
85. stork	stork's nest	•5. ²	(does not understand stimulusword) then -		to fly	7. 4
86. false	falsehood	II	falsehood	8.2	people	3. ²
87. anxiety	feeling of anxiety	4. ⁰	feeling of anxiety	3.0	trembling	4. ²
88. to kiss	sister's kiss	13. ⁰	sister's kiss	4.0	sister's kiss	3. ⁸
89. fire	great fire	5. ⁶	fire- blackened	6.8	house	8.8
90. dirty			dirty marks	7.0	street	1.8
91. door	lock election	4. ²	trap-door	4.8	lock	2.0
92. to elect	for the Co-op	11.0				
93. hay	hay-cart rest	3. ⁸			barn	2.2
94. still		7. ⁸			quiet	6. 8

End of Test IV

Test V

95. ridicule	ridiculous price sleeplessness	2.0			to laugh	2.8
96. to sleep	3.4 monthly	3.0	rest	1.8 [tired]	night	6.8
97. month	meeting			[time]	long	6.4
98. coloured			Negro	6.8	painter	2.6
99. dog	faithful dog	3. ⁰	domestic animal to tell	3-4	river/wide	3. ⁰
100. to talk (<i>reden</i>)	consultation (<i>Sprech- stunde</i>)	13.4	a story	4. ⁸	people	6.2

81: *manners* tends to stimulate sexual complexes.

In 85, with *stork*, there are marked disturbances that can be re-

lated to the stimulus-word (the erotic meaning of which is of course well known) as well as to the preceding *accident*.

88: *to kiss* is rather harmlessly disguised by *sister's kiss* and clearly shows the naïve compulsion to repress (similarly *stork / to fly*). But perhaps *sister's kiss* has a very deep meaning that I could not have suspected at the time of the test (see the dream-analyses!).

89: *fire* shows long reaction-times throughout. *Fire* is one of the expressions by means of which the patient describes the head-symptoms. The response *house* is constellated by the dreams of fire in which she often sees houses ablaze.

92: *to elect* produces the utterly forced reply *election for the Co-op*.

Analysis: "One can elect (choose) a number of things, for instance a town councillor or anyone else"-(resistance, then giggling and embarrassment). We have already long known what a young girl associates with "choosing"; it is actually a "co-operative choice," namely, someone who co-operates for life. This probably explains the disturbances that follow, because this is the "burning" question *par excellence*.

97: *month* often excites the image of the period in a woman, which in our case has a special significance. Hence the complex disturbance.

Summary of the Analysis

⁸¹⁷ The association experiment and the analytical investigation into its results have given us insight into numerous trains of thought which, however, are still only vaguely differentiated. The analysis had to struggle with special difficulties because very few reactions in the three series appear normal. There is an abundance of complex-characteristics, which is further experimental evidence of how much the patient is overpowered by her complexes; we can almost say that not she but her complexes have the last word. The analysis not only met with great difficulties in getting at the critical reactions, because of the numerous complex-characteristics, but its task is made much more complicated by having to try to elicit further thoughts from the patient. Frequently the patient stops after only a few generalities and her laughter betrays that something is flashing through her mind. Interpretations that the patient can confirm are rare. She is so much under the influence of the complex that, if she were asked to evaluate its emotional significance, she would not be able to do so and would not know whether

it is important or not. We depend therefore almost entirely on conjectures, which, however, permit certain conclusions.

818 I have picked out only certain complex-constellations, although there are quite a number of others present. The associations produced in these are, however, only of secondary importance, so that I omitted their analysis for the sake of brevity.

81₉ There are a good many associations that show complex-characteristics throughout all three series and which therefore have to be understood as constant complex-constellations. In the majority of these cases a rather uniform interpretation is possible. Thus, for instance, it cannot be doubted that erotic ideas play an important part; they allow us here and there to recognize references to the doctor. In the second place comes the illness-complex. These two complexes, apparently independent of one another, have some aspects, however, in which they meet.

820 In analogy to the illness of the patient is the illness of the mother which, in its turn, touches the sexual complex of the daughter (*birth / difficult*, etc.). There are also certain signs that it is perhaps a physical sexual complex. Lastly, there is also a school complex present.

821 With these statements a number of threads has been provided that may lead us through the maze of the patient's thoughts. Because of her lack of self-control and her helplessness in the face of her complexes, however, the patient brings us into a precarious position in which we have to look for other means of finding confirmation of our assumptions.

822 Nature has an apparatus that makes an extract of the complexes and brings them to consciousness in an unrecognizable and therefore harmless form: this *is* the *dream*. As I thought I had found only the general idea with the association experiment, I collected the patient's dreams. From the beginning nothing but stereotyped blood and fire dreams were related, and these only in a vague form. One had of course to be prepared to obtain material from the past, only after it had been carefully sifted. Everything that was too obvious had been obliterated by strong inhibitions. Also, during the observation the patient dreamed very little, i.e., she remembered only a few dreams. Unfortunately, therefore, the material is not as plentiful as one could wish.

n. THE DREAMS

⁸²₃ During the early months of the treatment I often inquired about her dreams. They were said to be infrequent; now and then the patient said she had again dreamed of *fire*, or of *blood*: "The whole room was full of fire or blood." Now and then she dreamed that blood was spurting from all the openings in her head, or she dreamed the same of another patient whom, in the dream, she saw in her room. The patient did not mention anything of any other dreams. The blood and fire dreams seemed to me to be stereotyped expressions of the dream-life, as the heat-sensations were of the waking life, which first of all symbolically represented the patient's phraseology (she had too much blood in her head, the blood was too hot; she had a temperature of 1040, she ought to be able to bleed properly once, everything in her head was like fire, everything was parched and charred, etc.). In the second place, the stereotyped dreams are, as always, symbolical expressions of the complex, which we have not yet clearly defined. For the therapeutic purpose of setting her against these dreams, which were often accompanied by anxiety, and for the theoretical purpose of learning whether she would abandon the dream-stereotypes and substitute something else for them, I said to the patient casually: "Blood is red, red means love, fire is red and hot, surely you know the song: No fire, no coal can burn as hot, etc. Fire, too, means love."

⁸²₄ This interpretation made a strong impression on the patient. She burst out laughing with marked embarrassment. So she responded with feeling to my interpretation. My naive interpretation of the dreams was based on the assumption that the dream symbolism would be simple and childish, in accordance with the patient's mentality. The interpretation took place in the middle of November. In the second half of November the following dreams occurred:

⁸²₅ FIRST DREAM (Nov. 27). "*The room is full of cats*) which are making a terrific noise." During the dream, strong anxiety with anger. Details were denied. The above rather general statement had to stand.

⁸²₆ The analysis was carried out in the same way as with the associations; I made her produce the first ideas that came to

mind, avoiding all suggestive remarks and pressing only if the patient appeared to succumb to a stronger inhibition. (The decrease of energy at the approach of a complex, the failure to respond in critical places, etc. are the same.) I should like to point out that in all the coming analyses the result is mentioned beforehand each time, while the material follows in small print. Anyone who is interested in the result only can skip the material.

⁸²⁷ *Result of the analysis:* The patient lived for eleven years in a place where she was frequently disturbed by caterwauling. This noise is known to be caused by mating fights. Behind the manifest dream-content is concealed the idea of sexual intercourse.

Material. Ideas relating to cats: The patient: "During recent nights there were now and then cats in the garden outside my room. I can't think of anything else-nothing at all (note the strong negations which are forerunners of an intensive inhibition. I insist)I can think of absolutely nothing-yes, we had a lovely Angora cat once upon a time; unfortunately it was stolen." It is definitely peculiar that such a simple reminiscence should be subjected to such strong inhibitions; one has therefore to assume that this reminiscence has yet another aspect of personal significance. I therefore make her continue to associate: "(sounding angry) There are many cats that jump through our garden, yellow, black, white ones-I don't know what you want-(becomes very indignant, as if she were being forced to do something disgusting)-really, I can't think of anything else." This very decisive refusal has to be cut short; so I ask: "Were you disturbed by caterwauling at night?" "Never; it was actually quite impossible, because where I sleep at home one cannot hear the cats at all-as I said, I was never disturbed by cats-(in a casual tone, as if by the way) Oh, I remember that when I was ten or eleven, no, twelve years old (I), we lived in a place where there were always very many cats. They often made such a terrific noise at night that one thought the house would fall down. There were often about sixteen cats; they made this infernal row almost every night."

I asked: "How long did you live in this place?"-"Eleven years, i.e., from my 12th to my 23rd year." The patient is now 241 So she lived for eleven years, and actually until the year before, in a place where she was disturbed by caterwauling. As we have seen, the inhibition on the reminiscences about cats is so excessively strong that

it leads to the greatest contradictions. It has to be pointed out that the patient's tone, which was usually very courteous and unassuming, became irritable and aggressive during the analysis; a manifestation quite unusual for her. Simultaneously her face more and more assumed an expression of suffering; she thus showed the same expression that otherwise belongs to the illness-complex. Now I asked her whether she knew the meaning of the nightly caterwauling, which she indignantly denied; I probed but received a vehement denial. A 24-year-old girl of average intelligence who has had a cat of her own, and apart from this had ample opportunity to learn about the behaviour of cats, must surely know what the nightly gatherings mean. When she is hysterical, she perhaps does not know it with her *ego-complex* but surely with her *sexual complex*.¹⁵ Now I explained to the patient that the caterwauling meant *mating*. This was followed by visible excitement; the patient did not answer, blushed and looked out of the window. With reference to the dreams, I told her that cats had a symbolical meaning; she would be given the interpretation later. If one dreams of cats or *dogs*, this always means something definite. On the following days the patient repeatedly asked for the meaning of the dream, which interested her.

828 SECOND DREAM (Nov. 30). "*The whole room is full of mice) which are jumPing all over the Place and are making a great noise. The mice have an unusual appearance; they have bigger heads than ordinary mice) somewhat like rats) but they have big black ears; they also have peculiar glowing hot eyes.*"

⁸²⁹ *Result of the analysis:* The mice conceal the reminiscence of two dogs (male and female) that the patient often saw playing together. The patient has already observed how dogs jump at each other. She has also seen the dog stand up against a maid. This again is about mating.

Material: Superficially we notice in this dream that on the whole the situation of the last dream is repeated, only the cats have been replaced by mice which, however, do not seem to be proper mice. The "glowing hot" eyes seem to be a fragment of the fire dreams. I put the text of the dream to the patient again; she has nothing to add.

Associations to the mice: "I particularly noticed that all the mice jumped out of little wooden huts-(this essential piece of description had apparently been kept under an inhibition and therefore could not be produced until now).-The huts looked like dog-kennels."

¹⁵ See Bleuler's theoretical discussions in "Consciousness and Association" (orig. 1905).

Here we seem to be on a new track, because dogs do not appear in the dream. It is true that in the last analysis I drew the patient's attention to dogs. The idea "dog" seems to be indicated indirectly in the dream (i.e., it is repressed). I therefore take "dog-kennel" as the starting point of the analysis.

Ideas relative to *dog-kennel*: "Surely, there are many dog-kennels -(indignant) I don't know what you mean-there was nobody near us who had a dog-but one can see such dog-kennels everywhere in gardens and court yards-I cannot understand how you could suspect anything here-whatever could be behind it! For instance, *just behind our house there was a garden with a dog-kennel in it*. There were two dogs, two black ones, I think setters-perhaps a dog and a bitch; but the bitch was immediately removed-they often played together-they tore paper or pushed sticks about-or barked." Then comes a complete resistance with vehement indignation; she does not want to hear anything more about the dogs. After much persuasion it comes out at last that she often saw the dog stand up against the maid when she went into the garden. That the dog mounted the bitch is vehemently denied. But we know already that there are certain things that the patient cannot say, because the inhibitions are far too strong. It can with the greatest probability be assumed that she has seen it; this can be conjectured not only from the way she tells the story, but also from the whole situation. I say: "But one can often see dogs jump on each other's backs!" "Yes, I have often seen that in the street, but these two dogs did not do it." I asked her what the jumping meant: she explained it was a game, she did not know any other meaning. She said the last sentence in an irritated voice. We have to make the same comment here as on the previous dream: it is inconceivable that she does not know the meaning. Here, however, we must again remember the influence of the sexual complex on the conscious perceptions of the ego.

The dream may be reconstructed in the following way:

The mice are cover-figures which, however, are penetrated by the elements of the cat dream at several points. *Mouse* is a current association to *cat*, the two words can thus substitute for each other in the dream (or in a state of reduced concentration!).¹⁶

The mice are as noisy as the cats were, also they are in the room and in greater number. The mice have larger heads; thus they are

¹⁶ We have shown that in a state of diversion of attention the indirect associations increase in such a way that a very frequent association replaces either the stimulus-word or the reaction, so that it appears as if the stimulus-word must have been misheard or that the patient reacted by a slip of the tongue. "The Associations of Normal Subjects,"

not really mice, but larger animals. They have large black ears, like the black setters which also have big black ears. The mice jump out of kennels. The analysis points to a very ambiguous situation, the interpretation of which should not be difficult; it is *mating* again, as in the previous dream. That the dog jumps up on the servant seems to be a subtle indication as to what sort of person the thought of sexual intercourse refers to. This indication was missing in the first dream. Perhaps one may express the hypothesis that the first analysis stimulated the patient's sexual complex, so that her own person appeared in the next dream. I would also point out that as, in the earlier blood and fire dreams, the entire room was always full of blood or fire, the room is now full of cats and mice. The analysis took place on December 1, after the third dream, which follows. I did not inform the patient of the analysis of the second dream, so that when she had the third dream she had no insight about the content of the second dream.

830 THIRD DREAM (Dec. 1). *"She goes into a shop in the town to buy something. A big black dog that is very hungry comes along and jumps up on her} as if she could give him something to eat."*

83¹ *Result of the analysis:* In this dream the patient clearly takes the place of the maid of the previous dream, thereby revealing that the *idea of mating* refers to her.

Material: The manifest form of the dream betrays the content in line with the analysis of the preceding dream.

The patient is now in the situation of the maid; this clearly throws light on the critical point which remained unexplained in yesterday's dream, yet in the form that the patient could not understand on the previous day. Had she understood this symbol, it would probably not have been used—like the cats, the significance of which had been explained to her. Associations to the "dog jumping up": First there are generalities as usual, excuses and blockages which I am not going to reproduce, so as not to go into too much detail. At last she again thinks of the scene with the maid and the dog. Our first thought when considering the dream was of course this scene, but it was different for the patient. She has to search for it at great length, as if it were a reminiscence that had long since faded away and been forgotten. This is because at first she has to push aside all the resistances attached to this recollection. We are free from such resistances. The same thing happens to her in the dream-analysis as happened in the association experiment, when she always had the same blockages at critical points, even after two or

more repetitions, although one would actually expect that a reaction produced with so much effort would be more enduring than one without any special significance.

On the same day I carried out the analysis of her main symptoms (see below). During the following night she had a dream:

83² FOURTH DREAM (Dec. 2). "*She is standing in the corridor of the Department and sees a tall black man coming along. He is leading someone down the corridor} but she does not see whether this person is a man or a woman.*"

833 *Result of the analysis:* The black dog becomes the black man, the scene is transferred to the Hospital. The black man is the disease-producing sexual complex that brought the patient to the mental hospital. She is trying to gratify her desire for love by falling in love with the doctor, but it is not to the purpose, since the doctor is already married.

Material: The manifest form of the dream reminds us of the dog scene, except that the big black dog has now become a big black man. The maid of the dog scene (the patient herself) has become blurred (the patient does not know whether it is a man or a woman). The patient herself does not appear to take any further part in the dream; we therefore have to look for her in a dream-figure, and may well presume that she is the indistinct figure.

Associations to the "black man": "The man comes from the front door, as if taking someone to the Department. He is dressed like a judge of a Vehmic court¹⁷ (whom she had once seen at the theatre); he looks like a ghost, "like the black man whom I used to see when going off to sleep." I asked her whether it had frightened her: "No, I was not frightened of him-yet I was. I even wanted to retreat into a room out of fright, but a nurse called out: 'Stop, this is forbidden! This room is already occupied.'" There is apparently an inhibition attached to "fright." We have now traced the "black man" of the *dream* back to the "black man" of the *vision*. The vision shows the man stretching out his hand to catch hold of her; this frightens her very much. The vision is a stereotyped complex-expression, like the blood and fire dreams; it is thus a rather rigid psychic product which it is not easy for the analyst to tackle. In fact, the analysis comes up against strong barriers here which the patient cannot break down. We therefore have to resort to conjecture. The black man who approaches her to catch hold of her is analogous to the hungry black dog that jumps up on her. The

11 [A medieval tribunal that sat in secret.]

dog has a strong sexual background, which probably also belongs to the black man. The vision originated at a climax of the illness, when the patient was often thinking of death and was afraid she might even die as a result of her illness. As we indicated in the analysis of the associations, thoughts about death do not by any means exclude the sexual background; on the contrary, they can take the place of sexuality. As we have seen from the analysis of the associations and the analyses of the dreams so far, the patient is completely pervaded by a sexual complex. It is therefore most likely that the idea of intercourse is enacted in this dream as well. But let us leave this aspect for the time being and observe more closely the behaviour of the black man. At the height of the illness she is afraid she will die. Symbolically expressed: death is stretching his hand towards her, i.e., the illness will take her and lead her into the grave. The black man of the dream is leading an indistinct figure, who might represent the patient, into the mental hospital, and moreover to the same department where the patient is in actual fact. Thus the illness has not taken the patient to the grave but to the lunatic asylum.

The black man derives from the sexual dog, and the illness from the sexual complex.

To elucidate this sentence I beg to remind the reader of all the statements so far made: in the associations the clear and intensive activity of a sexual complex becomes obvious; in the dreams we found up to now nothing but metaphors for the sexual complex. At first there are the stereotyped blood and fire dreams, which are of a naïve symbolism. They say: "My blood is hot, I have strong sexual feelings of love." The dreams speak of sexual intercourse. Her illness is clearly connected with menstruation. That much is also acceptable; to the patient, that the illness has a connection with the first period. Everything we were able to find out so far speaks for the sexual origin of the illness. What the patient is yearning for is doubtless The Man. She wants the man but has the illness; as long as she is ill she cannot get married. Does she want to be ill? We know the will-to-be-ill of hysterics. They escape into illness for some reason; they want to be ill. This is a truth that almost forces itself on the observer. From the asthenic personality of the patient who, for no other obvious reason, breaks down in the simple association experiment, which does not require any effort, I could not help getting the impression that she did not make any effort whatsoever to react normally, i.e., to be healthy; on the contrary, she behaved in such a way that one could not help seeing how ill she was and how little interest she had in being healthy.

She needs the illness as an obstacle to prevent her getting married.

So she has the choice between illness and man, therefore the choice between the joys of sexual love and the care and attention given to the sick child, which also has its advantages for a naïve female mentality. I had explained to her the previous day that she wanted to be ill because she was afraid of getting married and being healthy. The dream is the answer to it. I had already told her dozens of times: "You are escaping into the illness again; you must not do that, it is forbidden." I said this to her each time she wanted to avoid telling me something unpleasant and disguised it by a headache and heat sensations. What does the dream say?

"But a nurse called: Stop, this is forbidden!" the nurse (thus my proxy) calls out in these words when the patient wants to take refuge in a room from fear of the black man (this part of the dream is, as its form shows, further protected by a special inhibition, so that it is produced only during the analysis). The fear of the sexual future and all its consequences is too great for the patient to decide to abandon her illness. She prefers to be ill, as she has been up to now, i.e., in actual fact to be nursed and pampered by her mother.

The dream, however, does not end with the presentation of this train of thought; it says, moreover, that the patient cannot retreat into the room, for it is already occupied. As the analysis shows, we assume that to take refuge in a room is a symbol for escaping into the illness, that therefore "room" means "illness." The patient is, however, in possession of her illness already, it therefore cannot be occupied by anyone else. But let us remember that "illness" is ambiguous. Her illness is the sexual complex, i.e., the repressed sexual feelings. The prohibition thus also says: It is forbidden to have sexual feelings, because something in the sexual complex is already "occupied." Because of lack of time I had to interrupt the analysis at this point and to postpone it to the next day, when I intended to ask for information about which room it had been in the dream. On the following day I asked the patient at once which room it had been. She promptly replied: "Room No. 7." In order not to spoil anything, I asked the patient for the dreams of the previous night, before I began the analysis. She had dreamt again:

834 FIFTH DREAM (Dec. 3) "1 was outside and stood next to
Miss L. We both saw that a house was on fire. Suddenly a white figure
emerged from behind the house; we both got scared and exclaimed
simultaneously: 'Lord Jesus!'"

835 Result of the analysis: Here the black man has turned into

a white figure; the burning house is the sexual complex. Miss L. is a patient who has a crush on the author. She was, like the patient, taken ill because of an erotic complex. The patient therefore expresses through this person that she has fallen in love with the author. Thus the patient substituted the tender relationship with her mother, which is damaging to her energy, by the erotic relation to the doctor.

Material: The form of the dream shows us that because of the dream interpretation the black man had to assume another disguise and changed to the white apparition which, however, played the same frightening role. The situation too is similar in that, as the patient starts to do something, she is suddenly prevented. In the burning house we suspect the *heat* of sexual feelings. A pointer for the analysis is, by analogy with previous ones, that part of the last dream that was not completed at yesterday's analysis; namely *Room No. 7*. Room No. 7 is occupied by Miss L., a patient of the same age as our patient. This gives us a new point of vantage regarding the previous dreams. In that dream the patient thought something like this: "I go into Miss L.'s room, I do the same as Miss L." Particularly characteristic of Miss L., however, is the fact that she is in love with the writer-hopelessly, as the writer is already married. The patient therefore finds the "room" occupied in two senses: (1) Miss L. is already in love with the writer; therefore there is nothing left for her. (2) The writer is married; this precludes any tender emotion from the very start. In today's dream the idea of yesterday's is elaborated in more detail. In the dream the patient always does what Miss L. is doing. Thus she also watches the burning house. Therefore she also has a hot yearning or a burning love. The patient also knows that Miss L. was taken ill because of an unhappy love-affair. Here is a further very stimulating analogy! Therefore they both see how the white apparition, alias the black man, alias the illness, suddenly appears behind the fire of love and frightens them both, as love has made them both ill. Miss L. suffered from sudden depressive agitations, during which she behaved in an utterly despairing and senseless manner. The patient always was amazed at this and frequently stated with satisfaction that *she* was after all not so ill as to have to behave like that. I had also often told her (our patient) that if she had let herself go, she would have become even worse. Thus the patient could easily think, with her mild jealousy of Miss L., that Miss L. had let herself go more and therefore had become more severely ill. This is how "Room No. 7"

was further determined. This point had not been explored in the former analysis; therefore we meet it again later on.

The content of this dream again throws light on that of the previous one in a peculiar way: The fear of the black man (sexual future) makes her escape into illness, which is, however, forbidden. Therefore the patient looks for a new way out: she does the same as Miss L., she falls in love with the doctor who can appreciate the complex and is a sexually harmless man; thus the dream finds a fortunate compromise. It replaces the love-giving but illness-producing mother by the healing but also sexually significant man. But there is a snag; the patient is poor and cannot stay at the clinic much longer, because she has not enough money. Miss L., however, is very rich and can stay as long as she likes. Miss L. then can take her place and "occupy" the room.

This manoeuvre also led nowhere and therefore the idea behind it remained active.

When I tactfully explained the content of these dreams to the patient she made a sad disappointed face—apparently the explanation was too blunt—and said in a suffering tone: "Oh, if my mother knew the things that are dragged out of me here!"

This reaction is noteworthy, since her mother would probably be indifferent to shades of feeling in her daughter. The answer, however, excellently depicts the cooling down and turning away of the patient's infantile sexual need for tenderness from the doctor and her reinsurance with the mother's love, a clear indication that the compromise is not tenable and the patient cannot separate herself from her childlike relation to the mother.

83⁶ SIXTH DREAM (Dec. 6). *"My father is here and I am showing him the Institution by going through all the departments with him."*

837 *Result of the analysis:* The patient fulfils the wish to stay longer in treatment with the author, which she hopes will cure her.

Material: The patient states that this is only a fragment of a longer series of dreams which, however, she cannot remember. Even analysis cannot produce what is missing. It is not difficult to understand the dream; it represents an uncompleted piece of yesterday's dream. The patient behaves in this dream as if the Institution is more or less her home. I had asked her occasionally whether her father never came to visit her, to which the patient said that she thought she was here for such a short time that it was not worth-

while for her father to make the journey. In the dream apparently a situation has arisen in which the visit was worthwhile all the same. So the patient can stay here for a very long time (as she actually wants to do). Besides which, the dream shows the patient in an unexpected position of authority. She has the master key which opens all the departments for her; this leads to the conclusion that she is enjoying the quite special confidence of the doctor. What this confidential relation to the doctor means is not difficult to guess.

83⁸ SEVENTH DREAM (Dec. 6, during the same night as the previous one). "*I am at home} Mother is sitting at the dinner table} you} Sir} opposite to her} and you are eating. Between Mother and you there is an empty chair. I want to sit down on this chair and eat too. But Mother has a hot flat-iron which she pushes towards me and that makes me get hot in the head. I tell Mother to put the iron away; she makes me feel hot with it so that I cannot eat. I too would like to eat with you both. At this you get up and shout at me that there is no need at all for me to eat now} I can just as well eat later.*"

83⁹ *Result of the analysis:* The patient desires a sexual relationship with the author, for she hopes that in this way she may get free of the influence of the mother which contributes to her illness. But the author is married, so that this wish cannot be fulfilled. She must therefore remain ill.

Material: This dream too shows a transparent symbolism; we can interpret it without any difficulty with the help of the pointers in Dream IV. We have seen that in Dream IV the patient starts to make a compromise between the infantile relationship to the mother and the sexual relationship to the man. Here the author clearly takes the role of the "man." The animal symbolism had already been dropped in the latest dreams, as it had been dealt with and become too transparent. So she has to create other coitus symbols. The dream begins with the patient being at home. This is the main question now which she puts to me daily: "How will it work out at home? I am always afraid it will go wrong again at home!" What is dangerous at home is mainly the mother, who as the careful nurse of her youngest child and image has apparently contributed her share to the patient's hysteria. Thus at home the question again arises: "Shall I continue with the role of the sick child that needs nursing, or shall I, in accordance with the doctor's advice, entrust myself bravely to the sexual future?" She therefore stands between

doctor and mother. The author is eating, she wants to eat with them, i.e., to do the same as the author. In what way can she do the same as the author? There is only one possibility, and that is the one that has already repeatedly been deliberated: to marry. She would like to sit in the chair next to the author, she would therefore like to sit beside him; this means nothing but that she relates to me in the sense of "husband." Does "to eat" therefore mean the marital function? We know Freud's principle of the displacement from below upwards. What happens to the mouth (in the dream, in hysteria, in schizophrenia) happens to the genitals. If one eats, one puts something into the mouth.

(A patient in the early stage of dementia once expressed her wishdelirium by saying that the man she desired as her bridegroom fed her with a spoon, which made her pregnant and she had a child.) So she wishes to enter into a sexual relationship with the doctor. But the mother makes her feel hot with the flat-iron, so she cannot sit down at the table, i.e., the mother brings back her illness (heat sensations in the head) and thus prevents her marriage. The fear that she may become worse again when she gets home is reflected here. Up to now the author has played a passive role, so that actually nobody but the mother stopped her from giving her love to the doctor. But now the author gets up and rejects her bluntly by forbidding her to "share the meal," i.e., to attach sexual thoughts to him, and at the same time comforts her by referring her to the future, when she can get married. This passage refers to a talk that I had with the patient a few days before, in which I carefully indicated that the question of getting married would not be so difficult later on, once she was well again. From this content it appears that the patient is again concerned with the dream-situation of the occupied room, with some variation, but this is connected with the obviously deep impression made on her by my previous analysis, in which I ruthlessly destroyed her illusions. Through this refusal she sees herself thrown back on the mother, and with the mother she becomes ill, because the mother does not want her to get married (see below). I have hardly concluded the analysis with the patient, when she says, quite out of context: "I am reminded of a dream that I used to have very often. I always used to dream of worms, reddish and whitish ones, the floor and the whole room were full of them (just like the blood, the fire, the cats, etc.). Very often, too, it was as if a colossal worm was being drawn out of my mouth." This dream in this context can be nothing but one of those penis dreams, so frequent in the normal as well as in the ill person (in dementia praecox, patients often have special neologisms for this such as

snakes, the stalk of a lily, staff of life, etc.). The *mouth* again indicates the displacement from below upwards.

It is therefore not unlikely that interference with marriage by the mother is the hysterogenous basic experience. Moreover, a sexual trauma has to be expected because of the lively eroticism of the patient. Therefore I told the patient that I was not satisfied, there must exist another experience which she had not yet told me, and which was of particular importance. Perhaps it would be revealed to me by her dreams. Perhaps this experience has also a connection with her cleanliness compulsion. Then for eight days the patient cannot recall any dream, although she knows she has had vivid ones. During this time I tried, as always, to get her interested in some activity and repeatedly discussed with her whether she did not know of any chance anywhere of earning a little money. After eight days had elapsed she again remembered a dream.

84⁰ EIGHTH DREAM. "] *am at home and Picking small coins up off the floor.] also find lovely stones, which] wash.] put the money and the stones on the kitchen-table and show them to my brothers:'*

84¹ *Result of the analysis:* The patient thinks of going home, she has made several good resolutions and particularly thinks that she will find a substitute for the impossible relationship to the doctor in her family, especially in her brothers. The background of the dream, however, remains uninterpreted.

Material: In this dream she has realized her future earning of money. A new feature, however, is "the lovely stones" which she washes (cleanliness compulsion?). She shows her brothers what she has washed on the kitchen-table, which is perhaps reminiscent of the dinner-table? The analysis yielded nothing but generalities; the strongest resistances were put up against any deeper penetration. What are the brothers doing at the kitchen-table, are they perhaps replacing the doctor at the dinner-table? I could not solve this question.

84² NINTH DREAM (Dec. 12). "] *am going for a walk in Zurich, but it suddenly becomes the place where my home is. Outside a house] see a policeman standing, talking to a man whom] only see indistinctly. The policeman makes an extremely sad face and enters the house. Then suddenly Miss L. walks along the street with a terribly sad face. Then we are suddenly together in a room and are sitting at the dinner-table. Suddenly*

ASSOCIATION, DREAM, AND HYSTERICAL SYMPTOM *someone says*
that the house is on fire. Miss L. says: 'Now] am getting into bed.']find this
inconceivable and run out into the corridor, but there] am told there is no
fire; it was therefore only a false alarm. Now] go in again and find myself
at home in the kitchen with Mother, and two of my brothers are there too. A
basket full of gorgeous aPPles is standing there. One of my brothers says:
'This also is something for me.'"

843 *Result of the analysis:* The patient, like Miss L., is disappointed in her hope of love which, however, she understands with regard to Miss L., whose less good qualities she scornfully stresses. So she goes home, where she again enters into a suspiciously intimate relationship with one of her brothers.

Material: The general situation of the dream is a similar one to that of the seventh dream. It is again about being together at the dinner- or kitchen-table. In the first part of the dream there is a policeman with a terribly sad face. Immediately afterwards and quite suddenly, Miss L. turns up with the same attribute. The policeman enters a house, and this is immediately followed by the patient eating with Miss L. in a room. Miss L. and the policeman are apparently equivalent. How and why has Miss L. changed into a policeman? I ask the patient for conspicuous characteristics of Miss L. The patient finds in particular that Miss L. has such peculiar manners that she is only half a woman, almost a man, and she is also very thin. We have a long thin sausage in Switzerland which is called something like "dried-up policeman." ¹⁸ This term is also used as a nickname for thin people. The patient thus indicates the less laudable aspects of Miss L. Why she does so is shown by the circumstance that the policeman speaks to a man whom the patient sees only indistinctly; if Miss L., however, speaks to a man, then in the dream it can be nobody but the author. It is therefore likely that the patient is again jealously stressing Miss L.'s feelings for the author, thence treating Miss L. very disdainfully. Then she sits with Miss L. at the dinner table. She is therefore in a sexual situation with her which, however, one must not think of as anything homosexual, as "dinner-table" in its sexual meaning has already been dealt with by the author; it would therefore be far too transparent. Here it probably only means: "I feel sexually as Miss L. does." The firealarm that follows also indicates this.

The patient goes outside to look. Miss L., however, goes to bed, i.e., becomes sick with love. To understand this, we must know that

18 [In German, *diirren Landjünger.*]

Miss L. always went to bed when she was excited. At the beginning of the dream the patient humiliates her rival, then when the sexual situation (fire-alarm) comes up, Miss L. actually becomes ill and therefore completely harmless. So the rival has been put out of the way. But the patient hears it is only a false alarm: this is the disappointment ("the room is occupied," "she cannot partake of the meal"). The author has spoiled her illusions, the transposition of her desire for love to the man has not succeeded, she therefore has to return to mother, where at least she finds an equivalent to the gratification of her need for love. Therefore the situation changes in the second part of the dream. The patient is suddenly at home with her mother in the kitchen instead of at the dinner-table. If only the relationship to the mother was concerned, there would be no need for the brothers. But two brothers are there as well and, as in the eighth dream, at the kitchen-table, but instead of the "lovely stones" a basket of "gorgeous apples" now stands there, and a brother says: "This also is something for me." The dinner-table scene of the seventh dream, as well as the dinner-table scene of this dream with Miss L., can hardly be interpreted in other than a sexual sense: now we have a similarly constructed picture in immediate succession to the sexual scene in that "dinner-table" has been replaced by "kitchen." In the first place the "gorgeous apples" look like the "lovely stones" on the kitchen-table, and secondly they are something edible (cf. Eve's apple). This is something for the brother, he gets some of it. We have to keep in mind: in the first part of the dream a sexual wish is destroyed for the patient; the second part can hardly refer merely to the mother, sex must somehow play its part here. I now make her produce ideas about the "apples": "I thought of the apples I saw at a fruiterer's 19 yesterday. I was there with Mrs. Jung." So she was there with my wife; this could be a clue. But now the analysis comes to a halt and no further progress can be made. So I make a fresh start with the brother: "This was my brother who lives in Italy: he has often invited me to go to Italy and visit him."

Remember here R.25, Test VI.

Travel: The patient associated at this point: "A nice journey to Italy-honeymoon." This would, however, be nothing to do with the brother, and yet the apples are meant for him too. I would like to add here another short dream which the patient had right at the beginning of the treatment. She dreamed that I came into the room and she said to me: *Unfortunately the nuts could not be gathered*

19 [The word used, *Sudfruchtengeschiift*, means a shop specializing in fruit from the South.]

yet, but she had a whole basket full of them at home. In this dream the patient offers the fruit to me, nuts. Nuts are as hard as stones, one has to open them to be able to eat them. Remember the "lovely stones," the "gorgeous apples," which she now allocates to the brothers. What her erotic expectation originally promised me is for the brother now, she has turned away from me.

I think that here it becomes obvious that there is something about the brother that goes beyond a sibling relation. The brother's significance for the sister becomes suspect (cf. *to kiss/sister's kiss*), and we cannot help having a strong feeling that here is something, sought for a long time, that would explain a lot, if we could be sure of it.²⁰ Some adventure of the time before puberty, in which the brother plays an impressive role, seems to be at the bottom here, a Freudian trauma. But the secret is well defended, and the analysis cannot gain access.

I told the patient quite casually of the content of the analysis, avoiding making any hints of a sexual nature. I wanted to avoid this because revealing the symbolism might make the next dream even more obscure. The inner development of the patient indicated in this dream, i.e., the turning away from the author, the abandoning of his point of view and the invalidating of his advice and teaching showed themselves (apart from an objective deterioration) in the significant fact that the patient now started again to dream of fire and blood; she "heard the *fire-alarm* every night."

The time of discharge now came nearer and nearer, and I hoped for a decisive dream, but the patient did not remember her dreams any more (except the fire dreams) apart from a single small fragment that did not tell us anything. On the morning of the day of her discharge I asked her, as usual, whether she had dreamt again. She said "Yes" but added quickly: "But I know already what the dream means, I noticed it at once. But I am not going to tell you; it is something from the past that I can only perhaps tell my mother." I implored her repeatedly, but in vain; she insisted it was of such a nature that she could only tell it to her mother. At last I said, then it must be a very unpleasant sexual story! The patient did not reply to that but looked out of the window. I could not venture to press the point any further.

Thus our dream-analysis and the analysis of the illness as a whole

²⁰ Here it should also be remembered that in the dream of the occupied room there was the call: "Stop, this is forbidden!" Perhaps my phrase made such an impression, because it was complex-stimulating and expressed something that was of great importance for the patient (if we assume that the complex here touched actually exists!).

remain incomplete, at a point which, however, appears clearly defined.

Summary of the Dream-Analyses

844 Although actually none of the analyses was as complete as we could wish, and in particular the last one breaks off at an important point, we have yet gained through them a number of valuable clues. Above all we see that the dreams completely confirm the complex revealed by the association tests. The associations point to an intensive sexual complex, and the dreams are about nothing but the theme of mating. This makes us realize that the complexes that consist of the associations of waking life also constellate the dreams. We have the same blockages that turn up in the association experiment, in the dream analysis too. The analysis of the dream-images revealed the sexual complex, its transposition to the author, the disappointment and the patient's reversion to the mother, and the resumption of a mysterious childhood relationship with the brother. The object of the next chapter is to show the sexual complex in the hysterical symptom and in the course of the illness.

III. THE HYSTERICAL SYMPTOM

845 It only remains now to apply our knowledge of the form and content of the sexual complex, gained in the two previous chapters, to the symptoms of the illness. Let us start with the "St. Vitus's dance."

846 According to the case history, as given by the patient, the St. Vitus's dance suddenly started one day for reasons unknown. All questions about the reason are answered in the negative, and it seems to be impossible to get at the cause, because it is unknown to the patient. But we already know very well the resistances that stand in the way of the production of all complex-ideas. Hysterics have access to their psychic material only in so far as it refers to insignificant ideas; but where the complex is involved they are powerless. The complex does not belong entirely to the hierarchy of ideas contained in ego-consciousness; because of its strong emotional charge it is more or less autonomous (as is, after all, any strong affect) and forces the association in its direction, even if the

endeavours to think and act in its own interests. For this reason we cannot talk about "intimate" things with the same security and calm as of objective ones. The need to keep the "intimate" secret can become strengthened almost to the impossibility of producing it, as we have seen in the case described in "Psychoanalysis and Association Experiments." If, therefore, we want to get information on "intimate" matters, i.e., on the complex in a hysteria, we can get it only by detours. Freud made a method of the detour; it is psychoanalysis. First we liberate general cover-ideas which stand in some associative (often symbolical) relation to the idea of the complex, and so we gradually approach the complex from different aspects. The method is basically the same as that used by a skilled examiner for a nervous candidate. The candidate cannot answer the special and direct question, he is too agitated; so the examiner first gets him to answer a number of quite general and easy questions, the emotional charge of which is not too great, and then the required answer comes quite spontaneously. Similarly, if I at once ask the patient for the cause of her St. Vitus's dance, nothing will come of it; so first I make her answer harmless supplementary questions, and in this way learn the following:

She liked going to school, she also liked the teachers. Although she did not like all lessons equally she cannot, however, remember that she particularly disliked certain lessons, or that she particularly disliked certain teachers. She did not much like writing-lessons; she actually disliked this class. It was during the writing-lesson (in her second year at school) that her right hand first started twitching. Then the twitching became gradually stronger so that she could not write any more. She therefore had to miss the writing-lesson. Then the twitching started in the right leg too, so that soon she could no longer go to school at all. So the St. Vitus's dance gradually developed. She also remembers that she could not help crying "terribly" all the time and was afraid to go outside when it was raining, so that she frequently missed school for this reason as well. The St. Vitus's dance was sometimes more, sometimes less marked, so that sometimes she could go to school, sometimes stayed away. During her twelfth year, however, the illness became so violent that she had to give up school altogether.

847 I think it emerges clearly from this narration that the patient was an extremely spoiled child who used every opportunity

to keep herself away from school for the purpose of shirking the detested writing-lesson. The twitching in the arm conveniently began, which then ultimately served the purpose of making it completely impossible to go to school. The patient now also admits that she could have suppressed the twitching then if she had tried. *But it suited her to be ill.* The uncertainty with which the patient speaks of her feelings concerning her school reminiscences at the beginning of the analysis seems to me particularly instructive. First it seems to her that she liked going to school, then there are expressions of the feeling that it was after all not quite like that, and then comes the exact opposite, which coincides with the fact. This inconsistent way of presentation is actually a method of the patient (see the previous analyses). There is no indication that the patient is aware of the inconsistency at the moment; on the contrary, it seems that whatever she says at any given moment she absolutely believes. The school-complex, that well-known feature of all asthenic children, here leads to the formation of a hysterical symptom. The existence of an automatism understandably provides a suitable *locus minoris resistentiae*, from which further automatisms can develop if the situation demands it.

The day after this analysis the feeling-tones had changed again, the patient alleged she could not say she disliked going to school, she quite liked it. School never made much impression on her. She was much more occupied with other experiences, such as that once a schoolmistress had vehemently scolded her. So we have the same uncertainty and inconsistency here again.

84⁸ During her twelfth year the St. Vitus's dance grew worse.

The twelfth year seems (according to the analysis) also to be the year from the recollection of which the sexual cat dream emerged. During the twelfth year the first puberty feelings become apparent in many girls and they begin to be interested in sexual secrets. But her twelfth year has yet another significance for the patient. I made the patient associate to the complex of the mother; the result was as follows:

A lot comes to her mind here-(after a long pause)-because Mother is also ill, and yet is so content and cheerful; if only she could also be like that. Mother always said her osteomalacia came

from being married. But she had been taken ill 28 years ago; now the disease is curable, so the doctors say.

This remark made me ask: "Has this any significance for her?" None, she could not imagine at all what it might mean to her she has never thought about it. I commented that the thought that she might have inherited a disposition to such an illness would be possible after all. She was never afraid of that, she would have got married in spite of it. I said that such a fear may perhaps have arisen in her at the time of the first period. "This is not possible, because my mother told me long before that, when I was *twelve years* old, that I must not get married, because then I would get the same illness."

849 We may conjecture from this remark that during her twelfth year discussions of far-reaching sexual importance took place, which must have made a strong impression on the patient's fantasy, judging from the strength of the resistance with which she tries to prevent the elucidation of this point. In any case, during the twelfth year we find one of the first components of the sexual complex. At the time of the first period she was faced with two complexes, one associated with a fully developed automatism, the other with the sexual feelings. The possibility of converting this decisive experience into a hysterical symptom is thus given, but not the necessity for it, because the impossibility of marriage appears by itself insufficient. We must also postulate the existence of an event that prepared the way for repressing the sexual complex, i.e., a sexual event of childhood. Here the sexual trauma, which the dreams seem to indicate, would fit in.

85⁰ With menstruation a new form of existence sets in, the sexual one. It is therefore not surprising if the school-complex is replaced by the sexual complex, though only outwardly; as we have seen, it is still present in the associations, it is still an open wound which is above all sustained by self-reproaches. That the school-complex, i.e., the St. Vitus's dance, potentially still exists is expressed in the following way: The patient once had a particularly bad day. She described the heat sensations as intolerable; while she was speaking her right arm twitched from time to time, then the left one too. I drew her attention to these movements, then her legs also began to twitch slightly,

and she said: "I can only restrain myself with an effort from hitting out as I used to do. I feel the greatest temptation to do so!" We can see that the old automatisms are again ready to break through at any moment when her energy is completely exhausted (this confirms Janet's doctrine that each *abaissement du niveau mental* is accompanied by a flare-up of the automatisms). The onset of menstruation stimulates the development of the present complaints, heat sensations in the head and neck, a sensation as if all the blood is in the head, a temperature of 104.0. Hands, feet, and body are cold. Simultaneously there are obsessive chains of ideas: she is constantly compelled to imagine that she is bleeding from the nose, from all apertures of the head, and that the clots that were discharged during the first period are in the head; she always wishes she could just once bleed enough from the head to fill a whole basin.

85¹ This strange symptom-complex without any doubt refers to the period: it is none other than a "displacement from below upwards" (Freud). The mechanism of displacement is operative in the patient; we have already found it in the dreamanalyses in a form that can hardly be mistaken. The heat (blood and fire in the dream) is probably the sexual heat appearing with the period. For many months the period has ceased, after being rather irregular; besides this there is an obvious meteorism and a posture that makes the abdomen protrude even more. These are, according to Freud, symptoms of pseudo-pregnancy, an assumption that the psychological experience supports; where there is a complex of erotic expectancy in a young girl, the child plays a marked role in associations and dreams.²¹ It will be remembered that this is in fact so in the associations of our patient. Furthermore, for the patient, pregnancy points to the danger of osteomalacia, which is bound to be strongly repressed. I am, however, unable to bring any positive evidence for Freud's conception.

852 The following symptomatic acts probably also originate from the repression of the sexual feelings:

1. the constant craving to cool down;
2. the cold washes;
3. the horror of meat in any form;

21 Cf., e.g., the sleep-walking fantasies of the case that I published in my study "On the Psychology and Pathology of So-called Occult Phenomena."

4. the inability to sit still;

5. a liking for indoor gymnastics while otherwise avoiding any physically strenuous occupations.

853 These symptomatic acts exactly correspond to the hygienic precepts against states of sexual excitement given in popular text-books.

854 Positive evidence for the repression of the sexual feelings is the consistent and obstinate evading of all sexual questions. As soon as the inquiry touches anything sexual, there is a barrier, and then one is usually held up by insurmountable obstacles. For theoretical reasons I made sure by appropriate questions that the patient was thoroughly informed about all the facts of sex, but she was unable to tell me where she knew all this from; she stubbornly denied having ever read anything about it or heard anything about it from anyone. She just knew it. Only towards the end of the treatment did the patient confess during the analysis, after protracted blocking, that a girl friend had enlightened her, when she was twelve years old. This too shows how strong the barriers are that guard the sexual secret.

855 I need not go any further into the visions; they have already found their interpretation during the dream-analyses.

8.5⁶ The improvement moved at a slow pace, with frequent relapses. The energy visibly increased, so that the patient's vigour gradually extended to four and five o'clock in the afternoon (originally it had already been used up by 10 a.m.). She was again able to read without any interruptions and to do some needlework. But the heat sensations remained, only their intensity seemed less, and during the third month of the treatment the patient stopped telling me about them. She only wondered why she recently has such frequent depressions, the cause of which she could not understand (originally when there was something unpleasant, she never mentioned depression, only exaggerated heat sensations!). To my assistant, a lady doctor, however, the patient spoke of her heat sensations as before. After the dream of the dinner-table, when I had told her about her relationship with me, the earlier expressions were soon resumed, when talking to me as well. In the dream she heard the fire-alarm, and several times, particularly during the last week of her stay J:1ere, the black man, who had disappeared after he had first been interpreted, came back too. The

dream-analyses show how this relapse can be explained. The patient was unable to reveal her innermost secret; the sexual compromise with myself had failed (apparently she could not find anything in me, apart from the sexual aspect, that would have been so valuable to her that she could have separated herself from her role as an invalid). As she was unable to separate herself from her secret, she had to cling to the heat sensations because of their repressive function, and so she came to resume the former symptoms and appropriate terminology, in this way demonstrating that my interpretations had been wrong; because she could not admit to herself that I was right, since that would have made the genuineness of her illness questionable.

857 About a month after the discharge her family doctor wrote to me that she was just as bad as before and that she now grumbled about the hospital and the doctor, with indications that the doctor had only tried to find opportunities to make morally dangerous conversation with her. Thus the sick personality, i.e., the sexual complex, entrenches itself behind aggressive defence-mechanisms; it discredits the moral personality of the doctor as much as possible, in order to invalidate the information supplied to the normal part of the mind. In this way the automatism of the illness secures itself a free road to unimpeded development, because each complex strives to live itself out unimpeded.

SUMMARY

858 The complex revealed in the associations is the root of the dreams and of the hysterical symptoms.

859 The interferences that the complex causes in the association experiment are none other than resistances in psychoanalysis, as described by Freud.

860 The mechanisms of repression are the same in the association experiment as in the dream and in the hysterical symptom.

861 The complex has an abnormal autonomy in hysteria and a tendency to an active separate existence, which reduces and replaces the constellating power of the ego-complex. In this way a new morbid personality is gradually created, the inclinations, judgments, and resolutions of which move only in the

direction of the will to be ill. This second personality devours what is left of the normal ego and forces it into the role of a secondary (oppressed) complex.

862 A purposive treatment of hysteria must therefore strengthen what has remained of the normal ego, and this is best achieved by introducing some new complex that liberates the ego from domination by the complex of the illness.

THE PSYCHOPATHOLOGICAL SIGNIFICANCE OF THE ASSOCIATION EXPERIMENT¹

⁸⁶³ Although there is more interest in psychology as a subject nowadays among non-psychologists than there was a few decades ago, nonetheless the relative youth of experimental psychology does mean that in this sphere little has as yet been clarified, and there is a good deal of controversy over many aspects of the subject. What is more, psychology is still a hybrid, inasmuch as the subject of experimental psychology is still in many institutions a very poor relation of philosophical psychology. The dogmatic nature of the latter is to blame for the manifold misunderstandings between the two kinds of psychologist. One wants to make psychology a creed, the other a science. Understandably these entirely divergent tendencies are in conflict with and hinder each other. This opposition makes itself felt most disagreeably in the field of nomenclature. The same words and concepts mean one thing with one writer and something quite different with another. So long as it is a matter of dogmas and axioms, which owe their existence to the *petitio* principle, one cannot hope for clarity, for each dogma entails a certain obscurity, as is well known. We are, therefore waiting for enlightenment from experimental psychology which, it is true, is still in its infancy yet can already look back on a rich harvest from the work in this field.

⁸⁶⁴ Psychopathology too has had to suffer for years from the same opposition. First, it had, with difficulty, to free itself from philosophical ideas, only to become subjected to rigid schematic anatomical notions which nowadays are still firmly fixed in many minds. It is only comparatively recently that we have the beginnings of an experimental psychopathology that has

¹ [First published as "Die psychopathologische Bedeutung des Assoziationsexperimentes," *Archiv für Kriminalanthropologie und Kriminalistik* (Leipzig), XXII (1906): 2-3 (Feb. 15), 145-62. It was Jung's inaugural lecture, 21 October 1905, upon his appointment as lecturer in psychiatry at the University of Zurich.]

recovered from its birth-pangs. For this achievement we owe our gratitude to the alienists; first of all to the eminent psychiatrist Kraepelin, the pupil of Wilhelm Wundt, and secondly to the psychiatrist Sommer. Kraepelin has taken over a series of fundamental ideas and methods from Wundt's school and with these attempted to pave the way to an experimental science of the sick mind. Under his direction a large number of important papers² have been published that will provide a source of stimulating ideas and valuable methods for many years to come, even if the results of certain individual works are dubious or are, at least for the time being, of purely academic interest. The principal subjects of Kraepelin's research are mental ability, the influence of fatigue, drugs, and alcohol on simple psychic functions, fatigue and recovery, perception, etc.

⁸⁶⁵ This research is mostly concerned with the experimental demonstration of various influences on the mind of a normal person. The real value of Kraepelin's work, however, lies in opening up various new prospects in the field of psychopathology.

⁸⁶⁶ **In** addition to the papers on fatigue, Aschaffenburg's work on associations is particularly important in this context. ³

⁸⁶⁷ Before we go any further into the content of Aschaffenburg's work, certain matters of a general nature must be discussed.

⁸⁶⁸ The ancients were already aware that the flow of our images and ideas is not entirely erratic; we find suggestions of laws of association in Plato and Aristotle,⁴ the validity of which is still recognized today. The laws of simultaneity, sequence, similarity, and contrast are also the basis of Wundt's laws of association. Wherever in Nature there is a regular sequence of events the experiment can be applied. Thus experiments can also be made on the process of association, however complicated and difficult to follow this may be. After Galton's first tentative experiments,⁵ Wundt and his group were the first to

² *Psychologische Arbeiten* (from 1896).

³ "Experimentelle Studien über Assoziationen," *ibid.*, I (1896), II (1899), IV (1904).

⁴ A book that offers an excellent survey of the problem is Claparede, *L'Association des idées* (1903).

⁵ "Psychometric Experiments" (1897).

make systematic investigations⁶ into association processes. The method of the experiment is extraordinarily simple; the experimenter calls out a word to the subject, who then says what is immediately called to mind by the stimulus-word. The experiment is thus similar to any other in physiology in which we subject a living object to an adequate stimulus, as for example the application of electrical stimuli to various parts of the nervous system, light to the eye and acoustic stimuli to the ear. In the same way with the stimulus-word we are applying a psychical stimulus to the psychical organ. We introduce an image to the consciousness of the subject, and are given whatever further image is brought by this to his mind. We can thus quickly obtain a large number of connected images or associations. From the material thus obtained we can establish, by comparison with that from other subjects, that this or that particular stimulus will give a particular reaction. So we possess a means of investigating the law of association. The "law of association"! That sounds highly academic, and no one with knowledge of philosophy would hesitate to admit the possibility of such laws. However, the word "law" implies necessity and thus, applied to the experiment, it means that the stimulus-image must necessarily cause this or that particular association. The experiment would thus acquire the nature of something inexorable and causally inevitable. The subject must inevitably associate the appropriate image to a particular stimulus, just as the nervous system, when given a stimulus at one point, *ceteris paribus*, always causes contraction of the same muscle. If we recognize the necessity of laws of association, we must say that the subject has surrendered completely to the experiment because he must necessarily have that thought which is associated with the particular stimulus. This involves the idea of determinism. Not everyone however, will go so far with us. There are still many educated people today who, on the ground of idealism and for other reasons, believe in the freedom of the will. Consequently these people must deny the necessity of the law of association, and resolve interconnection of ideas into a number of fortuitous events. They must assert that the experiment indicated is open to the wildest chance; that a person can not only say, but also think, whatever he wants to; that, from

⁶ Trautscholdt, "Experimentelle Untersuchungen über die Assoziation der Vorstellungen" (1883).

hundreds of things that occur to him, he can choose now one and now another according to his taste or present mood; that he is not obliged to think in terms of similarity or simultaneity, etc. These are the usual objections. The same objections are raised by serious-minded people to determinism. They maintain, in all seriousness, that man is capable of choosing from among his various motives before the act of will occurs. Does he also choose from among the motives of the motives, and the grandfathers and great-grandfathers of the motives? And what does he do with those motives which do not enter his conscious mind?⁷ Or do the motives perhaps come to the surface from the transcendental sphere as an incomprehensible act of the Creator? If man wished to select from among his motives, he would have to spend years before he moved a finger in order to trace back to the mists of his childhood the entire series involved and consider all of them: he would never finish. In this process he would again and again be dependent on the results of all previous motives or *associations* to express himself with greater clarity. As you can see, it is *a priori* easy to refute the objection based on the principle of chance in psychical occurrences if the opposition is not intent on raising sophistical difficulties.

⁸⁶⁹ In principle, therefore, it must be accepted that association is a necessary sequence following certain laws. Hence an association experiment in which chance appears to have an absolutely free hand takes on the dignity and conclusiveness of any other scientific experiment. Chance, by definition, does not allow of any rules, but does permit necessary occurrences. A rule means a restriction, a limitation of the occurrence, which must empirically be capable of proof. In the same way, too, the multiplicity of possible associations, which to the layman appears inexhaustible, must empirically be limited to a certain extent.

⁸⁷⁰ This brings us back to Aschaffenburg's experiments.

⁸⁷¹ The results of his investigation provide us with considerable insight into the vast difficulties of a huge subject. The most difficult of all is in fact the discovery of a law. From what points of view must the disconcerting profusion of thousands of associations be classified in order to obtain even a superficial impression of the whole? When one looks at the innumerable individual reactions one almost despairs of finding a

⁷ The possibility of such motivations is proved by the post-hypnotic command.

foothold in the wild chaos. Wilhelm Wundt helped himself by means of certain logical principles of classification, based on the laws of simultaneity and similitude which have come down to us from classical times. Thus at least logical clues were obtained, although neither Wundt nor any of his pupils imagined that they could exhaust all the possibilities. Aschaffenburg and Kraepelin built further on the same foundations. They made one essential distinction: between internal and external associations. The following associations:

human being	boy
attack	defence
table	furniture

are internal associations, i.e., pairs in which the meaning or conceptual content of the words is the essential connecting link.

87² On the other hand, associations such as:

knife	trousers-pocket
water	fish
plant	pot

are external associations, i.e., the connecting link is not the intrinsic sense or meaning but an external contingency. One particular form of this external connection is the catch-phrase; as such phrases readily come to mind they are especially frequent in this experiment. For instance, the following associations, as purely verbal connections, are to be considered as external:

time	and tide
whisper	sweet nothings
stick die	in-the-mud

873 Among external associations Aschaffenburg includes all current word-sequences.

874 Apart from the internal and external associations there is often also the case of a word merely suggesting another having a similar sound:

part	heart
cow	plough
rabbit	habit

These have been called sound associations. ' 4¹²

is cast

875 In spite of the tremendous efforts made by various resea
workers, we have still not yet succeeded in finding a metl of
classification that is in principle entirely satisfactory. In , case, the
present method suffices for solving many problem~ association
research.

87⁶ One of Aschaffenburg's predecessors in the field of asso
tion research, the well-known psychologist Miinsterberg⁸ (n in
America), believed he had found that the existence of th different
intellectual types was proved by his experiments. found that among a
limited number of subjects there w some who reacted mainly in terms of
super-ordination, otr in terms of co-ordination, and others in terms of
sub-ordinati Aschaffenburg, however, with a much more reliable meth
found nothing of the kind.

877 The hope of finding categories governing association 1
thus premature. No regularity was to be detected *prima vi*. One subject
would make many internal associations, anot, many external ones; one
would make no sound reactions 2 another several. No one could account
for the differences.

87⁸ At this stage, however, Kraepelin and Aschaffenburg m,
one fundamentally important step forward. They altered psychical
condition of the subject in the most unequivocal manner; the subjects of
the experiments were deliberately m, as tired as possible in the
following way: each of them wou after a full day's work at his usual
profession, be given a se! of association tests at intervals from eight
o'clock in the even! to eight in the morning, the pauses being given to
some otl form of mental work. During the night the subjects were gi,
nothing to eat.

879 By this means a state of intense fatigue was created.

880 One quite constant phenomenon now became evident
the associations of the various subjects; there was a decrease the number
of internal associations, and an increase in 1 external variety, and
especially in the sound associations, i associations with other words.
Semantic connections gr weaker with increasing tiredness and are
replaced by exten

⁸ *Beitriige wr experimentellen Psychologie* (1889-92). [Hugo Miinsterberg, J fessor of
psychology at Harvard until his death in 1916, was an opponent of] choanalysis.]

and superficial connecting links. It can thus be stated that the valency of associations decreases with increased tiredness.

881 Thus we have the first important rule about the faculty of association. Fatigue obliterates individual differences and drives the act of association in a particular direction. Besides this, Aschaffenburg also discovered that in one of his subjects who was suffering from a severe attack of influenza, the associations were similarly affected. So the special disposition of the brain caused by fever also has an adverse effect on the value of association tests in that mainly sound associations are produced.

882 These positive results, which far surpassed anything else that had hitherto been accomplished in the field of association research, provided Aschaffenburg with the link to the subjectmatter of psychopathology. Clinical observations had long since established that in a certain mental illness, known as *mania*, a mode of association is prevalent that is similar to that found by Aschaffenburg in fatigue, i.e., the connections and sound associations were mainly superficial. The illness is characterized by a predominantly cheerful mood, distractability, and motor agitation, which are expressed in ceaseless compulsive activity. When we analyze the state of extreme fatigue, it is easy to find similar elements there. One has only to observe one's own state after a strenuous mountaineering expedition to be able to diagnose without difficulty an unaccountable superficial gaiety and a state of motor agitation, shown in countless irrelevant movements of the arms and legs. Sound associations, too, are easily seen in the jokes current among parties in mountaineering-club huts. Most of these are of the order of the pun, i.e., the onomatopoeic joke par excellence. Aschaffenburg believed that the common factor in these circumstances was *motor agitation*, and therefore attributed the cause of sound associations to this. In this, however, I think he was in error. In our hospital we have conducted systematic research⁹ into associations for several years past and have obtained results that allowed of another interpretation. When a longish series of associations, say two hundred, is given to a subject, he will, without really becoming tired, soon find the process boring, and then he will not pay so much attention as at the beginning. For this reason we have separated the first hundred from the

⁹ Jung and Riklin, "The Associations of Normal Subjects," supra.

second in our classifications and have found that in all cases: where the subject had become bored there is a clear decrease in internal associations and a proportionate increase in external and sound associations. This observation made us think that the cause of sound associations is not so much muscular stimulation, which is absent in normal boredom, but a lack of *attention*. We have been able to confirm this interpretation on the basis of numerous experiments in which the subject's attention has been methodically distracted.¹⁰ Furthermore, we found an increase in the proportion of sound associations with subjects whose ability to concentrate had been weakened by a recent affect, with people in a somnolent state, and in addition with psychotics whenever their capacity for concentration is reduced. Kraepelin's school have also shown a levelling down of associations in cases of acute alcoholic poisoning. Aschaffenburg found the same thing in feverish patients. *It can therefore be said that the more the attention of the patient decreases, the more the external and sound associations increase.*

883 As you can already see from its numerous connections with altered psychical conditions, this empirically discovered law of association has, of course, great importance for the understanding of psychopathological states; in which, as is well known, one of the principle psychic functions, *the ability to concentrate*, is very frequently paralyzed or disturbed. In certain borderline cases between mental health and psychical disorder the experiment has already been of valuable service to us.

88-1 Our knowledge of factors governing association is, however, not exhausted with the statement that the seemingly unrestricted association depends to a large extent on the subject's attentiveness. Research into the associations of a large number of educated and uneducated subjects has enabled us to establish that *on average* the uneducated gave internal associations more often than the educated. This apparent paradox can be explained as follows.

885 Educated people are used to dealing with words out of any context (as in grammatical studies, dictionaries, etc.). Thus

¹⁰ Ibid.

¹¹ These findings confirm Ranschburg's statements. Cf. Ranschburg and Balint, "Ober quantitative und qualitative Veränderungen geistiger Vorgänge im hohen Greisenalter" (1900).

when we call out a word to an educated man, it means no more to him than just a word. An uneducated person, on the other hand, is only accustomed to hear words in a sentence, where they always have a definite meaning. If we call a word out to an uneducated person, he always constructs something like a sentence round it. He understands the word as a question: hence the tendency of uneducated subjects to react with whole sentences or by the use of higher categories. Thus for instance the educated man will react to *table* with *table-cloth* to *chair* with *chair-leg*, whereas the uneducated man will react to the word *table* with *furniture*, and *chair* with *for sitting on*. The educated person finds it easy to grasp the experiment, while it costs the uneducated one an effort to do with words called out to him something different from what he is used to in his daily life. It therefore also happens that the uneducated are inclined to apply adjectives to themselves, particularly when they appear to express a judgment or anything of that kind, e.g., in the case of the word *stupid*. The degree of effort needed for concentration varies according to the subject's grasp of the experiment. This effort is obviously often greater in the uneducated than in the educated, and this naturally has some bearing on the valencies of the associations. With very uneducated and mentally defective¹² subjects, the reactions assume the character of definitions that frequently seem clumsy and comical, e.g.:

consists of notes and hymn-books

when you go forward on your feet for a Sunday pint

886 From our approximately 150 normal subjects,

singing who pro-

strolling

vided a stock of over 35,000 associations, it can be seen

that there is not an infinite variety of modes of association, but only a limited number of types, which I do not propose to describe to you; it would lead us too far afield. I will mention only one type; there are people who from the very start react with an extraordinarily large number of predicates. One can make the objection that this particular incidence can be very easily attributed to chance. We have, however, been able to demon-

¹² Wehrin, "The Associations of Imbeciles and Idiots" (1904). 4¹⁶

strate that whole families associate in the same way, without anyone member being aware of the reactions of the others. This fact indicates that the type cannot be accidental but must be due to causes that at present still escape our knowledge.¹³

887 As you can see, free choice does not play any part in the process of association. There are, however, certain rules: it depends on the momentary state of our attentiveness, our educational level, and the type of our family or other personal circumstances. You have perhaps already noticed that these three rules correspond to important criteria of personality; in other words, our personality (which, as is well known, one knows least of all) plays a decisive role in the determination of the whys and wherefores of our associations. *One associates according to what one is*, or, as the psychiatrist Weygandt not long ago appropriately said: "Tell me how you associate and I'll tell you who you are." This is no empty statement. I will briefly outline the evidence for it:

888 **In** the association experiment we measure time with a stopwatch to one-fifth of a second, from the moment the stimulusword is called out to the moment the reaction is given. The interval of time taken we call the *reaction-time*. I will not bore you with an enumeration of the differing time-values. The assurance that the values fluctuate within a very wide range should suffice.

889 As in the classification of associations, one should not lose heart in one's attempt to evaluate seemingly fortuitous timevariations, since *a priori* one can hardly imagine that each of these variations has a particular significance. It is true that on closer examination we see that the internal associations, particularly reactions to abstract stimulus-words, on the whole require a longer time than the external associations. That, however, means very little-the differences are usually only fractions of seconds-beside the very much longer times that are often found with the simplest of associations. Here the time-differences can frequently be as much as twenty or thirty seconds without there being at first any indication of the reason

¹³ According to investigations made in this clinic, which have not yet been published. [Cf. infra, "The Family Constellation," and Fiirst, "Statistical Investigations" (1907).]

for these variations. The subjects also cannot usually give any precise information about this. One gradually becomes accustomed to this chaos. We know from the research of Ziehen⁴ and of Mayer and Orth⁵ that it is particularly the associations that awaken memories of an unpleasant nature that take a long time. Thus, for example, A will take 0.8 seconds to react to *house* with *roof*: B gives the same reaction but takes 20 seconds. If we ask subject B whether, on hearing *house*, anything unpleasant crossed his mind, he tells us (for instance) that his house was recently burned down, which frightened him very much. Subject A, who had reacted in 0.8 seconds, has nothing special to report.

89⁰ Here we have an idea charged with an unpleasant emotional tone associated with the stimulus-word and causing a lengthening of the reaction-time. Supposing that in this case B is a cultured person with the ability to analyze himself psychologically, and is prepared to offer up the knowledge of his deepest secrets, then we can pause after every reaction that takes longer than the average and ask what memory lies at the root of it. We will assume further that the subject is able to give the desired explanation for each long reaction-time. When we have thus gone over one hundred reactions and analyzed them, we find that in many places where much time was taken it is not always fresh memories that are awakened but that one memory, e.g., that of a house that was burned down, caused a whole series of long reaction-times. This memory is reflected in the reactions to the following series of stimulus-words: *b urn-fire-water -w in dow-smoke-rescue-frigh tful-re d-etc.*

89¹ These varying stimulus-words conjured up a certain scene, a particular picture from the mass of memories. The memory consists of a large number of single images; we therefore refer to it as a *complex-image*. The complex of these images is held together by a particular *emotional tone*, that is, by the *affect of terror*, the vibrations of which can continue gently for weeks or months and keep the image of terror fresh and vivid for that length of time. During the day work and other interests pre-

14 "Die Ideenassoziation des Kindes" (1898-1900).

15 "Zur qualitativen Untersuchung der Assoziationen" (1901).

16 Of course, we sometimes find long reaction-times that are due to other causes. 17 Cf. Jung, "The Reaction-time Ratio in the Association Experiment," supra.

dominate, but from time to time these complexes make themselves felt through a faint and hardly recognizable unease or through slight feelings of anxiety, which seem to be unaccountable; at night they intrude into our dreams in a form the symbolism of which may be more or less pronounced,

892 There are other emotional complexes similar to the complex of the memory of the fire; one is concerned with losing large sums of money, and another with somewhat unfortunate family relationships, These three complexes all have the same effect on reactions; they cause longer reaction-times and certain other disturbances, all of which I cannot now enumerate.

893 If we spread out our psychological booty in front of the subject, he will be amazed that we have been able to build up, as it were, a precise inventory of his present psychological condition, **In** this way it appears that everything that occupies the mind of the subject is expressed in his associations, **In** any case, all the most important individual *complex-images* are met with. Our subject admits further that at the time of the reaction he hardly ever had the feeling that the stimulus-word had any connection with this or that memory. Only when we asked him did it occur to him how he had arrived at that particular reaction, Contrary to his expectations, the subject had as it were offered in his reactions a psychological snapshot of his mind,

894 We have been able to demonstrate fully this significant fact, the importance of which everyone psychologically oriented can easily gather, in hundreds of individual tests. It is, however, one of those not at all obvious facts that everyone doubts until he has convinced himself of its truth by conducting the experiment himself.

895 Thus we found a further and in my opinion the most important factor determining associations. We can see, from the fact that in the few seconds of the reaction we do not choose something fortuitous but unconsciously take an item from our memories, that our reactions, far from being the result of a free choice, are predetermined to the smallest detail by our complexes. The occurrences of everyday life are nothing but association experiments on a major scale; the things outside us are the stimulus-words to which we react according to what we are and have become, and never in any other way. No one

can get out of his own skin. We act as our psychological past, i.e., as our cerebral organization dictates. For this reason we are bound to expose ourselves in the association experiment in exactly the same way as we do in our handwriting.

89⁶ You can see that in this strongly forged chain there is no gap where free choice or free will can break through. So you may believe me when I say that recognition of this fact is of great value in the investigation of mental illness.

897 Most cases of mental illness are, however, a matter of far-reaching change of personality. The association test at least paves the way for experimental research towards the discovery of the secrets of the sick mind.

89⁸ Before we go into this new application of the association experiment, we must say a few words about the manifold difficulties that stand in the way of the experiment even with normal subjects.

899 We have been assuming that our subject is a man of excellent education, intellectually unbiased, and able to think objectively about his own feelings. **In** such a case, analysis will not be difficult. But if we were to take as subject a sensitive woman, who does not know us, the analysis would be considerably more difficult. Everyone is, above all, anxious to preserve certain secrets, particularly of a sexual nature, and will not disclose them at any price. It is here that from the very beginning the experimenter finds a significant and almost insurmountable obstacle in his endeavours to analyze. Then there are certain peculiarities of human consciousness that aid concealment and can make analysis extraordinarily difficult. I shall try to sketch these characteristics for you briefly.

9⁰⁰ We have all of us at one time or another experienced something really unpleasant, which has subsequently haunted us for a long time. The natural reaction to this was that we made an effort to forget this black spot, to repress it, in that we quite deliberately did not think about it. And eventually we succeeded in not thinking about it any more. We have forgotten. **In** associations, however, this black spot reveals itself, and the long reaction-times caused by it show that the vibrations of the former affect are still there. **In** analysis we have at first some trouble in thinking of the critical point, and the more unpleasant it was the longer it takes us to get back to it. All kinds

of other memories will come to mind first, but finally the old story will come up, and we can again feel slight vibrations of the old affect. Now there are people, lots of them, who cannot recollect the critical event at all; they have forgotten it. They have repressed the unpleasant experience so forcefully that it can no longer be revived. Very often, too, the inability to remember looks like a wish not to remember, i.e., the subject cannot will himself to think about it.¹⁸

9°1 Our question remains unanswered. Many experiments have been wrecked on this shoal. Nonetheless the situation is not hopeless. **In** the last resort one can hypnotize the subject, and then one sees why he could not think back. The critical incident is *so* unpleasant that one understands immediately why he did not wish to be reminded of it. **In** the more serious cases of hysteria this inability to remember is in fact the rule.¹⁹ **In** these cases the complex is stronger than the conscious will and drives the subject in such a way that he cannot will himself to remember. The complex plays the part of a second and stronger personality, to which ego-consciousness is subjected. **In** these experiments we are shown the power of feeling-toned memories from which so many sensitive people suffer.

9°2 The inability to remember in its various forms is the principal obstacle to analysis. We shall not go into a series of lesser hindrances.

9°3 The objection may be made to analysis that one suggests something to the subject that is not in his mind. **In** my opinion, however, much too much has been attributed to suggestion. If suggestion were something better known and if so many superstitious meanings did not surround it, this could not then be maintained. It is quite impossible to suggest to a subject by means of a few well-oriented questions all his individual concrete experiences, with all the facets that they have in real life. A subject who lets himself have some experience suggested to him by a clumsy experimenter that he did not really have is a person who had previously had all sorts of phantasms in his mind. A psychologist, i.e., one experienced in the workings of the human mind, will not fall into this trap. He who under-

¹⁸ lung, "Experimental Observations on the Faculty of Memory," *supra*.

¹⁹ On hysterical associations. cf. Riklin, "Analytische Untersuchungen der Symptome und Assoziationen eines Falles von Hysterie" (1905).

stands the experiment properly will no longer be afraid of the unknown quantity of suggestion. -

9°4 So far as the content of complexes found among normal subjects is concerned, the subjects fall naturally into two groups: men and women.

9°5 To take the women first, their complexes are of a simpler nature and are usually easily recognizable. The woman's complex is, in essence, usually of an erotic nature (and I am using the word "erotic" in the noble literary sense as opposed to the medical). It is concerned with love, even in apparently intellectual women, and is often particularly intense in the latter, although it is only revealed in a negative way to the outside world. No woman who thinks scientifically will take amiss my revelation of this fact. It is as natural and undeniable as the physical sexual process, the existence of which is, it is true, kept secret but never denied. In unmarried women the complex is concerned with the remembrance of past erotic complexes or the expectation of future experiences. Among the secondary complexes, we find most frequently social questions, such as status and earning a living; in general these are clearly linked with the erotic expectation of the man, upon whose arrival the woman's social problem is usually resolved. In the third place come difficult family relations in the parents' home. Married women show complexes especially concerning pregnancy and children, then those connected with relations with the husband, and lastly social difficulties and domestic worries. Old erotic complexes strikingly often play a large part in the very great number of not quite happy marriages, in that they concern memories of previous lovers or at least hopes of this kind. It is mostly a case of the man she should really have chosen but did not marry.

9°6 In men the erotic complex is not nearly so much in the foreground as in women. It is perhaps on the same level as that of ambition, or striving for physical, intellectual, or financial power. Money usually plays the leading part. The differences between married and unmarried men are not great. In men's associations traces of the social battle show up much more clearly than in women's. Complexes in them are not nearly so easy to reduce to a common denominator as those in women,

which are almost all attributable to their erotic life. Nonetheless there are men too in whom the erotic complex is all pervasive; the exception, however, proves the rule.

9°7 Recently Professor Gross and his pupils have emphasized that a complex can also concern crime, and that at a criminal case in certain circumstances be unmasked by means of an association test. Laboratory tests designed to verify this assertion are now in progress. Not long ago for the first time, using this method, I succeeded in unmasking a person guilty of a considerable theft.²⁰

9°8 These results achieved in the field of normality we have transferred to that of psychopathology, and here we have found feeling-toned complexes developed to a degree that amounts to caricature. Here I will first of all name the most common form of mental disorder: *hysteria*. Here the associations are often so much under the influence of a feeling-toned complex that the other parts of the personality hardly show up at all. The complexes themselves are of the same nature as in normal case: except that the intensity of the emotional content is far greater than in the normal. As a rule, the times of critical reaction are much longer and the barriers to recollection much stronger than with normal subjects.

9°9 From this we can first of all conclude that the sensitivity (i.e., the excitability) of the emotions is greater in hysterical patients than in normal people. An integral part even of hysteria, however, is a complex of images linked with most powerful affect which, for some reason or other, is still reverberating in the patient and which his conscious mind finds unbearable the *hysterical patient suffers from an affect that he has been unable to conquer*. The recognition of this is of the greatest importance in therapy.

9°0 You will now ask what is the relationship of this fact to the enormously complicated *symptomatology of hysteria*.²¹ I will explain our view by giving two simple examples.

9°1 A hysterical girl suffers from time to time from amino'

²⁰ Jung, "The Psychological Diagnosis of Evidence," supra.

²¹ On this question, see especially the works of Sigmund Freud, to whose far seeing psychological understanding modern psychiatry will be very much indebted.

paralysis of the left arm. She is very worried about it and cannot give any adequate explanation for her symptom. From her associations we learn that there are troubles in the home and, in particular, that she is terrified of her father. By various means, which I unfortunately cannot describe to you now, we induced the patient to make the following confession:

9¹² She has a very unhappy relationship with her father, who is a coarse and irritable man. Each time she has had a scene with him the paralysis in her arm comes on. The first time it happened was after a particularly violent argument when her father finally seized her by the arm and forbade her the house.

9¹³ Thus the symptom of paralysis is closely related to the complex shown in the associations. The complex is the intolerable thing that the patient is trying hard not to think about. She succeeds in freeing herself for days or hours at a time from its constant negative affect, but has instead acquired a hysterical symptom that she now makes responsible for all her dreary moods.

9¹⁴ Another and simpler case concerns a young married woman who suffers temporarily from abasia, i.e., inability to walk. The associations revealed an unhappy marital relationship. The patient, however, did not want to go into the matter and denied absolutely that there was any connection between the abasia and her marriage. She attributed the onset of abasia to a chill. Under hypnosis, however, the matter became quite clear. The attacks of abasia came on each time immediately after brutal treatment by her husband. The first occasion was when she was fetched by this man, whom she did not love, for her wedding. She found she could no longer walk, and from that time onwards abasia had been the symbol of her suffering.

9¹⁵ These two simple examples should suffice to make clear to you the connection between the symptoms of hysteria and the feeling-toned complex. **In** the depths of the mind of each hysterical patient we always find an old wound that still hurts or, in psychological terms, a feeling-toned complex.

9¹⁶ Our association experiments have now also been able to demonstrate the same mechanism in cases of the next most prevalent group of mental illnesses, i.e., dementia praecox. **In** this too we are concerned with a complex buried in the depths

PSYCHOPATHOLOGICAL SIGNIFICANCE OF THE EXPERIMENT of the mind which, so far as we can see, causes many of the characteristic symptoms of this disease, in which admittedly I find ingredients lacking in hysteria.²²

⁹¹⁷ You may have gathered from these indications on the one hand how fruitful the application of the association experiment is for psychopathology, and on the other how universal the significance of the feeling-toned complex.

²² In order to avoid long-winded explanations in a lecture, I have expressed myself somewhat dogmatically. Dementia praecox unfortunately denotes a group of illnesses which have not yet been clearly defined clinically, and individual forms and descriptions can appear quite distinct from one another. Our experiments (whose results have not yet been published) show that the symptoms of this disease can be explained in a large number of cases as complex-phenomena. [See "The Psychology of Dementia Praecox" and other works in vol. 3, *Call. Works.*]

DISTURBANCES OF REPRODUCTION IN THE ASSOCIATION EXPERIMENT¹

⁹¹⁸ My reproduction method, which I introduced in a short communication in the *Zentralblatt für Nervenheilkunde und Psychiatrie* in 1905,² has recently been repeatedly criticized (by A. Gross, Heilbronner, and Isserlin³). Because of an undue amount of other work I am, to my regret, only now able to complete my unfinished paper by giving it the support of statistics. In 1905 I maintained the following:

⁹¹⁹ If, after the completion of about one hundred associations, the subject is asked to repeat the original answers to the individual stimulus-words, memory will fail in several places, in such a way that the previous reaction is either not reproduced at all, is given incorrectly, is distorted, or only given after much delay. The analysis of the incorrectly reproduced associations showed that the majority of them were constellated by a "complex." Since most contemporary workers doing research in this field tend to attribute to Freud's psychoanalytical method no heuristic value at all, it is denied to me to take the shortest course and simply corroborate the above statement by means of analyses. To eliminate the subjective aspect of analysis, which is so much feared, I have no choice but to adduce as unobjectionable evidence the objective signs of complex-constellations, complex-characteristics, and their relation to incorrect reproduction. I found that, in associations that were recogniz-

¹ [First published as "Ober die Reproduktionsstörungen beim Assoziationsexperiment," *Journal für Psychologie und Neurologie*, IX (1907): 4, 188-97. Republished in *Diagnostische Assoziationsstudien*, Vol. 11 (1909), pp. 67-76 (IX. Beitrag). Translated by M. D. Eder in *Studies in Word-Association*, pp. 396-406. See supra, par. I, n. 1.]

² ["Experimental Observations on the Faculty of Memory," supra.]

³ Alfred Gross, "Kriminalpsychologische Tatbestandsforschung" (1907); Heilbronner, "Die Grundlagen der psychologischen Tatbestandsdiagnostik" (1907); Isserlin, "Ober Jungs 'Psychologie der Dementia praecox,' etc." (1907).

able through complex-characteristics, a complex was responsible for the constellation, i.e., had "interfered" and brought about a disturbance. If these characteristics are really significant, i.e., if the analytical method has led to a correct result that could be verified, then the characteristics in general must stand in close relation to each other, i.e., they must tend to appear together in certain associations. This applies, for instance, to incorrect reproductions and prolonged reactiontimes. If this is not the case and the complex-signs are indiscriminately scattered over the whole test, then the analysis has led to a wrong conclusion.

920 I further mentioned in my previous communication: (1)

The incorrectly reproduced associations occasionally have an arithmetical time-mean that exceeds the general arithmetical mean (*one example*). (2) The incorrect reproductions apparently occur as frequently with the critical as with the postcritical reaction. (3) Occasionally there is a tendency to serial or to isolated disturbances in reproductions. (4) I looked for the theory of the phenomenon in the general characteristics of the complex. I then stressed one feature in particular, repression (Freud), because precisely this feature seemed to me best to explain the inhibition of the correct reproduction. The main characteristic of the complex is certainly its relative independence, which can manifest itself particularly in two directions: in increased emphasis and stability in consciousness, and in repression, i.e., resistance against reproduction while in the unconscious. Therefore the associations belonging to the complex lack the "disposability" of other less significant psychic material (this, by the way, happens only when the special complex is inhibited and must not come to the point of reproduction). The complex itself, of course, completely, even hypermnestically, controls its material. This reducing of the disturbance of reproduction to a more general psychological characteristic seems to me to explain something. Of course, the hypothesis does not apply to every case, for then one would first have to make sure that all interferences from outside (fortuitous ones) are completely excluded; my hypothesis applies only to the majority of cases, as well as only to the majority of complex-characteristics. (5) The complexes indicated

by the association experiment are usually charged with unease, which is why the exceptional condition of the complex during the experiment may well be described as "repression."

⁹²¹ It is now my task to demonstrate exactly what my conception is based on, i.e., to prove that the disturbances in reproduction are complex-characteristics, and therefore as a rule appear together with other complex-characteristics. There cannot be a simple method of verification, because we have to consider that the reproduction-disturbance, like all other complex-characteristics, is not a necessary feature of the complex, and also that, like the other complex-characteristics, it is not exclusively tied to the critical reaction but can also occur with the one that follows. The complex-characteristic most frequently met with is the *reaction-time*.

Disturbance in Reproduction and Reaction-time

⁹²² The most obvious method of comparison would be simply to compare the arithmetical mean of the times of the incorrectly reproduced associations with the arithmetical mean of all the times or of all the remaining times. But this method would only be to some extent reliable if the disturbance in reproduction coincided with the prolonged reaction-times. This, however, is not at all the case; the situation is much more complicated. The following quite varied cases occur:

- C
1. .. 1 .. h__ prolonged reaction-time,
 critical reaction with
 reproduction-disturbance; d' d' b
 - { 2. Post-critical reaction with reproduction-disturbance;
 Critical reaction with reproduction-disturbance,
 3. Post-critical reaction with prolonged reaction-time;
 - { .. 1 .. h-- prolonged time
 post-critical reaction with
 reproduction-disturbance; d' d' b
 4. Reproduction-disturbance of critical and post-critical reaction (twofold sequences of disturbance).
 5. Reproduction-disturbance of critical reaction and of three and more successive reactions (threefold and fourfold sequences of disturbance).

9²³ These complicated relations have to be taken into account by the method. In a previous one of the Diagnostic Association Studies,⁴ I used the probable mean to determine the prolonged reaction-times because of the fact that the arithmetical mean is as a rule disproportionately high owing to the undue influence of excessively long times, which obviously cannot be compensated for by excessively short times, since the reaction-time has unlimited variations only in the upper ranges. The probable mean therefore generally gives a much better picture of the average speed of reacting. What exceeds this average may as a rule be considered to be not quite normal. But the probable mean is only applicable for large series of numbers, otherwise it is too inaccurate, because it can be considerably altered by trivial chance-events. For small series of numbers we therefore have to use the arithmetical mean. So I have started with the probable mean of the whole test, first counting how many reaction-times of incorrectly reproduced associations exceed the probable mean, how many equal it, and how many do not reach it. If my previous assumptions are right, then one might expect to find the majority of reproduction-disturbances above the probable mean. Those reproduction-disturbances that fall on or below the probable mean can be due to perseveration and therefore may immediately follow a prolonged reactiontime; one has therefore in these cases to examine the reactiontime immediately preceding the disturbance. Actually the reaction-time immediately following should also be investigated, because the time-increase may not occur until afterwards. This, however, would lead us rather far afield. I have not embarked on this investigation hitherto, because it seemed to me that such cases are not very frequent. Let us first see how far we get with the two just mentioned. I should like to stress that since the methods just mentioned do not involve the subjective element, we can approach the task of verification with confidence.

9²⁴ The material I have chosen for my inquiry consists of twenty-eight cases, all of which were investigated some time ago and for purposes other than the verification of the present assumption. Not quite a third of the cases were investigated ⁴"The Reaction-time Ratio in the Association Experiment," supra.

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by me, the other two-thirds by various assistants, some of them several years ago. Among the subjects of the experiment only three are mentally sound, the others are neurotics and psychotics of the most varied kinds and of the most varied reaction-types. The material is therefore as heterogeneous as can be, offering the smallest chance of uniformity in the result. I have collected the results in the following table (all the times are given in 1/5 seconds):

Case and Diagnosis	Associations	Associations <u>inco</u> <u>rectly repr.</u>			IIs	
		above/equal to/below the P.M.				
G. Hebephrenia	100	2	5	8	10.	12.
	P.M. 8,5	2			6	5
	A.M. g.o					
	I.R. 6 35%					
A. Moral insanity	100	3 ⁰	6	9	14. ¹	10.
	P.M. 12.0					2
	A.M. 15. ²					
	I.R. 45'10					
R. ~ Hebephrenia	100					
	P.M. 13.5					
	A.M. 20.6	1		4		11.
	I.R. 15%	1				7
P. Paranoia	100					
	P.M. 11.0					
	A.M. 12.g	13	2	7	13. ⁰	13. ²
	I.R. 22%					
H. Catatonia	100					
	P.M. 22.0			Ig	25. ⁰	31.
	A.M. 30.3	33				0
	I.R. 53%					
G. ~ Hysteria & imbecility	50					
	P.M. 14.0					
	A.M. 17. ⁰	6		2		16.
	I.R. 16%					0
W. ~ Dementia praecox	100					
	P.M. 10.5	2		24		10.2
	A.M. 11.3	9				
	I.R. 53%					

s The figures in these two columns give the arithmetical mean (A. M.) of the reaction-times of the associations immediately preceding the incorrectly reproduced ones: column I for the incorrectly reproduced associations with the probable mean (P.M.). column II for those below the probable mean.

6 LR. = incorrectly reproduced.

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	Case and Diagnosis	Associations	Associations <u>inco</u> <u>rectly re pr.</u> above/equal to/below the P.M.				II
G.	Organic mental defect	100 P.M. 47.0 A.M. 57.0 I.R. 67%	34	2	3 ¹	165.0	67
Z. ~	Dementia praecox	100 P.M. 10.0 A.M. 14.4 I.R. 51%	3 ²	6	13	14.0	16
H.~	Dementia praecox	100 P.M. 10.0 A.M. 11.5 I.R. 41%	2 2	5	14	g.0	10
V.	Imbecility	100 P.M. 11.0 A.M. 11.1 I.R. 28%	16	5	7	10.2	16.
E.	Moral insanity	100 P.M. 15.0 A.M. 18.1 I.R. 30%	2 1	5	4	17. ⁸	18.
K. ~	Dementia praecox	100 P.M. 17.0 A.M. 21.8 I.R. 38%	23		1 5		24.
K. ^{'''}	Dementia praecox	100 P.M. 5.0 A.M. 7.1 I.R. 25%	18	4	3	4.7	g. p.
A.	Paranoia	100 P.M. 13.5 A.M. 13.9 I.R. 14%	7		7		10
B.	Psychopathy	113 P.M. 18.0 A.M. 19.5 I.R. 27-4%	16 ,	2	13	1g.0	17. 1
S.	Catatonia	100 P.M. 11.0 A.M. 14.3 I.R. 32%	24	3	5	11.6	16. 1
H.	Imbecility	¹⁰ 4 P.M. 18.0 A.M. 30.4 I.R. 27.8%	14	4	11	5 ⁶ .7	24. ~

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	Case and Diagnosis	Associations	Associations incorrectly repr.			I	11
			above/equal to/below the P.M.				
S.	Psychopathy	1 P.M. 12.0 A.M. 17.4 I.R. 37%	26	4	7	19.0	16.4
R.	Dementia praecox	5 P.M. 32.0 A.M. 38.3 I.R. 36%	14	2	2	12.5	33.5
R.<;	Syphilis of the brain	1 P.M. 14.0 A.M. 17.3 I.R. 46%	23	3	20	12.6	15.3
S.	Imbecility	100 P.M. 26.0 A.M. 37.5 I.R. 21%	13	-	8	-	55.8
J.<;1	Normal	1 P.M. 7.0 A.M. 7.9 I.R. 8%	8				
H.	Alcoholism & imbecility	100 P.M. 10.5 A.M. 13.5 I.R. 37%	28	-	9	-	13.3
P.	Normal	100 P.M. 7.0 A.M. 7.9 I.R. 33%	20	6	7	7.7	8.6
A.	Normal	100 P.M. 7.0 A.M. 7.8 I.R. 15%	11	-	4	-	8.1
S.	Moral insanity	100 P.M. 12.0 A.M. 13.9 I.R. 40%	27	2	11	9.0	13.3
W. <;1	Neurasthenia	100 P.M. 15.0 A.M. 17.2 I.R. 11%	21	1	9	9.0	16.8

9²⁵ These figures lead to the conclusion that an average of 62.2 per cent of the incorrectly reproduced associations fall above the general probable mean of the reaction-times, 7.5 per cent

equal it, and 30.2 per cent lie below. This is as originally expected. An average of 33.0 per cent of the associations is incorrectly reproduced. The time-means of the last two columns have to be considered with the reserve mentioned above. They contain cases of quite different significance. As already stated, only the reaction-time immediately preceding the incorrect reproduction was considered, and this only in those cases in which the incorrect reproduction itself fell below the general time-mean. But it is quite possible that the incorrect reproduction is not the result of perseveration, but that the critical reaction has a short reaction-time, with the longer reactiontime following. In this event the result would be considerably distorted. Therefore we shall be faced with minimum figures. The time taken to give the incorrect reproductions discussed here exceeds, however, the probable mean by an average of 7.8 and the arithmetical mean by 4.1. The values on which this calculation is based vary, however, considerably. The series of numbers in the last column are not so varied and are richer in material, but the same considerations apply to them as to the figures of the last column but one. Here too we find that the reaction-time preceding these reproduction-disturbances exceeds the respective probable mean by 4.2 and the arithmetical mean by 0.4. Here we are reminded that the arithmetical mean tends to be disproportionally shifted upwards, as is anyhow sufficiently demonstrated by our figures. These figures are not contrary to expectation, but in my opinion confirm our assumption. If one considers how extremely complicated psychic processes are, and how difficult to control, especially in the field of associations, one is actually amazed at the relative regularity of the results, which cannot even be compromised by a schema that does not claim to be complete.

Series of Disturbance and Reaction-time

⁹²⁶ In my material, 63.9 per cent of all the incorrect reproductions are arranged in series. This fact shows that there is every reason to postulate a relationship between incorrect reproduction and complex, since the complex with its perseveration is a series-forming factor *par excellence* in the association experiment as well as in ordinary psychological life (which, according to the opinion of certain people, must not be related to

psychology). If this conclusion by analogy is right, then the series of disturbances must show the same complex-characteristics as the complex-sequences; hence, first of all prolonged reaction-times. In order not to amass unnecessary tables I omit giving figures for each subject. That there is enough material to calculate averages is evident from the above-mentioned percentage figure. The number of the incorrect reproductions underlying this calculation amounts to a little more than six hundred. We calculate the arithmetical mean for all the incorrectly reproduced associations following one another immediately and compare the mean with the probable mean and arithmetical mean for each subject. Sequences of

2 disturbances are on an average 7.7 above the P.M.			
3	"	3.6	" AM.
3	"	9.6	P.M.
4	"	6.3	AM .
4	"	11.6	P.M.
5	"	6.4	AM.
and more	"	6.7	P.M.
5	"		
	" " " "		
and more	" " " "	2.4	" " AM.

⁹²⁷ We see an increase of the time-values up to the series of four disturbances, whereas for the series of five and more they are again lower. This result does not fit badly with the analytic consideration. Not infrequently we can see a strong complex perseverating through three and four disturbances, sometimes with uneven decrease of the reaction-times. The stronger is the complex aroused, the stronger, *cum grano salis*, will be the disturbances produced by it. In longer series, however, (which in any case are much less frequent), other factors that interfere with the experiment often appear.

⁹²⁸ We can summarize by saying: *In the main the disturbance in reproduction is correlated with a prolonged reaction-time; where it is not correlated with this) the preceding reaction-time tends to be prolonged in the majority of cases.* (The question of the reaction-time following is left open, because it is of secondary importance.)

⁹²⁹ One can apply another, perhaps even more instructive,

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method to demonstrate the higher time-values of the disturbance-sequences. I have taken twenty-four cases with well-developed sequences from my material and arranged them in two categories as follows: First, those series that begin with a reactiontime longer than that of the immediately preceding associations, thus:

Association correctly repr.	Disturbances				Association correctly repr. at end of series
	I	II	III	IV	
9	10	8	6	6	7
10	82	15	-	-	11
6	9 ²	15	8	-	8
12	35	16	16	-	14
		etc.			

93⁰ In this way I have arranged one hundred and nineteen series of this category, added the individual columns, and divided by the numbers of figures in each column.

93¹ The second category concerns those series in which the disturbance begins with a reaction that is shorter than that of the immediately preceding correctly reproduced association. For the purpose of comparison I have also taken the reactiontime of the association preceding the one before the disturbance, no matter whether it has been correctly or incorrectly reproduced. Those complicated by "mistakes" were excluded from the calculation, although such sequences would have made my results even more impressive.

93² This category is therefore composed as follows:

Preceding association	Association correctly repr. with long RT.	Disturbances			Association correctly repr. at end of series
		I	II	III	
14	17	8	21	-	10
12	15	1	55	12	13
8	4 ⁰	1	20	-	9
		etc.			

93³ This category consists of 56 sequences. A few sequences in which the correctly reproduced associations and the first disturbance of the series had the same reaction-time were equally

distributed among the two categories. The results are as follows (given in arithmetical means and in 1/5 seconds):

CATEGORY I Association correctly repr.	Disturbances					Association correctly repr. at end of series
	I	II	III	IV	V	
14. ⁸	37. ₂	22.8	23.9	33. ⁰	27. ⁰	17.9
CATEGORY II Preceding association	Association correctly repr. with long R.T.	Disturbances			Association correctly repr. at end of series	
		I	II	III		
18.3	22.5	13.3	22.7	30.0	17. ⁶	

The average arithmetical time-mean of the 24 cases used here is 19.8. We see therefore that all our times, with *one* exception, lie considerably above this mean. The exception is found in those reproductions (Category II) which immediately follow a prolonged reaction-time.

Reproduction-disturbance and Probable Time-mean

934 If, as appears proved by the preceding investigation, the reproduction-disturbance occurs mainly in conjunction with prolonged times, one may venture the assumption that the number of disturbances with longer individual time-means generally increases. This seems, at least according to my (limited) material, to be actually the case. To a probable mean of

5-10: an average of 29.7 disturbed reproductions			
10.5-15:"	"	"31.8"	"
15.5-20:"	"	"31.8"	"
20.5 and over:"	"	"44.2"	"

To clarify this particular question, however, much more material is necessary.

*Reproduction-disturbance and Complex-characteristics)
excluding Prolonged Reaction-times*

935 Besides prolonged reaction-times, I found the following to be complex-characteristics: reaction by two or more words if

⁷ The fourth and subsequent disturbances are not given because they are based on too small a series of numbers (less than 20). But they all considerably exceed the general arithmetical mean, if only for the reason that the number and the series of disturbed reproductions tend to increase with the length of the reaction-time.

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usually responds with one word, repetition of the stimulus-word, misunderstanding of the stimulus-word, mistakes, slips of the tongue, translation into a foreign language, reaction with some other unusual foreign word, insertion of "yes" or other exclamations before or after the reaction, any unusual contents of the reaction, perseveration as to content or form, etc. The evaluation of the originality of the content and opinion on the perseveration of content and form are subject to personal influences. Therefore I omit these two criteria from my investigation. I have only used the quite obvious perseveration of a reaction-word which reappears identically in the following reaction. I have selected from my material nineteen cases which are characterized by the fact that they mainly responded with only one word. I have counted how many of the abovementioned complex-characteristics occur in the whole experiment and how many of these are incorrectly reproduced associations.

93⁶ The following table contains the results of this investigation in individual figures:

Complex-characteristics for Associations Reproduced

	correctly	incorrectly
1	0.08	0.16
2.	0.11	0.31
3	0.03	0.27
.	0.03	0.11
	0.15	0.20
4	0.11	0.28
.	0.37	0.40
	0.08	0.26
.	0.06	0.16
6.	0.12	0.4 ²
7	0.27	0.39
.	0.03	0.18
13	0.06	0.15
. 8	0.01	0.02
4.	0.0	0.3
19.	6	3
19.	0.2	0.29
6 ¹ .	3	0.1
17	0.0	5
. 1	44 ³⁷	0.5
8.	0.3 ¹	4
19	0.1	0.29
.	8	

937 If one considers that not all complex-reactions are necessarily reproduced incorrectly, and that the incorrectly reproduced associations comprise only one third of all the associations (in my material), then the result conveyed to us by the above table is still rather remarkable: we see that, in each case without exception, more complex-characteristics are produced with those associations that are going to be reproduced incorrectly later on. As a rule, they are recognizable beforehand. The incorrectly reproduced associations show on an average a little more than twice as many complex signs as those correctly reproduced.

SUMMARY

93⁸ In my very heterogeneous material there is undoubtedly a relation between incorrect reproduction and prolonged reaction-time, and it shows itself in such a way that disturbances of reproduction chiefly occur with prolonged reaction-times but also partly following these. Furthermore, the association that is afterwards incorrectly reproduced has on average twice as many complex-signs as the correctly reproduced one (except for the over-long reaction-time, contents subjectively evaluated, and the correlated perseveration). From this it follows that the complex-characteristics tend to be grouped around certain associations. Without analyzing these one cannot see where the relationships between these greatly varying complexcharacteristics originate.

THE ASSOCIATION METHOD!

939 *Ladies and Gentlemen:* When you honoured me with invitation to lecture at Clark University, you expressed a wish that I should speak about my methods of work and especially about the psychology of childhood. I hope to accomplish this task in the following manner:

94⁰ In my first lecture I shall tell you about the general point of view that enabled me to conceive my association method; the second I shall discuss the significance of the family constellation; and in the third I shall go more fully into the psychology of the child.

94¹ I could easily confine myself exclusively to an exposition of my theoretical views, but I believe it will be better to illustrate my lectures with as many practical examples as possible. I shall therefore concern ourselves first with the association technique which has been of great value to me from both a practical and a theoretical point of view. The historical development of it]

[The first of a series of lectures under the general title 'The Association Method:' delivered before the Department of Psychology in celebration of the twentieth anniversary of the opening of Clark University, Worcester, Massachusetts, September, 1909. The three lectures were translated by A. A. Brill and published in the *American Journal of Psychology*, XXI (1910), in a Clark University anniversary volume (1910; the same setting of type), and in *Collected Papers on Analytical Psychology* (London and New York, 1916; 2nd ed 1917). For the second lecture, see "The Family Constellation," *infra*. The third lecture was the only one published in its original German version: see "Psychic Conflicts in a Child," *Collected Works*, vol. 17, prefatory note.

[The original German version of the first two lectures was thought to have been lost, but recently Jung's holograph was found among his papers. While it has the appearance of a draft, it corresponds closely with the Brill translation. Both Freud and Jung lectured at Clark University in German; see Freud's "(The History of the Psycho-Analytic Movement):" p. 31, and his "Five Lectures on Psycho-Analysis" (the Clark lectures), editor's note, p. 4. Both men received honorary doctorates of law at the Clark celebration, Freud's being in psychology and Jung's in "education and social hygiene."

[The present translation has been made from the holograph, in consultation with the Brill translation.]

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association method and its use in psychology are both so well known to you that there is no need to enlarge upon them. In my practice I proceed by using the following set of words: ²

- | | | |
|--------------|----------------------|----------------|
| 1. head | 34. yellow | 67. carrot |
| 2. green | 35. mountain | 68. to paint |
| 3. water | 36. to die | 69. part |
| 4. to sing | 37. salt | 70. old |
| 5. death | 38. new | 71. flower |
| 6. long | 39. custom | 72. to beat |
| 7. ship | 40. to pray | 73. box |
| 8. to pay | 41. money | 74. wild |
| 9. window | 42. stupid | 75. family |
| 10. friendly | 43. exercise-book | 76. to wash |
| 11. table | 44. to despise | 77. cow |
| 12. to ask | 45. finger | 78. friend |
| 13. cold | 46. dear | 79. happiness |
| 14. stem | 47. bird | 80. lie |
| 15. to dance | 48. to fall | 81. deportment |
| 16. village | 49. book | 82. narrow |
| 17. lake | 50. unjust | 83. brother |
| 18. sick | 51. frog | 84. to fear |
| 19. pride | 52. to part | 85. stork |
| 20. to cook | 53. hunger | 86. false |
| 21. ink | 54. white | 87. anxiety |
| 22. angry | 55. child | 88. to kiss |
| 23. needle | 56. to pay attention | 89. bride |
| 24. to swim | 57. pencil | 90. pure |
| 25. journey | 58. sad | 91. door |
| 26. blue | 59. plum | 92. to choose |
| 27. lamp | 60. to marry | 93. hay |
| 28. to sin | 61. house | 94. contented |
| 29. bread | 62. darling | 95. ridicule |
| 30. rich | 63. glass | 96. to sleep |
| 31. tree | 64. to quarrel | 97. month |
| 32. to prick | 65. fur | 98. nice |
| 33. pity | 66. big | 99. woman |
| | | 100. to abuse |

²[The holograph contains merely the direction "insert," and the list that follows here is from Brill, modified to conform to the present translation. It corresponds closely to a list that Jung customarily used in German, viz.:

- | | | |
|-----------|-----------|------------|
| 1. Kopf | 4. singen | 7. Schiff |
| 2. griin | 5. Tod | 8. zahlen |
| 3. Wasser | 6. lang | 9. Fenster |

94² This set of words has grown into its present form as a result of many years of experience. The words are chosen and to some extent arranged so as to touch upon almost all the concepts that commonly occur in practice. As the foregoing list shows there is a regular mixture of the different grammatical features. For this there are definite reasons.

94³ Before the experiment begins the subject of the test is given the following instruction: "Answer as quickly as possible with the first word that occurs to you." This instruction is simple that it can easily be followed. The task itself, moreover, appears extremely easy, so that anyone might be expected

- | | | |
|----------------|---------------|----------------|
| 10. freundlich | 40. beten | 70. alt |
| 11. Tisch | 41. Geld | 71. Blume |
| 12. fragen | 42. dumm | 72. schlagen |
| 13. Dorf | 43. Heft | 73. Kasten |
| 14. kalt | 44. verachten | 74. wild |
| 15. Stengel | 45. Finger | 75. Familie |
| 16. tanzen | 46. teuer | 76. waschen |
| 17. See | 47. Vogel | 77. Kuh |
| 18. krank | 48. fallen | 78. fremd |
| 19. Stolz | 49. Buch | 79. Glück |
| 20. kochen | 50. ungerecht | 80. lügen |
| 21. Tinte | 51. Frosch | 81. Anstand |
| 22. bos | 52. scheiden | 82. eng |
| 23. Nadel | 53. Hunger | 83. Bruder |
| 24. schwimmen | 54. weiss | 84. fürchten |
| 25. Reise | 55. Kind | 85. Storch |
| 26. blau | 56. aufpassen | 86. falsch |
| 27. Lampe | 57. Bleistift | 87. Angst |
| 28. siindigen | 58. traurig | 88. kiissen |
| 29. Brot | 59. P8aume | 89. Braut |
| 30. reich | 60. heiraten | 90. rein |
| 31. Baum | 61. Haus | 89. Tiire |
| 32. stechen | 62. lieb | 90. wahlen |
| 33. Mitleid | 63. Glas | 91. Heu |
| 34. gelb | 64. streiten | 92. zufrieden |
| 35. Berg | 65. Pelz | 93. Spott |
| 36. sterben | 66. gross | 94. schlafen |
| 37. Salz | 67. Riibe | 95. Monat |
| 38. neu | 68. malen | 96. hiibsch |
| 39. Sitte | 69. Teil | 97. Frau |
| | | 100. schimpfen |

The lists on the following pages appeared in the holograph. The graphs did not appear, though referred to.]

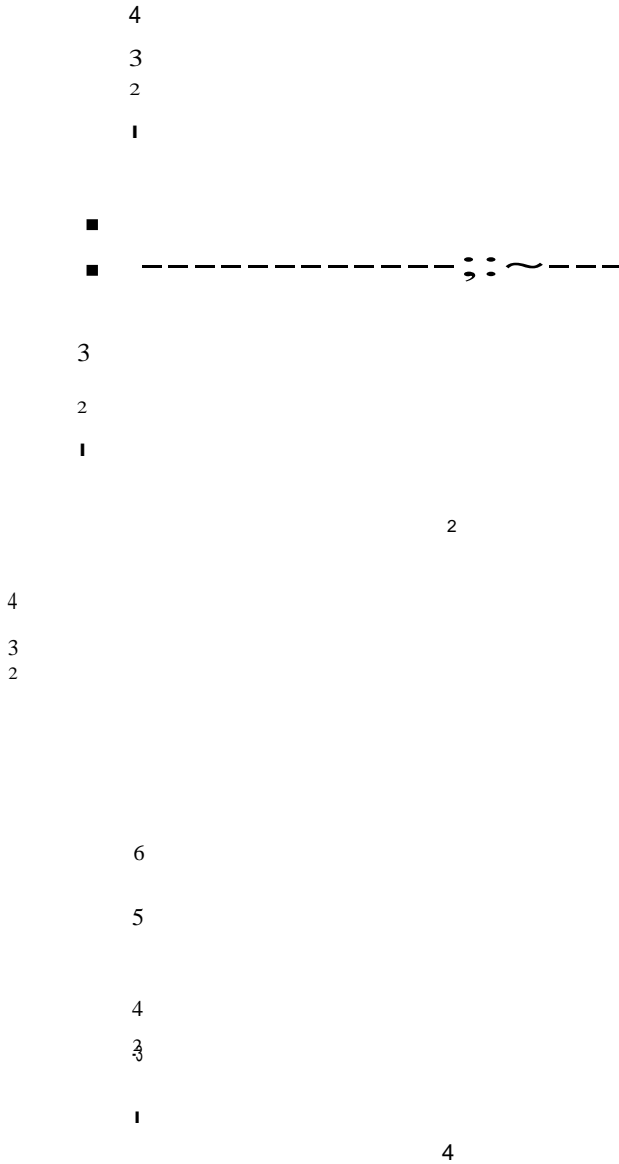
THE ASSOCIATION METHOD

Stimulus- word	Reaction-		Reproduction
	time	Reaction	
blue	10	colour	
lamp	7	to burn	
to sin	22	this idea is totally alien to me, I do not acknowledge it	
bread	10	to eat	
richt	50	money-I don't know	possession
tree	6	nature	green
to prick	9	needle	
pity	12	feeling	
yellow	9	colour	
mountain	8	high	
to die	8	to rot	
salt	15	salty (laughs)-I don't know-NaCl	
newt	15	old-as the opposite	
custom	10	good-barbaric	
to pray	12	deity	
money	10	wealth	
stupid	12	narrow-minded- limited	
exercise-book	10	paper	
to despise	3 ⁰	that is a complicated- <i>too</i> stupid	
finger	8	hand-not only hand, also foot-limb- membre-extremity	
dear	14	to pay (laughs)	
bird	8	to fly	
to fallt	3 ⁰	<i>tomber-I</i> will say no more- what do you mean by to fall?	
book	6	to read	
unjust	8	just	
frog	11	to ~roak	
to part	3 ⁰	what does part mean?	
hunger	10	to eat	
white	12	colour-all sorts of things-the light	
childt	10	little-I did not catch <i>that-bt!bt!</i>	
to pay attention	14	attentive	
pencil	8	to draw-all sorts of things can be drawn	

Stimulus-word	Reaction-time	Reaction	Reproduction
sad	9	to weep--this does not always happen	to be
plum	1 6	to eat a plum--to pick--What do you mean by it? Do you mean it symbolically?	fruit
to marry	27	what can you mean by that? <i>reunion</i> -bond	union, alliance

944 The first thing that strikes us is the fact that many subjects show a marked prolongation of the reaction-time. This would seem to suggest intellectual difficulties--wrongly, however, for we are often dealing with very intelligent people with a good command of language. The factor responsible for this is connected with their feelings. In order to understand this, we must bear in mind that the association experiments investigate not just *one* component of the mind, since no psychological experiment can possibly be concerned with one isolated psychic function; no psychic occurrence is a thing in and by itself but rather the resultant of the entire psychological past. The association experiment, too, is not merely a method for the reproduction of separate word-pairs but a kind of pastime, a conversation between experimenter and subject. In a certain sense it is even more than this. Words are really a kind of shorthand version of actions, situations, and things. When I present the subject with a stimulus-word meaning an action, it is as if I presented him with the action itself and asked him, "How do you feel about it? What's your opinion of it? What would you do in such a situation?" If I were a magician, I should cause the situation corresponding to the stimulus-word to appear in reality and, placing the subject in the centre, I should then study his reactions. Undoubtedly the effect of my stimuluswords would be much more perfect. But as we are not magicians, we must content ourselves with the linguistic surrogates for reality; at the same time we must not forget that the stimulus-word will almost without exception conjure up its corresponding situation. All depends on how the subject reacts to this situation. The word *bride* or *bridegroom* will not evoke a simple reaction in a young girl; but the emerging strong

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FIGS. 1-4. These graphs illustrate the reaction-times in an association experiment on four normal subjects. The height of each column indicates the length of the reaction-time

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FIGS. 5-7. These graphs show the profiles of the reaction-times in hysterical individuals. The lightly cross-hatched columns indicate places where the subject was unable to react (referred to as failures)

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THE ASSOCIATION METHOD

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feeling tones will markedly influence the reaction and even more so if the experimenter is a man. So the subject is often unable to react quickly and smoothly to all stimulus-words. There are certain stimulus-words that denote actions, situations, or things about which the subject is also in reality unable to think quickly and with certainty, and this fact is demonstrated in the association experiments. The example I have just given shows an abundance of long reaction-times and other disturbances. In this case the reaction to the stimulus-words is obviously in some way inhibited—that is, the adaptation to the stimulus-words is disturbed. Stimulus-words are, however, nothing but part of the reality that impinges upon us; in a certain sense someone who shows such disturbances when confronted with stimulus-words is on the whole *inadequately adapted to reality*. Any disease springs from impaired adaptation; thus in our special case we are dealing with something morbid in the psyche, with something either temporarily or permanently pathological. That is, we are dealing with a psychoneurosis, with a functional disturbance of the mind.

945 This rule is, as we shall see later, not without its exceptions.

94⁶ Let us now continue the discussion of the prolonged reaction-times. It often happens that the subject actually finds *no* answer to the stimulus-word. He fails to give any reaction and so for the moment abandons his agreement to follow the original instructions, showing himself incapable of adapting to the experiment. If this phenomenon occurs often in an experiment, it indicates that adaptation is seriously disturbed. I should like to remark that the reasons the subject gives for the refusal are utterly immaterial. Some find that too many ideas suddenly occur to them; others, that too few ideas enter their minds. In most cases, however, the difficulties experienced at first are so much of a deterrent that the subjects actually give up the reaction altogether. Example ■■■ shows a case of hysteria with many failures of reaction.

947 In example 11 we find a characteristic phenomenon: the subject is not content with the terms of the instruction; that is, he is not satisfied with *one* word but reacts with many. He apparently does more and better than the instruction requires, but in so doing he does not fulfil the terms of the instruction. Thus he reacts: *custom / good-barbaric; stupid / narrow-minded-limited*; all sorts of things.

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Stimulus- word	Reaction- time	Reaction	Reproduction
to sing	9	beautiful	
death	15	terrifying	
long*t	4 ⁰	the time, the journey	
shipt			
to pay	11	money	
window	10	big	high
friendly	50	a person	human
to cook	10	soup	
ink	9	black or blue	
angry	—	—	bad
needle	9	to sew	
lamp	14	bright	
to sin			
bread	15	for eating	
rich*t	4 ⁰	good-comfortable	
yellow	18	paper	colour
mountain	10	high	
to die	15	awful	
saltt	25	salty	
new	—	—	good, beautiful
customt			
to pray			
moneyt	35	to buy--one can	
exercise-book	16	to write	
to despiset	22	people	
finger			
dear	12	thing	
bird	12	sings or flies	

* Stimulus-word misunderstood.

t Repetition of stimulus-word.

94⁸ These examples show, first, that many more ideas are added to the reaction-word. The subject is unable to suppress these further ideas. In this way he also pursues a certain tendency that is more clearly expressed in the following reaction: *new / old-as the opposite*. The addition of *as the opposite* hints that the subject needs to add something explanatory or supplementary. This tendency is also shown in the following reaction: *finger / hand-not only hand) also foot-a limb-membreextremity*.

949 Here we have a whole series of additions. It seems as if the reaction were not sufficient for the subject, as if something else

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