

## Volume II: Experimental Researches

**000015 The associations of normal subjects. General experimental procedure. Classification.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 3-39).

In an effort to determine standard reactions of normal people to association stimuli and, in turn, to establish a basis of comparison between normal and mentally disturbed subjects diagnostic word association studies were conducted with known normal subjects. A total of 38 normal Ss were studied to determine their association patterns and to investigate the effects of attention on the associations. Ss were 9 educated men, 14 educated women, 7 uneducated men, and 8 uneducated women, between the ages of 20 and 50, all judged to be normal. The study was limited to associations produced by calling out stimulus words. The 400 stimulus words, 231 nouns, 69 adjectives, 82 verbs, and 18 adverbs and numerals were taken from everyday life. The number of syllables was not taken into account. Care was taken to eliminate any discrepancy between standard German speaking subjects and Swiss German speaking subjects. The research design also attempted to control the differences in education. The study was broken into three segments: 1) measurement of reaction time in the first 200 reactions and description of psychic state; 2) 100 reactions recorded under the condition of internal distraction; and 3) a series, sometimes not carried out until the second day, which observed the effects of external distraction in 100 reactions. Some 300400 word associations were obtained from each S and classified, resulting in about 12,400 associations. Using a schema developed by Aschaffenburg, the results were divided into four main categories, internal associations, external associations, sound reactions, and a miscellaneous classification including indirect associations meaningless reactions, failures, and repetition of the stimulus word. Also noted were the phenomena of perseveration, the egocentric reaction, repetition of the reaction, and linguistic connection. Tables and breakdown patterns of venous associations are appended. 13 references.

**000016 The associations of normal subjects. General experimental procedure. Results obtained from individual subjects. Educated women.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 40-70).

In a study of word associations and attention in 38 normal subjects, 14 educated women comprised one homogeneous study group of known normal subjects. The level of education in the group of educated women was in general very high and most were well read. Their colloquial language was predominantly the Swiss-German dialect. Although the material gathered from 4046 reactions in this group was quantitatively uneven and the results, which are presented individually, differed from subject to subject, certain patterns were observed. Of the six subjects over 30 years old, three showed an average predominance of internal over external association. Of the eight subjects under 30 years old, however, only one showed a predominance of internal association. Of the ten women undergoing distraction experimentation, five were subjected to both internal and external distraction, two to internal distraction only, and three to external distraction only. In four cases, external distraction was successful, and internal distraction in three cases. One case of internal distraction and one case of external distraction were partially successful. Distraction failed in four cases, of which three were of the predicative type, a type that showed an overall resistance to distraction as compared to the other subjects. 5 references.

**000017 The associations of normal subjects. General experimental procedure. Results obtained from individual subjects. Educated men.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 70-101).

In a study of word associations and attention in 38 normal subjects, a group of nine educated men

comprised one homogeneous study group of known normal subjects. The group spoke mainly the Swiss German dialect, ranged from 23 to 47 years of age, and produced 3793 associations. Five Ss were subjected to both internal and external distraction, one underwent internal distraction only, one underwent external distraction only, and two were not subjected to any distraction experiments. Five Ss were also treated for association during fatigue and one was tested for association during a state of drowsiness. Only one S was of the predicative type; a distraction experiment could not be earned out on him. External distraction was successful in two cases and moderately successful in two others. In one case, no definite effect was noted. Internal distraction was successful in four cases; the most characteristic feature was a sharp increase in sound reactions. In one other case, there was no definite result. In three of five cases, the associations obtained in fatigue gave a result similar to that of distraction. The association experiment in drowsiness also yielded results similar to those of a distraction experiment. Under normal conditions, four of the subjects exhibited extensive complex phenomena. It also appeared that a lengthening reaction time indicates that the particular stimulus word has touched upon a feeling toned complex. 2 references.

**000018 The associations of normal subjects. General experimental procedure. Results obtained from individual subjects. Uneducated women.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 101-128).

A group of eight uneducated women comprised one homogeneous group of Ss in a study of association and attention of 38 normal Ss. All were fairly intelligent, ranged in age from 18 to 21, and more than half had attended secondary schools. They produced a total of 2400 associations. Each completed 200 associations under normal conditions and 10() associations under external distraction. The uneducated Ss were not tested under internal distraction conditions. Two Ss were of the predicative type and the distraction experiment failed. One S demonstrated predicate type behavior by not following instructions all the time and another doubled her efforts, making the distraction phase only partially successful. Four Ss showed positive results during the distraction experiment, although this experiment required a much greater effort of them than the same experiment under normal conditions. The uneducated women as a whole showed the least ability to divide their attention. The results show measurable differences between these subjects and both educated women and educated men, the most notable being that sound associations have a lesser role as distraction phenomena in uneducated women than in the educated groups of either sex. There are usually relatively more internal reactions and fewer linguistic motor forms in uneducated than in educated subjects. 1 reference.

**000019 The associations of normal subjects. General experimental procedure. Results obtained from individual subjects. Uneducated men.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 129-137).

Seven uneducated men, comprising one homogeneous group of 38 Ss who took part in a study of associations and attention, were all fairly intelligent, but five of them had had only elementary education. Five of them spoke the Swiss-German dialect. The group produced 2086 associations. As in experiments with uneducated women, only external distraction was used. Five of the Ss were affected by external distraction. Of the two who were predicative types, one was not affected and one showed some reaction to external distraction. In all these Ss, as in the group of uneducated women, sound associations as signs of distraction occurred less than in the educated groups. Two Ss who produced many groupings, few predicates, and many reactions with the same grammatical form also showed a paucity of egocentric reactions and constellations. Two of the uneducated women had shown the same features. The group as a whole was distinguished by the fact that there were few complex constellations. Subjectivity and feelings were less prominent in the uneducated men than in the uneducated women. This difference between the sexes was not demonstrated in the educated Ss. Also noted was the high incidence of erotic complexes among the complexes that were uncovered. Although significant in all Ss, erotic complexes

were highest among the uneducated men.

**000020 The associations of normal subjects. General experimental procedure. Results obtained from individual subjects. Calculations of averages.** In Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 137-196).

The interrelations of venous reactions in a study of associations and attention in four different groups of 38 normal subjects are presented. A number of tables illustrate: 1) results of the experiment under normal conditions; 2) sex differences in the experiment under normal conditions; 3) averages of the distraction experiments; 4) averages of the predicative type under normal conditions and under distraction; and 5) influence of the stimulus word on the reaction. Graphs present the arithmetical means of internal associations, external associations sound reactions and miscellaneous reactions in different groups under varying conditions. Results of the experiment show normal variation under the influence of attention, education, and individual characteristics of the subject. Decrease of attention owing to internal or external factors causes a blunting of the reaction type. Distraction of attention causes additionally an increase of indirect associations. Educated subjects generally showed a blunter reaction type than uneducated subjects, which can be explained by a difference in interpretation of stimulus words, but there was no noticeable difference between educated and uneducated subjects in the degree of division of attention. The most dramatic variations in associations were due to individual differences. No differences between sexes emerged except that in the distraction experiment female subjects appeared less able to divide attention than male subjects. The results also show that the blunting of reaction type in fatigue, alcoholic intoxication, and mania may be attributed to a disturbance of attention. 13 references.

**000021 An analysis of the associations of an epileptic.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 197-220).

The word association reactions of a typical case of epilepsy are analyzed as part of a larger investigation attempting to separate what is specific for epileptic associations from the various types of the normal and from congenital mental deficiency. The case was drawn from studies of 158 patients at the Swiss Asylum for Epileptics in Zurich and the Burgholzli psychiatric clinic, limited to subjects who were not congenitally mentally defective and had not shown signs of epilepsy in early youth. Ss were carefully prepared for the experiments and presented with 200 stimulus words, 75 denoting concrete ideas, 25 denoting abstract ideas, 50 adjectives, and 50 verbs, all drawn from everyday life. One male S had appeared normal until his wife developed a psychosis and died when S was 30. He then began wandering all over Europe, was frequently apprehended for drinking and theft, had been hospitalized for violent manic episodes and delirium, and had fractured his skull nine years before the study took place. The results of the experiment showed some similarities to associations of normal persons, some similarities to associations of imbeciles, and some unique peculiarities. S adapted himself to the of the stimulus word in the same way as normal uneducated subjects, with no superficial word associations. In common with the associations of imbeciles there were associations in sentence form, or the stimulus word was frequently repeated. There was an intense adaptation to the meaning of the stimulus word so that a great number of the associations were explanations, and the reaction times were considerably longer than in normal subjects. They showed the greatest variation only after the critical reaction, which indicates the influence of perseverating emotional charges rather than of particularly difficult words. This case suggests that feeling tone probably sets in later and lasts longer in the epileptic than in normal Ss. 12 references.

**000022 The reaction-time ratio in the association experiment.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 221-271).

The reaction time ratio was analyzed in 26 of 38 normal subjects, male and female, educated and uneducated, participating in a word association experiment. Reaction times that exceeded the probable mean for the S concerned were examined particularly closely. The average reaction time, measured with a stop watch, came out to 1.8 seconds for both educated and uneducated Ss. Males averaged 1.6 seconds, compared to 2.9 seconds for females, and educated Ss averaged 1.5 seconds, compared to 2.0 seconds in the uneducated group. The quality of the stimulus word seemed to exert an influence on reaction time. The average shortest times followed concrete nouns, and the longest times followed abstract nouns and verbs. Educated men were the exception to this rule in that their longest average times followed concrete nouns. The quality of the reaction also seemed to influence reaction time. The longest times occurred with abstract nouns (1.98 seconds) and the shortest times with adjectives and verbs (1.65 seconds). Again, educated men were an exception; their longest time occurring with concrete nouns. The quality of the association also exerted influence. Internal associations required a longer reaction time than external ones. Sound reaction, usually caused by inner distractions, also showed a relatively long reaction time. Long reaction times were usually caused by intense emotions and may have been used to uncover conscious and unconscious complexes, which could be important in hysteria. Sometimes the feeling tone can extend to subsequent reactions. The majority (83%) of prolonged reaction times tended to follow certain stimulus words that have affective value, while only 17% of prolonged reaction times were due to the difficulty of the word. 21 references.

**000023 Experimental observations on the faculty of memory.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 272-287).

A new technique, the reproduction method, was used to identify associations attributable to complexes to determine whether failures of memory are accidental or whether there is a pattern to them. After the completion of an association test the experiment was repeated to find out whether the S remembered how he reacted to individual stimulus words. In two Ss, both male, one aged 32 and undergoing psychoanalytic treatment and one aged 22, an excitable and sensitive person, it was found that the incorrect reproductions of answers to the repeated stimulus words were those that were directly constellated by a feeling toned complex or those that immediately followed a critical one. These disturbances of memory are cases of a general tendency to repress and forget an unpleasant impression. In the case of a 23-year-old hysterical woman, the amnesic blockages extended over many subsequent reactions, and were considered hysterical amnesia. The reproduction method could be very useful in cases where analysis is difficult and in criminology. 7 references.

**000024 Psychoanalysis and association experiments.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 288-317).

The usefulness of the association experiment in psychoanalysis is illustrated in a case of obsessional neurosis. The patient, female, single, 37 years old, an educated, intelligent teacher, wanted to try hypnosis for insomnia. She was extremely nervous and restless, had a tic, and admitted to having obsessional ideas. She felt that a woman neighbor who had died recently had, on S's account, died without the last sacrament and, before that, had been haunted for several years by the fear that a boy whom she, as a governess, had brought up had died because she had occasionally beaten him. When she could not be hypnotized, the association experiment and the reproduction test were used. The mean reaction time of 2.4 very high for an educated person, indicated a strong emotionality. The associations showed that the woman had an erotic complex, which she denied. Gradually, however, she revealed a repressed obsession with sexual fantasies, which was traced back to a childhood sexual trauma. Repressing her sexual obsessions had led to obsessions in other areas in her life. Although S still suffered from insomnia after three weeks of Freudian analysis, she announced several months after treatment that all obsessional ideas had disappeared, and she could now sleep. It is concluded that word associations can be a valuable aid in recognizing the nature of the complex that is the cause of the

illness, facilitating and shortening Freudian psychoanalysis. Once the split-off contents of the mind are released from a repression, they can be destroyed through an effort of the will. The associations also supply scientific insight into the origin and structure of psychogenic neuroses. 7 references.

**000025 The psychological diagnosis of evidence.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 318-352).

Diagnosing criminal cases by studying the psychological makeup of the witness through the word association method is discussed. The historical development of the method is outlined, and the association experiment is described. When stimulus words are called out, a subject's reaction is determined by the individual content of his ideas. A large number of component ideas charged with a feeling tone constitute a complex, which can be identified by reaction content, lengthened reaction time, and memory lapses during the reproduction method, in which the experiment is repeated. The practical application of the association method in criminal cases is illustrated by its use in a case of a young man suspected of theft. Thirty seven critical stimulus words distributed among 63 irrelevant ones produced such suspicious reactions, reaction times, and memory lapses in the reproduction phase that the investigator accused the young man, and S finally confessed. Since it was considered possible that S reacted more strongly than a hardened criminal would have, a control experiment was conducted with an informed subject and an uninformed one. The disappointing results, with symptoms of a complex observed at critical points in both subjects, reveal a fundamental weakness in the experiment: the multiplicity of meanings that the stimulus words can have. Many more than 100 stimulus words should be used. The young man's reactions did, however, show more symptoms of a complex than the controls'. Although the association method should be used only by experts and, until it is further refined, cautiously, it has many possibilities. 9 references.

**000026 Association, dream, and hysterical symptom.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 353-407).

The anomalies of word association in hysteria are illustrated by the case of a 24-year-old girl who was extremely restless, feared madness, and complained of unbearable heat sensations in the head. The symptoms dated from her first menstruation at 15 and superseded chorea that had developed at age 7. S, physically healthy and fairly intelligent, was the youngest child of five. Her mother was completely crippled by osteomalacia. The association experiment was marked by an enormous number of failures, abnormally long reaction times, and other complex constellations showing that she was dominated by a number of complexes, particularly an illness complex, a sexual complex, and a school complex. Since the psychoanalysis was proceeding with difficulty, the patient's dreams were also studied. The dream analysis confirmed the sexual complex, and accompanying blockages revealed by the association test suggested a possible childhood sexual trauma. This erotic complex included some romantic attachment to the therapist, accompanied by a feeling of rejection and denial. The childhood chorea was diagnosed as a hysterical symptom devised to avoid writing lessons and going to school, and the heat sensations were symptomatic of the sexual complex, intensified in S's case by her fear of osteomalacia in pregnancy. Although the patient showed some improvement in treatment, her condition deteriorated after discharge. Effective treatment of hysteria should strengthen what remains of the normal ego, and is best achieved by introducing a new complex to liberate the ego. 5 references.

**000027 The psychopathological significance of the association experiment.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 408-425).

The value to psychopathology of the association experiment, in which the subject says what is immediately called to mind when a stimulus word is called out, lies in the fact that association is a necessary sequence following certain laws. In spite of objections based on the principles of chance and

free will, the work of Kraepelin, Aschaffenburg, and others has empirically established certain patterns and rules. The associations have been divided into internal associations, in which the meaning of the words is the connecting link, and external associations, in which the connecting link is an external contingency. In sound associations the response is a word that sounds like the stimulus word. It has been discovered that the more the attention of the subject decreases, the more the external and sound associations increase. This law is potentially important to understanding psychopathological states, in which the ability to concentrate is often disturbed. The associations are determined by the whole personality and background. Long reaction times indicate feeling toned complexes, found in all normal subjects and very pronounced in psychopathology. In hysterical patients the times of critical reactions are much longer, and the barriers to recollection much stronger than in normal subjects. Two simple examples of the symptomatology of hysteria show that the hysterical patient suffers from a disorder of the affect he has been unable to conquer, and which his conscious mind finds unbearable. The same mechanism is demonstrated in dementia praecox, although other elements are also found in this disease. 13 references.

**000028 Disturbances of reproduction in the association experiment.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 426-438).

Statistics are given to support an earlier, unfinished paper ("Experimental Observations on the Faculty of Memory") introducing the reproduction method, which was repeatedly criticized. The earlier paper maintained that most of a subject's memory failures in attempting to reproduce the original answers given on an association test can be traced to complexes. Although this memory failure had been observed in many cases, it was investigated in only two cases, in which it was particularly pronounced. The material presented from 28 cases is heterogeneous, since only three subjects were normal and the rest were widely varying neurotics and psychotics. The results are similar to those of the first study. A relation is established between incorrect reproduction and prolonged reaction time on the original association. The disturbance is usually correlated directly with a prolonged reaction time, but in some cases it follows a prolonged reaction time. The association that is incorrectly reproduced has, on the average, twice as many complex signs as the correctly reproduced one, including such characteristics as reaction by two or more words if this is not typical for the subject; repetition or misunderstanding of the stimulus word; slips of the tongue; and use of a foreign word. The complex characteristics tend to be grouped around certain specific associations. 3 references.

**000029 The association method.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 439-465).

The association method is described and some of its practical applications are discussed. In the association experiment, the subject gives his immediate response to each of 100 preselected stimulus words. The listed stimulus words represent a mixture of different parts of speech, and are chosen to touch on the complexes that commonly occur. Emotionally charged reactions are revealed by such disturbances as prolonged reaction times, failure to respond, responding with additions, repetition of the stimulus words, and perseveration. The four principal types of associations are: 1) the objective type, with undisturbed reactions; 2) the complex type, showing many disturbances caused by constellations of complexes; 3) the definition type, found chiefly among stupid people; and 4) the predicate type, which usually betrays a deficiency of feeling. In the reproduction test, the stimulus words are repeated and the subject is asked to recall his earlier reactions. Memory lapses are often caused by stimulus words that touch on a feeling toned complex, or that immediately follow critical words. Practical aspects of the association method are illustrated in a case where it was used to detect the real culprit among three nurses suspected of theft. In the interview of the guilty nurse, the critical stimulus words relating to the theft produced the longest reaction times, the most complex characteristics, and the most incorrect reproductions.

**000030 The family constellation.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 466-479).

To investigate theories on the family, the association experiment was applied to 24 families, consisting of 100 subjects, who produced 22,000 associations. The associations were processed according to logical linguistic criteria, and it was found that: 1) relatives tend to show an agreement in reaction type; 2) reaction types of children are closer to those of the mother than those of the father; and 3) marriage seems to change the association type more in women than in men. The similarity of associations of related subjects is often remarkable, as is illustrated in the case of a mother and daughter that demonstrates how unhealthy emotions, understandable and no longer dangerous in a parent, can be transmitted to a child, in whom they can be dangerous. The strongest influences on a child are the unconscious personal affective states of his parents and teachers. Other cases show how lives and marriages that are founded on too strong an attachment to the parents can be crippled through neuroses, so that the child remains imprisoned in infantile relationships. One of the most important aims of education should be to free the growing child from his unconscious attachment to the influences of his early environment so that he may keep what is valuable and reject what is not. The need for additional research into children's emotional processes, about which not enough is known, is stressed.

**000031 On the psychophysical relations of the association experiment.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 483-491).

The galvanic phenomenon, reported by Dr. Veraguth of Zurich, which he called the "galvanopsychophysical reflex", and its use in validating the results of the association experiment are discussed. A galvanometer was introduced into the circuit of a 2 volt current passed through the human body. It was found that a stimulus applied to the subject would cause an increase in the current. The increase was related not to the strength of the stimulus, but to the intensity of the resulting feeling tone, and appeared not at the moment the stimulus was perceived, but after a latent period of 1-6 seconds. Veraguth concluded that in this experiment feelings were objectively represented. A specially designed apparatus can record long curves to represent feeling tones aroused by the association experiment. An example shows how strong feeling tones that accompany an association cause characteristic and regular disturbances in the association processes, but the method of interpreting the disturbances is still not scientifically developed. The "galvanopsychophysical reflex" may be a means to help define the complex and its feeling tone. Graphic representations of galvanic oscillations during two association experiments produced distinct curves that showed strong feeling tones corresponding to disturbances in association reactions 2 references.

**000032 Psychophysical investigations with the galvanometer and pneumograph in normal and insane individuals.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 492-553).

Galvanometric and pneumographic curves recorded simultaneously on the kymograph under the influence of various sensory and psychical stimuli were studied to evaluate the "psychophysical galvanic reflex" and the respiratory innervation curve as records of psychical changes; to determine their normal and pathological variations; and to compare these curves. In word associations the reaction time was also recorded. Forty series of curves were recorded in eight normal subjects, and 30 in 11 cases of dementia praecox of different types. In normal subjects it was found that every stimulus accompanied by an emotion caused a rise in the electric curve directly proportional to the intensity and actuality of the emotion. The information gathered from the pneumograph curves in both normal and pathological cases was inconclusive, but it appeared that there was very little relationship between the galvanometric and pneumographic curves, other than an inverse one. Inhibitions in breathing were caused by expectation and tension rather than by the unconscious emotions that register strongly on the galvanometer. The

galvanometer curves in the dementia praecox patients included some that were very labile and some that were similar to curves in normal subjects. Some catatonic patients hardly registered at all and their period of latency was markedly protracted. Word associations in normal subjects, carried out with only four subjects, showed that there was a relationship between length of reaction time and height of the galvanometer curve, and between altered reproductions and height of the galvanometer curve. These relationships support the hypothesis that long reaction times and altered reproductions are affective phenomena. Only two of the dementia praecox patients could be tested with associations. There was nothing unusual in their galvanometer curves during the association experiment, but they both showed abnormal associations, lengthened reaction times, numerous complex constellations, and an abnormal number of altered reproductions. It is concluded that the thought mechanisms in dementia praecox are probably not pathological, but that the abnormality is in the patient's reaction to his complexes. 16 references.

**000033 Further investigations on the galvanic phenomenon and respiration in normal and insane individuals.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 554-580).

A series of simple physical and mental stimuli was administered to 15 normal subjects and 61 patients suffering from various mental diseases to determine effects on the galvanic phenomenon and on respiration. The galvanometric changes were recorded by a galvanometer introduced into the circuit of a low volt current passed through the body; the respiration was recorded by pneumograph. In many of the abnormal Ss, however, the pneumograph could not be used. These experiments indicate the following: the galvanic reaction depends on attention to the stimulus and the ability to associate it with previous occurrences; this association may be conscious, but is usually unconscious. Galvanic reactions show great individual variation and, within some limits, are independent of the original bodily resistance. In these experiments physical stimuli caused greater galvanic fluctuations than psychological ones, which may have been due to the fact that the physical stimuli occurred earlier in the experiment. Early stimuli usually cause stronger reactions than later ones because of the elements of tension and expectation. Normal reactions vary widely, but are nearly always stronger than pathological ones. Galvanic reactions are low in depression and stupor because of poor attention and inhibition of associations, and are virtually nonexistent in dementia because of lack of associations. Reactions are high in alcoholism and in the euphoric stage of general paralysis. From the pneumographic measurements, it was concluded that the inspiratory rate varies from individual to individual. There is usually a decrease in the amplitude of the inspirations during the rise of the galvanic curve. This decrease varies according to the subject, however, and has no relation to the height of the galvanic curve. In cases of dementia in which there is no galvanic reaction, there are respiratory changes, but they are very slight. 1 reference.

**000034 Statistical details of enlistment.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 583-585).

Observation of an enlistment of Swiss military recruits revealed a high percentage of them who were mentally or emotionally handicapped or otherwise medically unfit for military service; in fact, fewer than half were considered fit. Of 506 men examined, 47 (9.2%) most of whom were from rural areas, were patently imbecile. Many alcoholics were found among the even higher number of recruits who were physically unfit. Of 78 men between the ages of 20 and 30, 10 (12.9%) were discharged for chronic alcoholism, although such cases are usually classified under various medical euphemisms. A comparison of homes of record revealed a preponderance of mental and emotional deficient, alcoholics and recruits with a variety of personality disorders came from rural rather than urban localities.

**000035 New aspects of criminal psychology: contribution to the method used for psychological**



**diagnosis of evidence.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 586-596).

The applicability of the association experiment to the psychological diagnosis of a crime is examined. A hypothetical case shows how a culprit can be identified from a number of suspects by elements in his reactions to critical stimulus words that reveal the influence of a feeling toned complex. These characteristics include: prolonged reaction time in the critical reaction or in the one immediately following; reaction with two or more words, if this is not usual for the subject; repetition of the stimulus word; failure to react; lapsus linguae, etc. Measuring oscillations of body resistance to galvanic current has lent experimental support to identifying these deviations as complex characteristics. The experiment will not provide proof of guilt, but may point the way to future investigative procedure. An analysis of a case in which three nurses were suspected of theft demonstrates the successful use of the association experiment in identifying the guilty nurse by her reactions to critical stimulus words: prolonged reactions, numerous complex characteristics, and incorrect reproductions. 4 references .

**000036 The psychological methods of investigation used in the psychiatric clinic of the University of Zurich.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 597).

Diagnostic tests used in the psychiatric clinic of the University of Zurich, noted in outline form, consist of the following: 1) Rapidity of apperception: short exposure of simple pictures; 2) working through psychological material and fidelity of reproduction: retelling three fables, the first containing two simple similar situations that differ in one important nuance, the second similar, but more complicated, and the third similar, but containing a whole series of similar situations; 3) fatigability of the will: Kraepelin's method of reckoning; 4) emotionally charged contents ("complexes"): Jung's association method; and 5) psychogenic mechanism and symptom determination: Freud's psychoanalytic method.

**000037 On the doctrine of complexes.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 598-604).

Theoretical views on the neuroses and dementia praecox, founded on results of the association experiment, are summarized. When a subject gives an answer to each of a series of stimulus words, occasional delayed reactions and other disturbances such as slips of the tongue, repetition of the word, etc. occur that indicate emotional excitement. These disturbances often refer to a distressing personal matter called a complex. A pathogenic complex, usually psychosexual, is the basis of neuroses. The association experiment and the reproduction method, in which memory lapses often occur where the complexes interfered originally, are useful in diagnosis. Complex associations are either obsessively stable or disappear from the memory altogether. The psychogenic complex is autonomous and can temporarily replace the ego, possessing all the characteristics of a separate personality, and acting in opposition to the individual's conscious will. Symptoms of hysteria originate from these conflicts. In spite of objections from some quarters, dementia praecox is also defined as a complex disease. In hysteria there is usually a continuous accommodation to the surroundings, but in dementia praecox the complexes are fixed. Thought processes do not cease in dementia, but continue in fantasy form. Previous works on these subjects are cited.

**000038 On the psychological diagnosis of evidence: the evidence-experiment in the Naf trial.** In: Jung, C., *Collected Works of C. G. Jung*, Vol. 2. Princeton University Press, 1973. 649 p. (p. 605-614).

An evidence examination was carried out on a subject accused of a crime to detect a possible guilt or innocence complex. In an association experiment lasting more than three hours, S was given 407

stimulus words, 271 neutral, 96 referring to the evidence, and 40 personal and emotional words selected to determine his emotional makeup. Stimulus words referring to emotionally charged contents evoke disturbances such as delayed reaction time, repetition of the stimulus word, failure to respond, slips of the tongue, perseveration, defective reproduction, etc. In this case, stimulus words taken from the evidence produced prolonged reaction times, disturbing influence on the memory, and four times as many complex characteristics as the neutral stimuli. When the evidence is well known to a subject, it is natural for him to react to critical stimulus words, but an innocent person will not react particularly strongly to words referring to concrete details. In this case, S reacted more strongly to words referring to distinctive details of the evidence than to the more general evidence stimulus words. In the opinion of the expert, the subject's reactions were not those of an innocent person, but the assessment of his signs as revealing a guilty conscience was left to the judge.