

9692

A METHODOLOGICAL STUDY OF DREAMS.

A Thesis

submitted to the faculty

of

THE GRADUATE SCHOOL

OF THE UNIVERSITY OF MINNESOTA

by

Anna Adelaide Smart,

In partial fulfilment of the requirements for the

degree of Master Of Arts.

UNIVERSITY OF
MINNESOTA
1914.
LIBRARY

169601

Nov 20 1914

TABLE OF CONTENTS.

CHAPTER 1. History Of The Experimental Investigation Of Dreams-----pp 1- 47.

CHAPTER 11. Methods Experimentally Studied-----pp 1- 79.

 Methods Based On Association----- " 1- 49.

 Methods Based On Memory----- " 49- 73.

 Methods Based On Suggestion----- " 73- 79.

R E P O R T
of
C O M M I T T E E O N T H E S I S

THE undersigned, acting as a committee of
the Graduate School, have read the accompanying
thesis submitted by Miss Anna Adelaide Smart
for the degree of Master of Arts.
They approve it as a thesis meeting the require-
ments of the Graduate School of the University of
Minnesota, and recommend that it be accepted in
partial fulfillment of the requirements for the
degree of Master of Arts.

Norman Wilde

Chairman

Dr. Anderson

Herbert Woodrow

June 5 1914

Chapter 1.

HISTORY.

In making a survey of dream-literature, it is surprising to find how little of all the time and effort that has gone into studies of the dream-consciousness has been given over to experimental investigations. Of the vast bibliography, with which one who wishes thoroughly to inform himself of the history of the subject must be conversant,--a bibliography which includes works in at least five modern and two classic languages--not more than a tenth concerns itself with experimental method. Of course, the fact that a pre-occupation with the problems of dreams goes back to a date much earlier than the beginnings of the experimental method in psychology, accounts, in part, for this situation. As long ago as Aristotle's time philosophers were interesting themselves in the phenomena of sleep and dreams. But even when the survey begins at a date recent enough to fall well within the experimental era, the paucity of exact, experimental investiga-

tion of the subject is noteworthy. "The phenomenon of dreaming", says Galkins, in her introduction to a statistical study of dreams made in 1892, "has rarely been discussed or investigated in a thorough and in an experimental manner; of description, of theory, of discussion, of poetical analogy there has been no end; of accurate observation, almost nothing". The case is scarcely better today.

In the historical résumé which will be given in the present chapter, no attempt will be made to cover the whole range of dream-literature; the material presented will be limited to those portions of the literature that have concerned themselves with experimental investigations of the dream-consciousness. An excellent account of the wider literature, arranged according to themes, is to be found in the first chapter of Sigmund Freud's epoch-making book, "The Interpretation of Dreams."¹ A part of the material here discussed will be identical with material in this wider history, but will be considered from quite a different view-point, my interest

1. Sigmund Freud.. Die Traumdeutung, 1st edition 1899, 2nd edition 1908, 3rd edition 1911. "The Interpretation of Dreams". Trans. by Brill.

3.

being primarily methods, while Freud's emphasis was mainly on theory.

In the present resume I shall take up the work as far as possible in its chronological order, with a view to showing the progress, if any, that has been made toward the working out of adequate experimental methods. The investigations to be reviewed fall naturally into two well-defined main divisions; namely, experimental investigations of the dream-consciousness that do not depend on the Freudian method of psycho-analysis, and experimental methods depending upon or directly connected with the Freudian method. As the work of Freud is of comparatively recent date, the history of non-Freudian methods will be reviewed first.

The earliest attempt at experimental study, of which I have been able to find a record, is that of Maury¹ (1878), whose work on the problems of dreams has become a classic, although of late there has been a growing tendency to reject most of its conclusions as drawn from insufficient or doubtful data. Having been

1. Maury, A. Le Sommeil et les Rêves. Paris, 1878.

unable to obtain a copy of Maury's book itself, I shall be compelled to content myself with the short account given of it in Freud's ^{1.} history. The experiments there reported were attempts to produce dreams artificially in the sleeping subject by giving the subject sensory stimuli of an intensity great enough to produce dreams corresponding to the stimuli, but not of so great an intensity as to awaken him. A number of attempts produced no results, but what proportion of the total number of attempts were thus unsuccessful I am unable to discover. If Maury gives the data, Freud has not reported it. The importance of this information to an understanding of the experiment is obvious. In the attempts that were found to have been successful in inducing dreams corresponding to the stimuli, the stimuli used were visual, auditory, tactual, olfactory and thermal. These stimuli were variously produced: the subject was tickled with a feather on his lips and on the

1. Sigmund Freud. "Traumdeutung" 3rd edit. Eng Trans. p.19.

top of his nose, near him scissors were sharpened on pincers, cologne water was put on his nose, his neck was lightly pinched, a hot iron was brought near his face, a drop of water was let fall on his forehead, and a burning candle was repeatedly focussed upon him through red paper. Whether this method involved serious difficulties or not, and if it did, what these difficulties were, does not appear from Freud's account of Maury's work. We must, however, strongly suspect that a complete record of the course of the investigation would show that serious difficulties were encountered, especially in the light of the reports of similar investigations made later by Andrews^{1.} and others.

The study of dreams which Nelson^{2.} published in 1887 was an attempt to show the relation between dreams and certain physiological phenomena.

"There is some reference to the artificial control of dreaming, but no discussion of the method of

1. G.A.Andrews. "Studies of the Dream Consciousness".

Amer. Journ. of Psychol. 12. pp 131-134.

2. Julius Nelson. "A Study of Dreams". Am. J. of Psychol.

I. p.385.

such control, and no scientific data offered to show whether control of dreaming is possible or not. The greater part of the paper is taken up with description of methods of gathering data for the investigation, and with the construction from this data of tables showing the relation of the total amount dreamed daily, measured by the total number of words in the dream record of each day, to the human sexual cycle, whose climax is marked in the female by the menstrual period, and in the male, Nelson contends, by a regular period marked by "a feeling of discomfort general and inexpressible, a tendency to melancholy, indolence of the intellectual faculties and an unusual degree of irascibility". He finds that "in the monthly period the variation in the dream-curve is parallel to that of the sex curve." It is interesting to note that in this piece of work done fully twelve years before the publication of the first edition of the "Traumdeutung", Freud's central contention of the intimate connection between dream-phenomena and the phenomena of sex seems

to have been fore-shadowed.

In 1889 appeared Friedrich Heerwagen's statistical study of dreams and sleep.¹ The work was done at the University of Leipzig under Prof. Kraepelin. This writer appears to have been the first to make extensive use of the statistical method as a means for study of dreams. In view of the fact that Heerwagen's conclusions were drawn from data collected by means of a questionnaire, and also in view of the further fact that the questionnaire method has since occasionally been used in the study of dreams, it may be well to consider here the value of the questionnaire method in general, and especially as an experimental method for the study of dreams. For the further purposes of the present discussion a description of the method as employed by Heerwagen, and the conclusions obtained will be sufficient.

1. Friedrich Heerwagen. Statistische Untersuchung über
Traume und Schlaf. Wundt's Philosophische Studien. V. p.88.

The fact that experimenter and subject are so widely separated geographically as to make impossible any personal communication, causes the chief sources of error incidental to the questionnaire method. They are the following:

1. Chances of ambiguities in the wording of the questionnaire itself. Heerwagen reports a case in point, an instance of a question so ambiguously worded that the whole mass of returns to that particular question had to be thrown aside, as not covering the point intended.

2. Chances of misunderstanding of the questionnaire by the subject; By which I refer, not to misunderstandings arising from the wording of the questionnaire, but to those arising from some incorrect reading of it by a careless subject. The worst feature of the difficulty is that the mistaken nature of the answer may not be apparent to the experimenter, as it often is in the case of an ambiguity in the questionnaire, where a number of replies have all been made on the basis of

the same mistaken interpretation of what was required.

3. Chances of the subject's giving incorrect or only roughly correct and accurate introspections. Here is, of course, a great source of error. When the replies to questions asked must be made, as they must often be made, from the data of retrospection, rather than from that of immediate introspection, immense probabilities of error arise. Even with the best-trained and most interested and careful observers such error cannot be wholly obviated, and with less-trained and less intensely interested observers the probability rises almost to certainty.

4. Chances of misunderstanding of the subject's replies by the experimenter. The possibilities of ambiguous writing are obviously not all with the experimenter. The subject, being usually much less accustomed to expressing himself with exactitude, often makes his reply in equivocal terms.

For the study made by Heerwagen five hundred questionnaires were sent out, of which four hundred and

2.

six were returned more or less completely answered. The persons whose replies were used in compiling the statistics were divided into three principal groups; - (I) Persons of the male sex, with the exception of students, 113 persons; (II) Students, 115 persons; (III) Persons of the female sex, 142 persons. The questions to be answered were also separated into three principal headings under the captions; (I) Dreams, (II) Sleep and (III) Work, Nervous Disposition and Temperament.

Under division (I) were asked the following questions--

- I. Do you dream every night, often, seldom or never?
- II. Are your dreams very vivid?
- III. Is it possible for you fully to recall the content of your dreams after awakening?

Under (II) Sleep--

- I. At what hour are you accustomed to go to bed?
- II. At what hour are you accustomed to rise?
- III. Are you still tired after wakening in the morning? Do you become tired early in the evening?
- IV. About how much time do you need for going to sleep?

V. Do you sleep through the entire night without wakening?

VI. Is your sleep deep or light? Is it hard or easy to awaken you?

VII. Can you go to sleep whenever you wish during the day?

VIII. Are you accustomed to sleep during the course of the day?

Under (III) Work, Nervous Disposition, Temperament--

I. At what period of the day is mental work easiest for you?

II. Of what sort is this work?

III. Do you suffer at the present time from any nervous trouble?

IV. What is your temperament? Sanguine, choleric, phlegmatic, melancholic? (This question will be best answered by a near relative or close acquaintance.)

Heerwagen reports that in order to arrange

the returns for almost any one of the questions so that they should be usable for statistical purposes, considerable interpretation on the part of the experimenter of the received answers was necessary. For example, the answers to question 11 under the first heading, "Dreams"; i.e. Are your dreams very vivid? were mostly neither an unqualified "yes" nor an unqualified "no", but much more frequently such qualified statements as "almost always", "mostly", "seldom", "usually not", etc. In such a case "almost always", "mostly" were included by Heerwagen under the rubric "yes", and "usually not", "seldom", etc. under "no". Other questions presented still greater difficulties of interpretation, such, for instance, as question 14, under the second heading "Sleep", i.e. About how much sleep do you find necessary? "This question," says Heerwagen "will raise a suspicion in the reader with respect to the possibility of a correct reply. I myself do not maintain that the assigned numbers on the average represent the actual times sought for. The great mass of numbers will be, as I think, too large.

But since I only wished to make certain whether one group of persons would need rather more sleep than another, the answers received will be found useful for this purpose". In the case of question 11, under Work, Nervous Disposition and Temperament, the whole mass of returns had to be thrown aside, as the question proved to have been unsuitably formulated, and its meaning differently interpreted in the different replies. Heerwagen seems to have been exceedingly cautious in the use of his data, but it can readily be understood that results obtained from such material as that just described can be accepted only as holding within certain wide limits, and in the complete absence of results from more exact methods.

The author comes to the following definite conclusions:

1. That there exists a far-reaching difference between the sexes with respect especially to the vividness of dreams and the depth of sleep.

- a. "Women" he finds "have, in general, a very much

14.
lighter type of sleep than men, and dream very much oftener".

b. With respect to the ability to recollect dreams, the group of Students hold a middle position between the men and the women, the women being best able to recall, and the men least.

c. The vividness of dreams is, like the frequency, greater with the group of students than with the men, and greatest with the women.

d. Women, in general, need more sleep than men.

11. That nevertheless there exist certain uniformities between the sexes in the matter of dreams and sleep.

a. The dreams (of both sexes) are more vivid in light than in heavy sleep.

b. The time necessary for going to sleep is about alike for the three groups.

Other conclusions than those concerning the differences between the sexes are the following:

a. Dreams are more frequent with those who sleep lightly than with those who sleep heavily, nevertheless, with the approach of age dreams become fewer, though

15.
sleep is lighter. In general the frequency of dreams, which in childhood was slight, grows greater rapidly with age, reaches a maximum in the years between twenty and twenty-five, and after that falls off again.

b. In general everywhere the vividness of dreams shows itself closely connected with their frequency, while the greater depth of sleep conditions only a proportionally insignificant decrease of their vividness.

c. Persons who dream often are better able to remember their dreams than those who dream seldom. This may, however, be due in part to the fact that many people probably reported that they seldom dream, meant simply that they could seldom remember their dreams.

d. The dreams of persons who sleep lightly are better remembered than those of persons who sleep deeply.

A questionnaire method of a much less formal
1.
variety was that used by Yves Delage in 1891 for his
"Essai sur la Theorie du Reve". As far as one can

1. Yves Delage, Essai Sur La Theorie Du Reve. Revue
Scientifique, July 1891. pp 40-48.

6.

judge from the account the author gives, no written list of questions was circulated, but he himself made personal inquiry among his friends and acquaintances, whose replies he carefully noted. Of his method, he himself says, "The attempt to gather documents upon this subject is delicate, and demands prudence and tact. When interrogated certain persons will affirm, without seriously consulting their memory, what seems most natural to them, and it then costs their pride something to deny it. Others, less anxious to be truthful than to excite admiration by posing as men, more often as women, of a lively sensibility, affirm what seems most likely to impress the hearer, through not understanding, perhaps, all the importance of the question. On the other hand, one fears to lay to the account of small inaccuracies of this sort all responses contrary to the rule. To obtain useful documents one must address persons known to be of a reflective turn of mind and accustomed to examine questions impartially, and one must see to it that they understand all the importance which attaches

to the questions." Miss. Calkins calls the Delage study "a report of accurate observation", but the method as a rather inaccurate form of the inaccurate questionnaire method, scarcely merits the use of such terms.

Although purporting to be experimental in method, a large part of the essay regards theory only, and it is, indeed, rather with dream-explanation than with dream-description that Delage is chiefly concerned.

His four principal conclusions, however, are worth our notice, since they serve to reinforce the theory of Robert,^{1.} advanced in 1886, to which we shall have occasion to refer in connection with methods covered in the second chapter. The conclusions follow:

1. As a general rule, the ideas which have obsessed the mind during waking life do not return in dreams.

2. An impression has so much the better chance to provoke a dream as it has been less conscious and more vivid.

1. Robert, W. Der Traum Als Naturnotwendigkeit Erklart.
1886.

3. Among the things which have vividly impressed us, the sad rather than the gay return in dreams.

4. It is necessary, in order that an idea or an impression shall return in a dream, that the attention shall not have been fatigued at the moment of the perception. It must be captured in spite of itself, not constrained by the will to fixate itself.

^{1.}
The work of Calkins in the statistical study of dreams published in 1892 affords interesting material for a comparison, both as to method and results, with the somewhat similar study of Heerwagen already reported. Miss Calkins gathered her material not by means of a questionnaire sent out to a large number of people so scattered as to be outside the personal reach of the experimenter, but from records of dreams kept carefully for six or eight weeks by only two persons, the experimenter herself and one other person with whom she was in daily contact, and whose methods of making dream-descriptions she might to some extent control. The Calkins investigation, although tabulated from the observations of

1. Calkins, C.A. Statistics of Dreams. Amer. J. of Psychol. 5. pp. 311-343.

9.

disproportionally fewer subjects, covers the field of dream problems in a much more thorough and exhaustive fashion than the earlier study, and takes better account, in the interpretation of results, of the disadvantages peculiar to the method employed. "(The) method", she says, "was very simple: to record each night, immediately after waking from a dream, every remembered feature of it." --- "It will be well", she adds, "to indicate some of the difficulties". The chief difficulty she finds is that of recalling the dreams. "Sometimes the slight movement of reaching for paper and pencil seems to dissipate the dream-memory, and one is left with the tantalizing consciousness of having lived through an interesting dream-experience, of which one has not the faintest memory, yet to delay until morning the record of a dream, so vivid that one feels sure of remembering it, is usually a fatal error". There is also the difficulty of an exhaustive enumeration of the peculiarities of a dream, and "of any positive conclusions from the figures of such tabular views".

40

as will be offered". --- At the best, one may discuss only dreams as remembered. "The power of recollection," she adds, "varies widely with age, temperament, health and other conditions. Moreover, the very effort to record may well tend toward an increase of the number of dreams." --- "Finally, the student of dreams is in danger of reading into his dream much that is characteristic of the waking consciousness, something as one interprets an animal's actions by one's own." The wide methodological difference just summarized between Calkins and the Heerwagen studies just summarized conditions as wide differences in the sort of results obtained. In the latter the main conclusions are such as bear upon the differences between the sexes and various age-periods, in the matter of amount and vividness of dreaming. The results obtained by Calkins do not touch upon sex or age differences, put less emphasis upon one or two selected aspects of the problem, and cover a much greater variety of debated points.

With respect to the differences in dreaming

with different periods of the night, and with the depth of sleep, the results of the two investigations are slightly different. Just how vital this difference is, however, it is hard to say, considering a very real and very pregnant confusion into which both writers fall in the collection and interpretation of their data. This confusion shows itself under two aspects: first, a neglect to distinguish clearly between a characteristic of dreams--which I will call, for brevity and convenience, their "memorability"--and their vividness; and second, a failure to see the difference between "memorability" and frequency. I should hardly consider it worth while, for my present purposes, to go into this confusion, in an attempt to make clear the neglect of distinctions which makes it possible, if the matter were one merely of results. Methodologically, however, the distinctions are important, and will repay careful treatment.

How, then, does the "memorability" of the dream differ from its vividness? Once we have

clearly formulated the question, the answer is not far to seek. Calkins, in her résumé of the difficulties of dream-study, seems for the moment to have been clearly aware of this difference. "To delay", she says, "till morning, the record of a dream so vivid that one feels sure of remembering it, is usually a fatal error." Yet, later, in drawing conclusions from her data she makes the remark that "the degree to which a dream is recalled" serves as "a convenient, though not an absolute test of the vividness of the dream." It needs only a little careful observation of one's own dreams to show that in many cases, where there is recollection of the occurrence of a vivid dream-experience, there remains in the memory absolutely no vestige whatever of the content of the dream. I doubt whether vividness can be tested by means of any other dream-characteristic, and am strongly convinced that as direct and firsthand a report can be made of the vividness characteristic of dreams as of the characteristic of memorability.

"Memorability" and frequency can be quite as sharply distinguished. Here Heerwagen comes close to

23.

feeling the danger of confusion when he says, a propos of the differences between the ability to remember their dreams of persons who dream often and those who dream seldom, that "many people probably reported that they seldom dream, when they meant simply that they can seldom remember their dreams." But even this distinction is slightly beside the point. Calkins hits the center of the target when she cautions the experimenter against supposing that he studies dreams where he really studies only "dreams as remembered". In her case, the apparent confusion in the drawing of conclusions concerning the frequency of dreams is not a real confusion, but arises simply from her neglect to state clearly that she means, not frequency of dreams, but frequency of remembered dreams.

Heerwagen's conclusions in the matter of the depth of sleep and differences in dreaming, follow:
As regards vividness--

1. Dreams are more vivid in light than in heavy sleep.

4

11. The greater depth of sleep, however, conditions only an insignificant decrease of their vividness, compared with the decrease in vividness conditioned by decrease of frequency.

As regards frequency--

1. Dreams are more frequent with those who sleep lightly than with those who sleep deeply;--and the further conclusion, which in the light of the fore-going discussion can be seen to need careful interpretation;

11. The dreams of persons who sleep lightly are better remembered than those of persons who sleep deeply.

The conclusions reached by Calkins can be more briefly summed up:

As to frequency--

Most of our dreams occur in light sleep. (That is, dreams are more frequent in light than in heavy sleep) But the sleep of the middle of the night is in no sense a dreamless sleep.

As to vividness--

No classification of dreams was made on the sole

5

basis of vividness, as dreams were judged vivid in proportion as they were well or ill remembered.

Besides the conclusions that are comparable with those of Heerwagen, Calkins' results cover a field left untouched in the previous work. She believes she has established a close connection between the dream-life and the waking-life, and the "essential congruity" of the former with the latter. In only 11% of the dreams studied is it impossible to discover such connection. She verifies the tendency of the unimportant events in our waking life to reappear in our dreams. But she finds it impossible to calculate accurately the influence of the time of a dream upon the degree to which it is associated with the waking experience.

As to the material of dreams, a very small proportion, she finds, can be shown to include any sense perceptions. With respect to imagery, there is a striking preponderance of visual imagery. Word-dreams are very frequent, the words being spoken, heard,

6.

read and sometimes written.

Dreams are found to abound in instances of false memory.

Real thought occurs in dreams.

The emotional quality of dreams varies greatly with different persons and with different conditions.

On one of the points covered by Calkins in the work just reviewed, the study by E. B. Titchener, published a year later, offers interesting comparison.

Titchener's experiments concerned themselves with the attempt to produce dreams artificially by auto-suggestion. Every precaution was taken to avoid the occurrence of "presentative", that is, peripherally

aroused dreams. The mouth was thoroughly washed out,

nights were chosen for the work when there was no indigestion, etc. On two out of three nights, the

attempt was unsuccessful. On the third night a "perfectly good taste" dream occurred. A report of a

second such dream was transmitted to him by another observer. Later three different observers sent records

of dreams of tasting that were not, as far as they could

27.
make out, of the "presentative" type, but were not auto-suggested.

Unlike Calkins, who finds that "a very small proportion of dreams can be found to include sense-perception", Titchener concludes that "the influence of external stimuli upon the course of dreaming is probably universal.

Weed, Hallam and Phinney followed closely the lines of the earlier Calkins study in their "Study of the Dream-consciousness". (1895) The work was undertaken as a sort of check upon the results previously obtained. On this account only such results as either confirmed or contradicted those of Calkins were reported. Rather more cases of peripherally aroused dreams were reported in these than in the Calkins results, and in nearly one-third of the cases the presentation was experimentally induced. However, with all of the observers, dream-imagery is found to occur far more often than dream-perception.

The existence of a connection between the

dream and the waking life, which Calkins had asserted is here confirmed. On the other hand, aesthetic enjoyment, of which Calkins found no trace in the dreams she studied, made itself evident in these dream-experiences. Miss Calkins' assertion that "the sleep of the middle of the night is in no sense a dreamless sleep," is substantiated, as is the assertion that paramnesia is common. "Explicit reasoning and thinking have occurred so certainly in the dreams of all the subjects that it is possible to deny dogmatically the frequent statement that dreams are characterized by the entire absence of thought."

In connection with a larger piece of experimental work on enforced insomnia and its physiological and psychological effects, Patrick and Gilbert (1896) give descriptions of rough experiments made by them on the conditioning of dreams by the depth of sleep. Their results "confirm the opinion that dreams are the product of light sleep, representing, indeed, the reinstatement of consciousness after the early and profound sleep. They allowed their subjects, who were

9.

at the end of a sleep-fast of about ninety hours, to sit with head supported behind, and to sleep for periods of thirty seconds, one minute, three minutes, etc., then awakening them and asking for their dreams. No dreams were obtained in any case. If the period was less than one minute, the subject sometimes had a hazy memory of something like a dream, which could not be put into words. If the sleep was longer, it was apparently profound and dreamless. The Gilbert-Patrick dream-experimentation was not the main purpose of the investigation as undertaken and the results are admittedly based on a very small number of observations.

In 1899 there appeared a book on dreams that was, within a few years after its publication, to revolutionize all the methods of dream-study. It was Sigmund Freud's book "The Interpretation of Dreams" (Die Traumdeutung). No student of the dream-state can afford to ignore the Freudian theory and method, whatever he may think of its validity. Connected

0.

as the theory was, so closely with the theory of hysteria and other psycho-pathological conditions, the interest the work aroused was not confined to psychologists, and specialists in the field of dream-study, but was extended to the whole medical profession. Many and bitter have been the wars waged over Freud's central contention, as over the details of his method. We shall now pause to see what his theory is, and to make a brief survey of the method. I can do no better than to quote at this point the resume of the cardinal points in the Freudian theory given by Maeder. (I translate from the French of the "Essai d'Interpretation de Quelques Reves".) "The dream is not the product of a disordered mental activity, but rather the result of two antagonistic forces; the compromise between a desire, almost always repressed, unknown to consciousness in the waking state, but tending to realize itself, and a censor that arrests its passage so as to modify it according to its exigencies. The modifications imposed by the censor disfigure the dream. (Deformation of the dream). We must distin-

31.

guish from the dream itself as we know it, the material of the dream, --infinitely richer than the content of the dream, a material which one may obtain by letting the dreamer associate over all the elements of the dream taken successively. The analysis consists in bringing to light this material from which one may draw the dream's interpretation. The dream is a translation, so to speak, from a comprehensible language (the material) into another which is not comprehensible without analysis. The processes utilized for the deformation, which is the most important work (whence the name 'the elaboration of the dream'), are essentially condensation, transposition or displacement, and dramatization.

CONDENSATION is the fusion of strange elements, having some common point, into one.

DISPLACEMENT or TRANSFERENCE is the transference of the interest from the ideas with an emotional coefficient to those which are indifferent.

DRAMATIZATION is the transformation of an idea

32.
into a situation. - - -

One may distinguish three types of dreams:

1. Those which are the manifest realization, not veiled, of an unrepressed desire: Infantile type; Sometimes found among adults.

2. Dreams which are the veiled realization of a latent and repressed desire. These dreams are the most frequent.

3. Dreams that represent the poorly veiled representation of a repressed desire.

Detailed criticism of "The Interpretation of Dreams" I shall reserve for my second chapter. A word may, however, very properly be said in this connection as to the value in general of the material given in the book. Freudians maintain that "The Interpretation of Dreams" is the fountain-head of knowledge for those who would form a critical appreciation of the merits of the Freudian hypothesis and method. This, the book very certainly is not. In the whole length of the four hundred and eighty odd

pages of the English translation, not one dream is handled in a really exhaustive fashion, so as to show the whole course of the psycho-analysis, the sort and amount of questioning by the experimenter that was necessary to the discovery of the meaning of the dream's symbolism, etc. The only dreams of normal persons that are reported are a few of the author's own, and these are made almost impossible to follow by the omission of important parts of the interpretation.

1.

Andrews, in 1900, adapted to her needs and used the text devised by Monroe for artificially produced dreams. Visual sensations only were used. The materials were small squares of colored glass, four by four inches, green and red, illuminated from behind. Similar squares of colored paper were also used, and two simple colored lithographs, one of a mounted horse-woman, the other of a woman surrounded by flowers. The procedure was simple: "Just before going to bed the subjects (six Wellesley students) looked fixedly for five minutes at the colors, and for ten minutes at the pictures."

This method Miss Andrews does not think the best that can be imagined. There are, she says, "fundamental difficulties which seriously affect the value of such experimentation upon even the trained observer. There is the disadvantage attendant upon all investigation in which a person experiments upon himself; there is the further objection that stimulation and supposed result are separated by a considerable interval of time,"

 Andrews, G. A.

25.
and finally there is the lack of any observer of the attendant conditions."

"The ideal method", she goes on to say, "would provide for the excitation of the dreamer through auditory, olfactory or dermal stimuli, applied by the experimenter at different periods during the night. The practical difficulties, however, seem to be all but insurmountable. We have used, for instance, music-boxes, gently playing, intense and heavy odors and cool surfaces, for the immediate stimulation of dreams; but have failed, in every instance, through prematurely waking the dreamer." We shall ourselves have something to say concerning this method, in our own later discussion.

By use of the adapted Monroe method, the following results were obtained. The trained subject, the author, had dreams probably suggested by the stimuli on three out of four nights. Another subject had suggested dreams on two out of four nights. There were three cases of dreams probably suggested by the experiment of a previous night. Of the other subjects,

36.

there were two who had one dream, each apparently suggested by the stimuli, and two whose dreams seemed unaffected.

In discussing these results Andrews observes that there were not sufficient records for even a tentative conclusion.

Beside the results of the experiments on artificially produced dreaming, Andrews gives results obtained from statistics compiled from records of her own dreams on one hundred and eighteen successive nights. 90% of the dreams were clearly suggested by waking experiences, more than one half by the occurrences of the same week, one half referred to the immediate environment and two thirds to the people of everyday life. She finds evidence of visual, auditory, olfactory and gustatory dreams, their relative frequencies being in their order as here enumerated, greatest for visual and least for gustatory. Her dreams, as regards show discomfort rather than physical pain, and emotion she finds to be as vivid and strong as in waking life, and often stronger. Aesthetic pleasure is, for her,

37.
she asserts, a real and an important part of dream pleasure. There were thirty four clear cases of reasoning on argument.

The method of dream-study used by Andrews in the portion of her investigation just reviewed; that is, accurate observation of ones own dream experiences exclusively, has been used by other authors. It has the obvious disadvantages of giving at best no general but only individual conclusions, and demands checking for reliability and generality with results of the same sort obtained by others.

An experimental study on the depth of sleep, published in 1902 by De Sanctis^{1.} and Neyroz, gives some interesting material on dreams. The amount of pressure on the subject's forehead that was found necessary to produce "subconscious reactions" (defensive or withdrawing movements), and the amount found necessary to awaken the subject, were measured by a graded scale on the Grissbach aesthesiometer, and carefully recorded.

1. Sante de Sanctis and Neyroz U. Experimental Investigation Concerning the Depth of Sleep. Psychol. Rev. 9, 254-328.

When the pressure had finally awakened the subject, he was asked in each case whether he remembered any fragment of a dream. Thus three curves were obtained; 1st, a curve representing the points of complete awaking, or a curve of the depth of sleep; 2nd, the curve of sub-conscious reaction; and 3rd, the curve of dreams. "The experiments", say the authors, "were carried on for about six consecutive months, one or two at most per night, so that the normal course of sleep might not be in any way altered, as would evidently have been the case had the tests been made too close together. The experiments were always performed at different hours on successive and irregularly alternated nights; several observations were made in hours already used, in order that a more exact value might be obtained, and at least four different periods were selected for each hour of sleep, so that we might find the waking points for every ten or fifteen minutes, in order to make the curve as complete as possible." The subjects were four normal subjects, two young people and two of mature age, and

five abnormal subjects, two epileptics of long standing, one case of epilepsy due to a wound, one hystero-epileptic, and one case of paralytic dementia.

The conclusions to which the experimenters come as regards dreams are the following: They find that dreams occur in every period of sleep, even at the beginning; that is, when the depth is greatest. External stimuli were found to modify the course of dreaming. The normal subjects were found to dream very much more often than the abnormal subjects. The pathological subjects dreamed more seldom in the first half of the sleep-period, and more frequently in the second; the dreams are "generally trivial in character, sometimes erotic, and the memory of them is, for the most part, very cursory." No influence of the stimulus on the content of the dream was ever demonstrated with these abnormal subjects.

It will be noticed that the authors just reported agree with other investigators previously reported¹, in their assertion that dreams occur with all depths

1. Heerwagen, op cit.

Calkins, op cit.

Weed, Hallam and Phinney, op cit.

of sleep. De Sanctis and Neyroz, however, are the first to make an actual measurement of the depth of sleep. The earlier writers make their statements on the mere assumption that a certain period of the night is characterized by a deeper sleep than other periods. They are not all in agreement, moreover, as to which that period is; with one assumption is that in the early hours of sleep the depth is greatest, with another, that the greatest depth is found in the sleep of the middle of the night. The present investigators, on the contrary, have actually measured the depth of the sleep in which each of the dreams reported by them occurred.

1.
"L'Evolution du Reve Pendant Le Reveil", a short article published by Marcel Foucault in 1904 need not detain us long. Foucault thinks the study of dreams best furthered by methods of study based on memory. His own method he gives in the following words:-
(I translate.) "One should collect first a certain number of observations in which one abridges as much as possible the waking process, so as to seize the dream as

1. Marcell Foucault. L'Evolution du Reve Pendant Le Reveil. Rev. Philos. 58, pp 458-481.

quickly as possible after it has come out of sleep, and when it is, consequently, in the first moments of its evolution. One should then compare with these dreams of immediate notation other dreams of different notation, in which one has allowed himself to awaken slowly, and the dream to evolve to its natural conclusion." Foucault is desirous of determining the law in conformity with which the dream becomes deformed in becoming a memory of a dream, and proposes a regressive analysis. Whether his work is influenced by Freud does not appear, but it would be interesting to see what the "regressive analysis" he recommends would be, if not psycho-analysis. We shall have occasion in our second chapter to refer to his proposal of differing dream records as a method.

In 1905 the questionnaire method was again^{1.} used for the study of dreams by Jewell. The results are based upon returns from some eight hundred people, mostly women and girls, who reported more than two thousand dreams. The summarized conclusions cover about

1. James Ralph Jewell. Psychology of Dreams. Amer. J. of Psychol. 1905. pp. 1-35.

2.

a page, and regard--the relation between age, nationality, locality, etc., and the nature and amount of the dream-activity; the artificial control of dreaming; emotion in dreams; the relation of dream-events to the events of real life; the influence upon waking life of dreams. The results are all, as was indeed to be expected, extremely general.

1.
In 1906, Marcel Foucault, whose short article on the dream written in 1904 we have already reported, published in Paris a book on dreams in which he carried a step farther the elaboration of the method he had suggested for the study of dreams in his earlier and slighter work. This book (called "Le Reve") I have not myself had an opportunity to read, but the psychological Bulletin for 1907 contains a report of the work, from which I have been able to gather certain facts about the method, but very little as to the results of its use.

Successive records of the same dream were made at differ-

1. Marcel Foucault. Le Reve. Paris, 1906.

ent intervals during the day following the dream. What these intervals were, why they were chosen, what the difficulties of the making of successive records of a dream were found to be, the reviewer does not mention, and I cannot say. Foucault's wish was to show that he was right in his contention previously made, that the connection between the parts of dreams; that is, all that there is of logical sequence in any dream-description, is a product of the waking state. In the waking state various illusions, additions and alterations are affected in order to make the series of ideas or images coherent. This contention he believes his material illustrates. To this further elaboration of Foucault's method, we shall also have occasion to refer in Chapter 11.

The years between 1907 and the present date, have been marked, as regards the study of dreams, by considerable activity. This activity has mostly, however, been along but one line, and has consisted in a lively discussion in the various journals of the pros and cons of the Freudian theory and method. Most of this mater-

4.

ial is of very great general interest, since there is little to choose in point of enthusiasm and determination, between the supporters of the Freudian analysis and its opponents. Most of the articles, however, offer no absolutely new points of view. They consist, rather, of reports of psycho-analysis that have proven successful, or attempts at psycho-analysis, which have proven failures, and by which the non-Freudians wish to demonstrate the uselessness of the method. I shall, therefore, report most of this literature in the lump, singling out for special attention only such portions of it as seem to merit individual attention.

A. A. Brill's translation of Freud's "Papers on Hysteria"^{1.} was published in 1909. Here is to be found a much better description of the Freudian method than that found in the "Interpretation of Dreams." The papers are chiefly concerned, as the title indicates, with the use of the method in cases of hysteria, but as Freud worked out the meaning of hysterical symptoms

1. Freud. Papers on Hysteria. Trans. by A.A.Brill, New York, 1909.

largely through analysis of the patient's dreams, there is valuable matter here for the dream-student.

The following authors, Maeder, Leroy, Jones, and Waterman all present about the same sort of discussions;--first, a brief and necessarily condensed and uncritical account of the theory as given by Freud in the "Traumdeutung" and the "Papers on Hysteria"; and second, analyses of a few dreams by the psycho-analytic method. In no case is a report made of the exact course of the psycho-analysis. Its general direction and the interpretation to which it finally lead are made

-
1. Maeder. Essai d'Interpretation De Quelques Reves. 1907. Archiv de Psychol. 6, 354-375.
 2. Leroy. A Propos De Quelques Reves Symboliques. 1908. J. de Psychol. Norm et Path. 5, 328-365.
 3. Jones. Freud's Theory of Dreams. 1910. Amer. J of Psychol. 21, 283-308.
 4. Jones. The Oedipus-Complex as a Key to the Solution of Hamlet's Mystery. Amer. J, of Psychol. 21, 72-113.
 5. Waterman. Dreams as a Cause of Symptoms. 1910. J. of Ab. Psychol. 5, 196-210.
-

to suffice. Of the more critical articles, that by Friedlander,¹ "Hysteria and Modern Psycho-analysis" is perhaps the most comprehensive. It presents a history of the growth of the psycho-analytic method, together with a resume of the positions of the chief authors on dreams and psychoneuroses, on the Freudian question. The paper concludes with a statement of the writer's attitude, and a strong defense of the non-Freudian position. Waterman discusses dreams as the cause of symptoms; that is, the close connection between dreams and certain other hysterical symptoms. The work of Onuf² is of the same sort. Ferenczi gives one of the clearest outlines of the cardinal points of the Freudian theory, together with illustrative cases of each

1. Friedlander. Hysteria and Modern Psycho-analysis. 1911. J. of Ab. Psychol. 5, 297-327.

2. Onuf. Dreams and their Interpretations as Diagnostic and Therapeutic Aids in Psycho-pathology. J. of Ab. Psychol. 4, 339-350.

point in the theory and method. Morton Prince,^{1.}
while appreciative of much in the technique of Freud's
method, will go only half-way with Freud on theory.
He refuses to believe with Freud that the underlying
dream thoughts have ever really been repressed; that
they are always in the nature of the fulfillment of
a wish; that there is a resistance or censor keeping
the thoughts repressed.

The second edition of the "Traumdeutung" ap-
peared in 1908; the third in 1913.

1. Prince. The Mechanism and Interpretation of
Dreams. J. of Ab. Psychol. 5, 139-195.

CHAPTER 11.

The experimental work on dreams which I shall offer in this chapter may conveniently be divided according to the principal classes of method employed, and so divided, falls under three main headings: 1st, methods of dream-study based upon association; 2nd, methods of dream-study based upon memory; 3rd, methods of dream-study based upon suggestion. In developing the material here presented, I shall make the division just suggested, and shall discuss first the association methods as I have studied them.

Under this (first) heading, however, a further division of material must be made, for the association method may be used in two quite different ways. I shall, therefore, subdivide the method according as the association used was free or controlled.

Let us, then, with this slight introduction, turn to a consideration of the method called "free association", and after describing it generally, let us examine particularly the form in which it has been

used by Sigmund Freud and by his followers, in what has come to be known as the method of psycho- or psychoanalysis. In the first place we must notice that the designation "free association method" is, strictly speaking, a misnomer, since even this comparatively unregulated succession of associations is not entirely uncontrolled. The start and finish, at least, of the associative chain, are definitely determined by the experimenter, and the direction which the succession of ideas shall take is to some slight extent predetermined. The subject is presented a stimulus-word, and is directed to give to the experimenter as full and accurate an account as possible of the associations, (verbal and other imagery), that succeed to the stimulus. After giving the stimulus-word the experimenter does not interfere in any way with the course of the associations, except to attempt to overcome resistances, and to stop the series at the point that best suits his purpose.

Since, as we have seen, the ways in which the control of the experimenter plays a part in "free"

association are; (1) in selecting the stimulus-word or phrase which shall start the associative chain; (2) in attempting to overcome resistances to further association; and (3) in selecting the point at which the chain of associations shall come to an end, we shall look to these points to find the dangers and the difficulties of the method, and we shall be interested, not only in determining by what means Freud seeks to overcome these dangers and difficulties, but also in trying to discover for ourselves still further points of value concerning them.

The chief, perhaps, of the not inconsiderable difficulties met with in the attempt to make a critical study of the Freudian method, is the impossibility of finding any one, clear, comprehensive and detailed account of just exactly what that method is. That this obscurity was a part of Freud's intention we cannot suppose; it probably arose from the fact that the psycho-analytic method was used by him not exclusively upon dreams, but also in the search for the

etiology of hysterical cases, upon the symptoms of the hysteria. Though the problems that arise in the two cases are nearly the same, the detail of the use of the method must necessarily be slightly different. It is just this difference that Freud has failed to make clear, and just this same difference also that chiefly hinders another experimenter from following out to the letter the technique employed either in the analyses of the dreams given in the "Traumdeutung", or in the analyses of the hysterical symptoms given in the "Papers on Hysteria".

A. A. Brill, in his introduction to the English edition of the "Papers on Hysteria" gives the^{1.} best general description of the Freudian method.

"The technique is as follows: The patient lies on his back on a lounge, the physician sitting behind the patient's head at the back of the lounge. In this way the patient remains free from all external influences and impressions. The object is to avoid all muscular exertion and distraction, thus allowing through concentration of attention on the patient's own

1. S. Freud. Papers on Hysteria. p.1V.

psychic activities. The patient is then asked to give a detailed account of his troubles, after having been told before to repeat everything that occurs to his mind, even such thoughts as may cause him embarrassment or mortification. On listening to such a history one invariably notices many memory-gaps, both in reference to time and causal relations. These the patient is urged to try to fill in by concentration of attention on the subject in question, and by repeating all the unintentional thoughts originating in this connection. This is the so-called method of "free association". The patient is required to relate all his thoughts in the order of their sequence, even if they seem irrelevant to him. He must do away with all critique and remain perfectly passive."

This account of the method, as will at once be seen, is an account of it as used in the analyses of hysterical cases, where the start of the associative chain is the hysterical symptom and its history. Tho., in a general way, it applies also, of course,

to the analysis of dreams, it throws no light on the points of procedure that are of especial interest and difficulty: namely, the control points.

In the "Traumdeutung"¹ Freud himself gives a general outline of the method.--" . . . A double preparation of the patient is necessary. The double effort is made with him, to stimulate his attention for his psychic perceptions and to eliminate the critique with which he is ordinarily in the habit of viewing the thoughts that come to the surface in him. For the purpose of self-observation with concentrated attention, it is advantageous that the patient occupy a restful position, and close his eyes; he must be explicitly commanded to resign the critique of the thought-formations which he perceives. He must be told, further, that the success of the psycho-analysis depends upon his noticing and telling everything that passes through his mind, and that he must not allow himself to suppress one idea because it seems to him unimportant or irrelevant to the subject, or another because it

1. Sigmund Freud. The Interpretation of Dreams. p.84.

seems nonsensical. He must maintain impartiality toward his ideas; for it would be owing to just this critique if he were unsuccessful in finding the desired solution of the dream,--the obsession or the like." Here, again, the description is very general. It takes no account of the points most likely to cause trouble to the experimenter, who has had no such wide experience with the method as Freud's own. The control-points receive as little attention as in Brill's description of the procedure.

One of these control-points, however, --the choice of the starting-word--is discussed in the "Traumdeutung" as follows: "The first step in the application of this procedure now teaches us that, ^{not} the dream as a whole, but only the parts of its contents separately, may be made the object of our attention. If I ask a patient who is as yet unpracticed, "What occurs to you in connection with this dream?", as a rule he is unable to fix upon anything in his psychic field of vision. I must present the dream to him piece by piece, then for every fragment he gives me a series of

notions, which may be designated as the back-ground thoughts of this part of the dream." Here the difficulty of giving a proper start to the associative train is definitely noticed, and a step is taken toward giving a solution to the question, --so vexing to the experimenter who tries to make use of the Freudian method, --'With what word or group of words shall I set the process going?' The answer indicated here is far from covering the question. It merely points out that there must be division of the manifest content of the dream into parts small enough to be easily attended to; it fails to state which of these divisions are likely to serve best as points of departure.

On the resistance control-point Freud has something to say in the "Papers on Hysteria"^{1.} "I decided to proceed on the supposition that my patients knew everything that was of any pathogenic significance, and that all that was necessary was to force them to

1. Sigmund Freud. Papers on Hysteria. p. 17.

impart it. When I reached a point where to the question, "Since when have you this symptom?" or, "Where does it come from?", I received the answer, "I really don't know this", I proceeded as follows: I placed my hand on the patient's forehead or took her hand between my hands and said, "Under the pressure of my hand it will come into your mind. In the moment that I stop the pressure you will see something before you, or something will pass through your mind which you must note. It is that which we are seeking. . . Well, what have you seen, or what came into your mind?"^{1.} And again, in the same paper, --- "To a patient who is unable to recall in what year, month or day a certain event took place, enumerate the years during which it might have occurred, as well as the names of the twelve months and the thirty one days of the month, and assure him that at the right number or name his eyes will open themselves, or that he will feel which number is the correct one." In another connection the following

1. Sigmund Freud. Papers on Hysteria. p. 18.

0.

advice is given as to the overcoming of the resistances. ^{1.}

"---the pressure experiment usually fails the first or second time. The patient then expresses himself disappointed, saying, "I believed that some idea would occur to me, but I only thought so; as attentive as I was, nothing came." Such attitudes assumed by the patient are not yet to be counted as a resistance; we usually answer to that, "You were really too anxious; the second time things will come." And they really

come." - - - ^{2.} "It is perfectly hopeless to attempt to make any direct headway toward the nucleus of the pathogenic organization."

That there is a personal element to be taken account of in the fight against the resistance, Freud does not attempt to conceal. ^{3.} "Among the intellectual motives employed for the overcoming of the resistance", he says, "one can hardly dispense with one

1. Sigmund Freud. Papers on Hysteria. p. 96.
2. " " " " " p. 108.
3. " " " " " p. 101.

affective moment; that is, the personal equation of the doctor, and in a number of cases, this alone will be able to break the resistance." Not much hope here for a later experimenter, who wishes a clear-cut, objective set of instructions that will enable him to make sure that he has used the Freudian method in his attempts at psycho-analysis as Freud meant it to be used!

We have now reviewed what Freud has to say about two of our previously stated difficulties, and seen what answer he gives to two of the questions raised by the problems of the control-points. There remains the third of these danger-points, --the choice of the place at which the chain of associations shall be stopped. On this subject also Freud has something to say. ^{1.} "One has to guard here in general against two things", he warns the experimenter. "If the patient is checked in the reproduction of the inflowing ideas, something is apt to be "buried" which must be uncovered later with great effort. On the other hand,

1. Sigmund Freud. Papers on Hysteria. p. 111.

one must not over-estimate his "unconscious intelligence", and one must not allow it to direct the whole work. If I should wish to schematize the mode of labor, I could perhaps say that one should himself undertake the opening of the inner strata and the advancement in the radial direction, while the patient should take care of the peripheral extension." And a few pages further on -- "The expression of the patient must decide whether one has really reached an end or encountered a case needing no psychic explanation, or whether it is the enormous resistance that halts the work. If the latter cannot soon be overcome, it may be assumed that the thread has been followed into a strata that is as yet impenetrable."

We have now passed in review all that Freud has to tell us about the technique of his method. It remains for us to experiment and to see how it will work in a psychological laboratory, where the method is employed, not upon hysterical or neurasthenic patients, but upon presumably normal subjects, and under conditions widely different from those of a doctor's office.

When I decided to start my own work upon this method, I determined to try out, in a few experiments,

the simple uncomplicated "free association" method before resorting to the Freudian and very-much-complicated use of the method. I made up my mind to forswear the "pressure procedure", and the use of the questioning with which Freud assisted and directed the progress of the associations; the only way in which I should interfere would be to attempt to overcome such resistances as I might meet. These attempts to overcome resistances I limited to simple urging of the subject to continue to concentrate on the stimulus-word, and to wait for some association to occur. The normal course of a free-association chain was what I was interested in determining. Would the associations, minus the direction that Freud was in the habit of exercising over them, be broken by such gaps as Freud reports? Would the report of the absolutely free associations of a subject during the space of an hour or two bear any resemblance to the associations on the basis of which Freud made his psycho-analyses? If, as Freud contends, suggestion has nothing to do with

the results he obtains, an absolutely free associative chain ought to show Freudian features. I confess that I did not expect to meet what I should be able to recognize as resistances. I was strongly of the opinion that the resistances met with by Freud were occasioned by his greater interference with the course of the associations. I saw no reason why, if the experimenter rejected nothing given by the subject, and pressed for no explanations of what the subject offered, one consecutive chain of associations might not be given; broken, perhaps, by short pauses, but not by blanks, and terminated only by the will of the experimenter.

I selected for the experiments two subjects with whom I had been working, at different periods, for almost two years, subjects whom I judged to be sufficiently trained to be able to give good introspections, and with whom I felt myself to be on terms of friendly confidence. I selected one dream from the recorded dreams of each of these subjects. I then carefully scrutinized the dream-description and

5.

selected from it all the words that served as tags of the incidents of the dream. As I have said elsewhere, every word in the dream-description (with certain probable exceptions) must have its emotional connotation. Certain of the dream-words, however, are undoubtedly more strongly emotional than others. Here one feels the lack of some method for making certain which of the words used by the dreamer in narrating his dream will best repay the time and effort which free association requires. Of my subsequent attempt at a solution of this problem I shall speak later. For the purposes of the work here reported, a selective survey of the dream-descriptions had to suffice.

As a basis for discussion I shall at this point report one of the free-association experiments, giving the subject's dream as recorded, the words judged to be most affective as starts for the association, and the exact course of the subject's associations during a period of about an hour. The words finally chosen as the stimulus-words are underlined as they occur in the record of the dream.

Observer (1) Dream 326.

6.

"I was walking on the street, aimlessly apparently, in late afternoon. There seemed to be excitement and a presage of something terrible in the air. The sky was red and the air smoky. At the end of the street on which I was walking a crowd had gathered on the roof of a house. I knew that something terrible must be happening there but I did not seem to be able to reach them. My feet felt like lead. A woman was right behind me, who kept clutching at me and calling me her child. I knew that I was not her child, and thought that she was insane with the excitement; in fact, I seemed to know that she had lost her children in a fire or some catastrophe that had just happened. I felt very much oppressed, physically and mentally, in the dream, finding it difficult to breath."

The report of the association-experiment follows. Two dashes mark a short pause; a resistance is marked in the record by a row of dashes. It will, of course, be understood that in the short space of an hour only a small proportion of the possible stimulus-

words could actually be used. (Stimulus-word, lost).
 way--path--woods--dark forest--girl lost in the woods--
 babes in the woods--I was thinking of the story--night--
 robins covered them over--found dead in the morning--
 lost souls--lost forever--God-- and man--Man and Super-
 man--Bernard Shaw--Tanner--(he is a character in the
 play)--life--lost life--the life-force--I don't think
 of anything else-----Anne--Ibsen--lost-soul--
 the sea--ocean--lost sailors--mother--stand on the
 shore--white horses--waves--picture in a play of mother
 standing on a shore and saying her sons have been car-
 ried away by the waves-----
 (New Stimulus-word, Child). golden hair--small--
 round face--blue eyes--fatties--in Blue Bird--dancing--
 the fairy leads the child--search for the Blue Bird--
 land of happiness--dark-eyed child--palace of night--
 crime--weeping--wars--sugar--loaves of bread--child
 eating bread and jelly--pantry-shelves--cakes and pies--
 I can't get beyond the picture of the child-----
 child asleep--at night--the dog and cat are on the bed--
 fairy enters--child rises--dresses--goes with the fairy--
 I can't get away from the blue-bird. -----

(New Stimulus-word, Insane.) man--raving--dying--cell--
prison--wild eyes--John Berkmann--pacing up and down--
picture gallery--white hair--piercing eyes--crowd out-
side--man clutching at straw--hair disordered--officers
guarding him--blood-shot eyes--mad-dog-----
dog running and snapping on street--after a girl--
goes as far as door-step of her home--door locked--
girl raps--door opened--girl goes in--dog swerves--
runs around yard--policeman enters--shoots dog-----.

(New Stimulus-word, clutching.) strong--fists--clenched--
yellow straw--hands buried in the straw--man-man clutth-
ing straw--King Lear--white hair--Bible--Nebuchadnezzar
eating grass--on hands and knees--cattle--stable-----
I have a picture of cattle in stable and straw around--
horses--dark--fragrant smells--farm--thatched--straw--
cottage--woman--pail--water-pail--pump--pumping water--
for cattle--windmill--white hair, she has--gingham
dress--chickens scratching in the sand--straw stacks--
fork--hay fork--machinery--cultivators--teeth--iron
teeth of a cultivator--rakes-----

(New Stimulus-word, fire). alarm--engine houses--
starting--firemen--helmets--running--siren--whistle--
noise--crowds of people--building on fire--factory--
red brick--water being thrown--firemen on ladders--
people at windows--carrying down fire-escapes--explos-
ion--noise--people running through crowd--building
falling--ruins--smoke--blackened walls--treasures with-
in--ashes--gold--papers--jewelry--strong-box--burned--
blown open by detectives--dynamite--combination--safe--
robbers--stolen the combination--bank--vaults--safety
deposit--fire-proof walls--clerk goes into vault and
door fastens behind him--he is imprisoned--hear faint
tappings from outside--begin to bore through the wall--
drills--air is close in cell--drag the man out--he is
pale--scene in the bank when the man is dragged out---
-----wife of man comes in--like a scene in
front of a mine after an explosion--women standing a-
round--children--blackened faces of miners-----
black helmets and torches--going into mine in bucket--
gases--canary-birds--shiny walls--coal--winding paths--
tunnels--train of cars--Cornwall, England--stories of

mine disasters--Lass O'Lowrie's--Frances Hbdgson
Burnett----- At this point the associa-
tions had to be discontinued for the time.

Let us now pause for a moment to examine the results of the experiment. The first thing to strike our attention will surely be the fact that we find here, making themselves very plainly seen, just such resistances as Freud warned us we should encounter, and this in spite of the fact that nothing the subject has chosen to give us has been rejected as useless, or has been combatted in any way; in spite of the fact, too, that we have been careful to suggest nothing to the subject--by questions or in any other manner--that might arouse such resistances. The subject has been held to nothing against her conscious disinclination. She has been at perfect liberty to select from the associations occurring to her, and if one proved to be unpleasant, to substitute for it some similar association, or to choose another altogether. Yet when the subject has made only twenty successive associations

to the first stimulus-word she makes a long pause, and finally says, "I can't think of anything else." She is then told, "You will probably have more associations if you wait a moment, and thus urged she takes up the thread of the associations again with "Anne--Ibsen", etc. But, again, after only eleven associations another resistance occurs. This time the resistance cannot be overcome, and the experimenter is forced to give a new stimulus-word.

If we now analyze the situation that the foregoing has presented to us, we shall be forced to argue in the following fashion. The resistance we have encountered cannot have been the result of any attempt of the experimenter to guide the associations or to interfere with them in any other way, for the reason that no such attempts at guidance or interference have been made. We can, therefore, on the score of our own observation, acquit Freud of the charge of having manufactured the resistances he afterward overcame. The resistances we have found have seemed to be perfectly

unconscious as resistances, to have been unconnected with the technique of the experiment, and to have belonged to the peculiar character of the associative chain itself. We have cleared the Freudian method of one of the objections that might be raised against it.

Into the further analysis of the dreams, however, the present experimenter has not seen fit to go. There are many considerations that make it inadvisable to attempt a complete psycho-analysis in a psychological laboratory. The privacies of the human spirit are not to be lightly invaded, and the experimenter, with a conscience is sure to find that at the crucial moment for the success of his analysis, he has not one, but two powerful resistances to overcome; the resistance of the subject to what he rightly considers an unjustifiable violation of his reserve, and the resistance the experimenter will discover in himself, to insistence on confidences that he has no right to exact. It is doubtful whether a complete analysis would be possible in any case. Considering the immense difficulties

13.

reported by all those who have used the method, considering the fact that resistances have sometimes proved insurmountable even when the experimenter was doctor and the subject patient, and when the subject's relief from some distressing symptom was at stake, it seems highly probable that it would be the very rare subject, indeed, who would allow his resistance to be broken down in an experiment in which he had no personal stake, undertaken in the interests of a science whose ideals were indifferent to him. It was, moreover, not the purpose of the present study to make psycho-analyses. It was my purpose rather to examine the method in the hope of discovering answers to some of the methodological questions it raises. One of these questions we believe we have already answered, and to a second we have suggested an answer. We have shown that the resistances the Freudians report are not artificially produced by the Freudian technique, but will occur in any association--however uncontrolled--to the parts of a dream; we have suggested further that certain frequently recurring, perhaps obsessing, ideas regularly appear

when the subject associates freely to the parts of the manifest content of a dream. We have indicated a third question that we have still to answer, for whose answer we must turn to our other form of association, the controlled association form; namely, with which of the divisions of the manifest contents of a dream shall we start the associate process.

There are, however, still other observations that we must make. If we read over carefully the whole course of the associations we shall see that there appear certain noticeable repetitions. In the early portion of the record the word "lost" clearly means to the subject, "dead", although this was not the sense in which it occurred in the dream which the subject has just had read to her. The associations to "lost" are the following: babes in the woods--found dead in the morning--lost souls--lost life--lost soul, again--lost sailors--picture of a mother standing on a shore, and saying her sons have been carried away by the waves. The subject, once having given the association that

means "death" seems unable to get away from that meaning, and the association reoccurs with every second or third reaction. So also the reaction "white hair" occurs in three entirely different connections, and enters into the chains of association that follow three different stimulus-words. Wherever hair is mentioned, it is mentioned as white hair. How are we warranted in interpreting these results and others like them? Plainly, in the absence of completed psycho-analysis we are not warranted in assuming that the obsessing ideas we have noted are ideas that necessarily underly the dream. Perhaps we are not even warranted in concluding dogmatically that there here appear any true obsessing ideas at all. And yet the writer cannot but think that here appear the first indications of the constellation of the complex responsible for the dream; that we have been successful in penetrating into a "layer" of emotive consciousness nearer the complex than the "layer" represented by the simple description of the dream. It would have been immensely interesting

and enlightening to have proceeded with a complete psycho-analysis in the case of a dream first worked upon with the much more nearly free type of association.

We now pass to the second division of the subject matter under associative method; namely, controlled association. And, first, a word about the method in general. In controlled association, as in free association, the subject is given a stimulus-word, but this time with different instructions. Only one association is to be given; namely, the first that occurs to the subject's mind after the reception of the stimulus; and that association is to be given as quickly as possible after it occurs. In this form the association method is one of the best (methods) in the whole range of experimental psychology. An immense amount of work has been done upon it, and its general laws have been determined. Since its applicability to allied problems has been so often and so well demonstrated, one wonders that the literature contains no account of its use as a method for the study of dreams.

In the first place I set about trying to discover by this method whether association-times to words chosen from the manifest content of the subject's dreams

would be longer, on the average, than association-times to words chosen at random and, presumably at least, neutral to the subject. If we were for the moment to accept Freud's thesis in its entirety, we should have to suppose that the dream-words would not be neutral to the subject, but that on the contrary each of the words used in the recital of a dream-experience would have a more or less strong emotional connotation. Certain of the words would naturally have a greater emotional connotation than others, but, with the probable exception of the merely skeletal parts of the sentences, prepositions, conjunctions, etc., we should not expect any word to be emotionally indifferent. Now, if the word that I present to the subject in an association-test is connected with the memory of some situation more or less strongly emotional, there will result theoretically a disturbance in the adjustment of the subject to the conditions of the experiment, and from this disturbance in adjustment will result a lengthened reaction-time.

Jung, whose work on controlled association is authoritative, makes emotion in the subject express itself by lengthened reaction-time. "The first thing

that strikes us is the fact that many test-persons show a marked prolongation of the reaction-time. This would make us think at first of intellectual-difficulties, wrongly however, as we are dealing^{often} with very intelligent persons of fluent speech. The explanation lies rather in the emotions."

Arguing, therefore, as Freudians, we should expect to find a marked difference in the length of the average reaction-time to dream-words, and the length of the average reaction-time to words that are emotionally neutral to the subject, and a longer average for the dream words than for the neutral words. It was my first problem to find out whether this lengthening of reaction-times on dream-words could be demonstrated. The following table summarizes the results on this point:

K and R-words=words from the Kent and Rosanoff association tables. Subj.=subject. Av. Ass'n.Time=average association time. M.V.=mean variation. P.E.=probable error.

The times are measured in seconds.

TABLE ONE.

K and R words.		Dream words.
Subj.	Av. Ass'n.Time.	Av. Ass'n Time.
1	1.66	2.17
2	1.69	1.50
7	1.34	1.48
10	1.75	1.73
12	1.78	1.82
30	2.15	2.80

19.

The results given in the above table were obtained in the following manner. I chose at random one hundred words from the dream-descriptions of each of the six subjects represented in the table. I took care to see to it that these words were not all nouns and adjectives, but included in their number all parts of speech except such as I had already concluded were probably negligible on account of their lack of affective tone. An attempt was made also to make a fair choice of words as concerned their probable affective tone as neutral words, aside from what affective tone they might possess as parts of a given dream-content. It is, for instance, easy to see that, other things being equal, the word "disaster" will have a greater emotional connotation than the word "house". If my dream-list were to be made up largely of such words as "disaster", "Wedding", "dreadful", "suspense", etc.--to choose words that have actually appeared in the dreams of the subjects,--the lengthened average reaction-time, if it appeared, might be accounted for on the grounds of the greater affective value of the

words used, entirely apart from their dream-connections. I had next to select my list of neutral words, and here I was confronted at once with difficulties. Alternative modes of selection were open to me; that is to say, when I came to select the neutral word list for Subject (1) I could make up my list from the dream-words of any five subjects that had not occurred in any of the dreams of Subject (2). Such a choice would admit of comparisons between the reactions of Subjects (1), (7), (10), (12) and (30) to a word, say "suspense", that is supposedly neutral to them, and the reaction of subject (1) to that same word, which to him is not a neutral, but a dream-word. I might, on the other hand, choose a neutral-word list that would not be made up of words from the dreams of any of the subjects, and could, therefore, be used with all subjects alike. By this procedure I lose, to be sure, the chance of the comparison I have suggested above, but I gain as much, perhaps more, in other ways. I could now compare the reactions of the subjects (1), (7), (10), (12) and (30) to all the neutral words, with the

reactions of Subject (2) to all these same neutral words, not only in the matter of reaction times, but also in the matter of the sort of reaction-words. I could, therefore, form some idea of the differences in reaction-types between the subjects.

I decided that I had, on the whole, more to gain and less to lose with the second alternative. Accordingly I chose, as my neutral-word-list the association-word-list of one hundred words prepared by Kent and Rosanoff,¹ for a study made by them on association in insanity. This list suggested itself as being, for several reasons, especially practicable. In the first place it contained words of all degrees of emotional connotation, from words like table, stove, etc. that would possess, except in special cases, practically no affective tone, to words like baby, beautiful, trouble and anger that might be supposed to be rich in emotional suggestiveness. In the second place Kent and Rosanoff have compiled for each of the words in their list a frequency table, showing the relative as-

1. Grace H. Kent and A.J. Rosanoff. A Study of Association in Insanity. Amer. Journ. of Insanity. Vol. 57, Nos. 1 and 2. 1910.

sociative values of pairs of ideas, one of the two paired ideas being, in each case, the association-list word. In the third place, the authors have suggested a criterion for judging a reaction to any one of their words as normal or abnormal. That the reader may have some means of judging of the comparative power to arouse emotions of the Kent and Rosanoff list of words and the lists arranged from the dream-words of a subject, I give the Kent and Rosanoff list and a dream-list that I judge to be representative of those used in the experiment whose results I have reported.

Kent and Rosanoff list.

Rable	Smooth	Needle	Lamp	Ocean	Joy
Dark	Command	Red	Dream	Head	Bed
Music	Chair	Sleep	Yellow	Stove	Heavy
Sickness	Sweet	Anger	Bread	Long	Tobacco
Man	Whistle	Carpet	Justice	Religion	Baby
Deep	Woman	Girl	Boy	Whisky	Moon
Soft	Child	High	Light	Child	Scissors
Eating	Slow	Working	Health	Bitter	Quiet
Mountain	Wish	Sour	Bible	Hammer	Green
House	River	Earth	Memory	Thirsty	Salt
Black	White	Trouble	Sheep	City	Street
Mutton	Beautiful	Soldier	Bath	Square	King
Comfort	Window	Cabbage	Cottage	Butter	Cheese
Hand	Rough	Hard	Swift	Doctor	Blossom
Short	Citizen	Eagle	Blue	Loud	Afraid
Fruit	Foot	Stomach	Hungry	Thief	
Butterfly	Spider	Stem	Priest	Lion	

100 Dream-Words.

Gun	Hear	Sat	Pain	Dress
Long	Room	Chair	Distinctly	Train
Heads	Company	Face	Walked	Finished
Tops	Pipe	Watching	Surprised	Necessary
Garb	Click	Package	Whiz	Sister
Myself	Wearing	Know	Dead	Young
Man	Frightened	Higing	Grieved	Ladder
Pipe-like	Parlor	Stealing	Given	Track
Garden	Mother	Shoot	Intended	Velvet
Green	Register	Grass	Friend	Railroad
Crowd	Gold	Coming	Immediately	Daytime
Distance	Hot-air	Guilty	Best	Fraternity
Plants	Pair	Yard	Explanation	Weighted
Tall	Sister	Field	Distinctly	Fat
Shooting	Beads	Shot	Feel	Pushing
Lettuce	Still	Broom	Trying	Big
Consent	Dropped	Woman	Article	Stern-faced
Flag	Torn	Pass	Bank	Let
Stand	Fall	Fear	Whole	Door
Straight	Seat	Reach	Look	Test

A stop-watch, reading to fifths of a second, was used in the determination of the reaction times.

Let us now make a critical examination of the results given in the table. Four out of the six subjects tested show a slight increase in the length of the average association-time in the case of the words chosen from the reports of their dreams. In one of the cases where the reaction-time to the neutral words is greater than the reaction-time to the dream-list, there is reason to suppose that this difference may be accounted for by the fact that the conditions of the experiment were, in this case, markedly different

4

from those of the other five. In the case of Subject (10) there happen to be, in the Kent and Rosanoff list of supposedly neutral words, two words that appear in the manifest content of that subject's dreams. Both of these words, in the association to the Kent-Rosanoff list, had reaction-times decidedly above the average, if an average were to be taken on the basis of the Kent and Rosanoff list, with these two non-neutral words omitted. Such an average makes the reaction-time to the dream-words decidedly longer than the reaction-time to the Kent-Rosanoff list. This discovery suggested to the experimenter that there might be in the lists of the other four subjects such duplicate words, and that the tests should all be revised with this possible factor in mind. This, however, it turned out to be impossible to do, on account of the accidental loss of a part of the original data. It is, of course, unwise to make any guesses as to what the results of the working over of data with this in mind might have been. Still, it seems credible that the dream-words found in the Kent-Rosanoff list would have had,

as with Subject (10), slightly lengthened reaction-times. Several considerations, however, make the right to draw any but conditional conclusions from these results extremely doubtful. In the first place, the number of subjects from whom the reactions were taken is small; in the second place, the increased length of the reaction-times to the dream-words over the reaction-times of the neutral words is too slight to be significant, when found in so few cases. Had the number of the subjects been sufficient, and had the results then shown a very large proportion of cases where the reaction-times to the dream-words had been even so slightly above the reaction-times to the neutral words, the fact would have had immensely more significance. The writer hopes, in the course of time to work out adequate results on this point. For the present, the results here reported scarcely do more than suggest that the method employed has at least suggested a problem of very great importance. Here we may reasonably be allowed to have recourse, for the moment, to theory. The results just reported suggest that for

6.

some reason, not determined, a subject will not react as quickly, on the average, to words chosen from his dreams, as he will to other words that have no connection with them. We have, moreover, taken the authority of Jung and others for the statement that a lengthened reaction-time, wherever found, indicated a disturbance in the adjustment of the subject to the conditions of the experiment. Our authority is the same for the further conclusion that this disturbance in adjustment is occasioned, not by intellectual, but by emotional difficulty. The next step in our chain of reasoning will be the supposition that the amount of the emotional disturbance will be indicated by the amount by which the reaction-time that represents that disturbance deviates from the reaction-time that is normal for that subject; that is, the subject's average reaction-time. At this point, if we recall the question we have previously formulated, but left unanswered; namely, how is it possible for the experimenter at the start of a psycho-analysis to know which portions of the description of the dream will serve best as starting-points, we shall

37.

see that we have found a clue for its solution. We shall set the associations going at those words whose reaction-times have been markedly above the average reaction-time, and we shall expect those words to serve us best whose reactions were lengthened most. The following sets of associations will illustrate very well the point I wish to make:

Controlled Association-Test.

Subject (17)

Dream #380.

rushed--1.33 hurried
Late--1.33 early
people--2.00 mob
room--1.20 house
final--1.50 examination
Rahn--1.50 doctor
conducting--1.75 examination
exam--2.00 questions
questions--1.50 answers
paper--2.00 ruled
asking--2.33 giving
psychology--7.00 room
tissue--1.33 paper
copied--1.50 questions
psychology--3.00 physiology
paper--4.33 book
twisted--1.50 paper
talked--1.75 listened
nothing--1.50 anything

Cohan--1.33 Miss
around--2.75 desk
game--1.50 play
eleven--1.50 twelve
guard--2.00 soldier
maiden--3.50 man
home--1.33 away
well--3.50 ill
washing--1.50 dishes
pieces--2.00 whole
hat--1.00 coat
knock--2.00 answer
tired--1.50 ill
finish--2.00 questions
Washington--1.66 Jefferson
Wilson--3.00 President
Nervous--1.66 man
overseer--5.00 garden
fidgetty--1.50 nervous.

Average reaction-time, 2.12

Out of the thirty-eight words given to the subject in the test, nine had reactions above the average reaction-time. There is a variation, however, within the nine selected words in the amount by which they differ from the average. The reaction "overseer--garden", for instance, has a reaction-time of 5 secs., that is, a reaction time 2.88 secs. longer than the average. The association "asking--giving", on the other hand, while it lengthens the reaction-time does so very slightly, by only .21 secs. We can, however, choose five, whose reaction-times are considerably lengthened.

Subject (6) Dream #184.

state--1.60 Minnesota	windows--2.00 door
separated--2.00 apple	ten--1.80 eleven
playing--1.60 children	quarrelsome--2.00
Christmas--1.60 tree	children
large--1.80 small	old--1.60 young
children--2.00 man	class-mates--1.40 boys
school--2.80 home-school	years--2.20 my age
received--2.20 giving away	scratches--2.20 cat
unhappy--2.00 happy	nine--2.00 ten
church--1.60 spire	bruises--2.00 hands

Average reaction-time-1.91.

Here eleven out of nineteen reactions are above the

average of the reaction-time for the series. Of the eleven, however, seven are only very slightly above the average. Only four reactions have been noticeably lengthened.

Subject (12) Dream #390.

man--3.00 big	laughed--1.33 smile
big--1.60 strong	bed--2.00 happy
bending--1.50 over	kneeling--3.25 William
commence--1.60 begin	foot--2.25 at
cold--1.75 weather	comforted--2.66 pink roses
skin--1.66 wet	woods--1.50 lake
warm--3.00 soft	spring--2.66 butterflies
cliff--2.00 precipice	beautiful--1.66 lovely
peninsula--3.00 geography	shoulder--2.25 arm
Sigerfoos--2.66 laboratory	singing--1.75 songs
island--3.00 lake	wonderful--1.66 lovely
professor--1.50 Sigerfoos	clusters--2.00 flowers
close--1.75 stuffy	tree--2.50 imperial
rapidly--2.00 swiftly	wisteria--2.25 house
bleak--2.00 day	blossoms--2.00 lavender
snow--2.00 North Dakota	lavender--3.00 wisteria
ground--1.75 hog	
studied--3.00 Paderewski	

Out of the thirty-four reactions in this test, six have been so markedly lengthened as to make them longer than the average by periods varying from .36 sec. to 1.11 sec.

What has the controlled association test accomplished for us, in each of these dreams? It has

40.
located for us, if Jung and others are right in their contention that lengthened association-times denote emotion at work in the subject, the spots in the three dreams that are, for some reason most strongly emotional to the subjects:-that is to say, it has located for us the points at which free-association tests and psycho-analysis had best begin. Out of thirty-eight possible words in dream #380 it has chosen for us five that are most richly emotional; out of nineteen words of dream #184 it has chosen nine; out of thirty-four in dream #390, six. We have, presumably, shortened by a considerable amount the time it will take us to make entrance in to the dream's latent content.

We must next notice the use we may make of still another phenomenon that makes itself apparent in the controlled association test. To some stimulus-words certain subjects will give no reaction-word. The introspection will be that they "can't think of anything", or, on the other hand, that they find it impossible to choose between several reactions that have occurred to them all at once. In some cases an

41.

immediate repetition of the stimulus-word will suffice to provoke a reaction. In others, even this repetition will prove unavailing. What are we to conclude in such cases? Are we to suppose that we have found a word that means nothing to the subject, intellectually, and so can have no associations in the subject's mind to any other idea. If these instances of refusal to react were found only with people whose vocabularies might be expected to be very limited, or if they occurred in other persons when the stimulus-word happened to present some very unusual feature, we might make such a supposition. As a matter of fact, the failure to react is quite as common among subjects whose intelligence is above the average, as among those whose intelligence is below, and quite as likely to occur in connection with a common word as with one that is in some respect unusual. The phenomenon is not, then, one whose explanation can be made on the grounds of intellectual difficulties. We must seek its meaning rather in the emotions. What is a failure to react? It is only an enormously lengthened

2.

reaction time. Undoubtedly, if the subject continued to concentrate on the stimulus-word there would be a reaction after an indefinite period of time. There is an association that might be given. But this association is so productive of disturbance in the adaptation of the subject, that the reaction-time is so lengthened as to be out of all proportion to the reaction-times that make up the subject's ordinary series of reactions. We stretch a point, therefore, and say that no association occurred, by which it will be seen that we mean that no one association-word could be given to the experimenter within the time allowed by the experimenter for the reaction. As soon as we have made this fact clear we shall see that there is no difference of kind, but only one of degree, between a reaction whose time has been lengthened, and one that has altogether failed, and that the same explanation will cover the two cases. Jung noticed this phenomenon on the words that he used with his subjects. (His work was not, however, upon the subject's dreams.) He says,--"It often happens that the test-

person actually does not know what to answer to the stimulus-word. The test-person waives any reaction; for the moment he totally fails to obey the original instructions, and shows himself incapable of adapting himself to the experimenter. If this phenomenon occurs frequently in an experiment it signifies a higher degree of disturbance in adjustment. I call attention to the fact that it is quite indifferent what reason the test-person gives for the refusal. Some find that too many ideas suddenly occur to them; others, that not enough ideas come to their minds.^{1.} And, again,^{2.} "We must not forget that the stimulus-word will as a rule always conjure up its corresponding situation. It all depends on how the test-person reacts to this situation.-----It thus happens that the test-person is unable to react quickly and smoothly to all stimulus words. In reality, too, there are certain words that denote actions, situations, or things, about which the test-person cannot think quickly and surely, and

1. Jung. The Association Method. Amer.J of Psychol. 21, pp 226-227

2. Op. cit. pp 225-226

4.

this fact is shown in the association experiments. ---
In this case the reaction to the stimulus-word is in
some way impeded; that is, the adaptation to the stimu-
lus word is disturbed. The stimulus-words are, there-
fore, merely a part of reality acting upon us; indeed,
a person who shows such disturbances to the stimulus-
words, is in a sense really but imperfectly adapted
to reality. Disease is an imperfect adaptation;
hence, in this case we are dealing with something mor-
bid in the psyche,--with something that is either tem-
porarily or persistently pathological,-that is, we
are dealing with a psycho-neurosis, with a functional
disturbance of the mind." In the case of the asso-
ciations to the latent content of a dream this "func-
tional disturbance of the mind" we should expect to be
the complex behind the dream. According to Jung,¹
"This applicability of the experiment shows it possible
to strike a concealed, (indeed an unconscious) complex
by means of a stimulus-word: and conversely, we may

1. Op. cit. p. 235.

45.
assume with great certainty that behind a reaction that shows a complex indication there is a hidden complex, even though the test-person strongly denies it."

Before we dismiss our discussion of the controlled association test as a means of obtaining clues for the start of a psycho-analysis, we must not neglect to mention a second way in which it may be used; I mean in what may be called the "repeated association test". The procedure to which I refer is as follows: An association test of the sort described and discussed above, and made up of words chosen from the manifest content of the subject's dream is given to him. After some time, say at least a week or two, the same list of words is again given to the subject in just such an association test as before. There will be seen to be many stimulus-words; most of the stimulus-words, indeed, that will be reacted to in the second test with a different word than that which was associated to that stimulus-word in the first test. There will, however, usually be a few ^{whose} reaction-words will be found to be

46.
identical with the reaction word to that same stimulus-
word in the original set of associations.

A transcript of a repeated association test
follows:

REPEATED ASSOCIATION TESTS.

Observer (7)

Dream #176.

<u>Stimulus-words</u>	<u>First reaction</u>	<u>Second reaction.</u>
office	1.33 room	1.20 room
daily	1.00 office	2.20 paper
reporter	1.20 lying	1.60 desk
discuss	1.33 talk	1.60 reason
manager	1.50 room	1.00 room
Know	1.00 yes	1.60 yes
wink	1.50 look	1.60 eye
friend	1.20 girl	2.00 husband
explain	1.50 man	1.40 reason
interested	2.00 talk	1.60 talking
black	1.00 white	1.20 white
ring	1.50 round	1.20 around
heavy	1.00 light	1.20 hard
English	1.33 teacher	1.40 room
transition	1.33 study	1.80 period
influence	2.00 now	-----

Average Association time for first reaction-1.35 sec.

Average Association time for second reaction-1.41 sec.

When I say that the word whose associate was
the same in both the original and the repetition test
is the word with the emotional tone, my conclusion

seems to contradict the conclusions to which Jung came, By the use of his so-called "reproduction test" Jung found that the words whose reaction-words were not the same in the two tests were the exceptional words, and were those connected with complexes. I believe this contradiction, however, to be more apparent than real. That my method differs slightly from that of Jung I have attempted to suggest by the difference in the name I have applied to it, calling my own method the "repeated-association-test". The two methods, although they have most points in common, have one very important point of difference; a difference that I believe explains the apparent difference in results; namely, the difference in the interval between the two tests. Jung's second test was given immediately after the first, with the suggestion to the subject that he try to remember what were the associations in the test just completed. In my own use of a repeated association test, I tried in each case to allow the subject time to forget the manifest content of the dream, and I made no suggestion to

the subject that he try to remember the former associations. That the emotion which attaches to a test word, and which is symptomatic of a complex connected with that word should cause the subject to forget, in the Jung test, what was the reaction-word in the previous test, and that the same emotion attaching to the same test word, and symptomatic of the same repressed complex connected with that word, should lead the subject who has forgotten all about both test and reaction-words in any former experiment to reply to the former test word with the former reaction-word in my own repeated experiment, does not seem to me to be in any way a contradictory state of affairs. In the case of the Jung reproduction test the second set of associations follow quickly upon the first. The emotion has been awakened, the resistance to the emergence of the complex into consciousness has begun to work, and the consequence is the subject's inability to give the reaction word with which he replied on the previous occasion. In the case of my own test, the experiments have been separated

by such an interval that the conditions of the first experiment have been forgotten. The emotional connection between the two that would result from their being parts of a series is lacking. It is as if a quite new association-test were to be given that happened to hark back in its suggestions to the same complex as that aroused by the first. The associations to words that did not connect with the underlying complex might be the same in the repeated association-test, but probably would not be, seeing that the associative-pair formerly given had no necessary and irresistible connection; the associations to words connected with the underlying complex might be expected to be the same, since the two ideas represented by the associative pair are firmly united in the subject's mind by their reference to the same underlying and obsessing idea.

Since we have now covered the subject of methods of dream-study based on association, let us, before we pass to the consideration of those based upon memory and suggestion, summarize briefly in outline form

50.
the material that we have presented in this Chapter on association as a means for the study of dreams. An outline covering the main points of the text to this point, follows:

METHODS BASED ON ASSOCIATION.

(General discussion of association as a method in the study of dreams.)

1. Free Association---Freud's Method.

Psycho-analysis.

2. Controlled Association.

(a means of obtaining clues for, and checking up, psycho-analyses.)

- (a) Average association-time to words from dreams compared to average association-time to neutral words.
- (b) Association-times to words, all from the manifest content of the same dream.
- (c) Repeated association test.

I turn now to a consideration of the second main division of the subject of this chapter;--methods of dream-study based on memory. Here I must preface my discussion with the assurance that I am not, in making such a division, losing sight of the very obvious

fact that all methods of dream study are, in the nature of the case, methods based ultimately upon memory, and that we cannot, as I have elsewhere quoted Miss Calkins as saying, "study dreams, but only dreams as remembered."

When I now say that I mean in the following pages to discuss methods based upon memory, I mean that I intend to discuss such methods of dream-study as make the clearness and the entirety of the memory of the events of a dream, or of the relation of those events to the events of the recent waking life matters of primary importance.

First, the attempt to relate the events of the dream-life to the events of the waking life; and by an attempt to relate the events of the two series of our experiences, I mean an attempt to show a natural and normal relation between them, not such a hidden and abnormal relation as the Freudian. I mean the attempt to show a relation between the events of our lives and the manifest, not the latent content of our dreams. Are the events and the images, the thoughts and the emotions, of our dream-experiences conditioned clearly by the

events and the images, the thoughts and the emotions of our waking experiences? If they are so conditioned, are the events of a comparatively recent past or those of a comparatively remote past of most importance for them? And, out of the vast number of the events, the images, the thoughts and the emotions of the experiences of our lives, even of the experiences of a single day, which will be used for the formation of our dream-activities?

Those authors appearing in the literature, who have made an especial study of the relation of dream-events to the events of the waking-life, have come to widely differing conclusions on the basis of their observations. They do not all, however, record the method they used, so that differences between them in the matter of results and conclusions may well rest on the fact that the methods of study have been so different in the several cases. The experimenter, for instance, who attempts to gather data on his point by means of a questionnaire would doubtless come to the conclusion that the events of our dreams are very rarely

connected plainly with those of our waking lives. Most people when questioned will answer that they rarely find many connections. There are, of course, persons who will answer that almost every portion of any of their dreams is connected with some actual waking experience. At first sight these differences appear to be real individual differences relating to dream-types, or more correctly dreamer-types, but I believe that such a conclusion would be entirely mistaken. That there is a real individual difference here is undeniable, but that the difference is one between types of dreamers I do not believe to be true. On the contrary, I feel certain that the difference is mainly a difference in the ability of various people to make sufficiently detailed and accurate reports of their dreams, to take account, as they experience them, of the events-emotional connections and all-of their waking lives, and to remember dreams and waking events in detail without assistance. One can as little make direct inquiry concerning the extent to which the dream is related to life as one can make direct inquiry to find a suppressed complex behind a dream. The method must be indirect in both cases.

54.

When a subject is asked, "Do the events in this dream connect in any way with the events of your waking life?" he usually replies with a connection or two, and insists that these are all the connections that appear. No matter how seriously you urge him to think of still further connections, he will reply that he cannot, that there are none. But if instead of urging for connections the experimenter asks, "Is what you have recorded here absolutely all you can tell me about the description of this dream?" the subject will usually continue with a further description of the dream itself, giving events out of the dream-narrative, and descriptions of dream-emotions that he has entirely neglected to give in his written record. If the experimenter now goes over each new bit of data with the subject, and says "Has this portion of your dream no connection at all to any thought, experience or emotion, of your waking life?" he is more than likely to find that there are very plain connections that occur to the subject, not only in regard to these newly discovered facts, but

also in regard to already discussed portions of the dream. With my own dreams, I find that I can at first discover very few connections with waking life, but that with continued attempts to perfectly describe the dream more and more connections appear, so that I am finally able, in most cases, to cover every important point of the dream-narrative with its reason for being what it is, out of the experiences, thoughts and emotions of my waking life. Out of a total of 63 of my own lately recorded dreams, only 5, that is, 7.9% had not such close connections. I append as examples, two dream-descriptions in which I have made such connections to my waking life.

Dream 141.

I seem to be in a church, playing the pipe-organ for a service. There is a feeling in connection with the church as though it were the Presbyterian church in Jamestown. I have a scared feeling about each hymn as it is given out, for fear it may be in a hard key, and I shall not be able to play it successfully. The organ is a combination of a real pipe-organ and an old melodian. It has a row of stops. One of them is the

5.

"cornet" stop. I want to play "Dartmouth", and pull the "cornet stop" out, to see if I can't make the thing sound better, but it's disagreeable, and I shove it back in again. I play "Dartmouth" away through. (Clear auditory imagery) I intend to play "Minnesota", but the dream breaks off before I succeed.

Connections with waking life.

Playing in church. I used to play for church in Jamestown.

Presbyterian church, and the pipe-melodian organ. The organ I used to play was the old melodian in the Congregational church. In the Presbyterian church there was a sort of near-pipe-organ, which, to my child's mind, was a fearful and a wonderful affair.

Scared feeling about the hymns. In the days when I used to play in church I had not yet learned to read at sight very well. When the hymn was given out, I used to be frightened until I had looked at it, and found that it was one I knew.

Dartmouth. Is the alma mater of a friend. I had played the Dartmouth song over on the piano just before

going to bed.

Minnesota. I have been feeling a sort of indecision about whether I wanted to sing it in public. I felt disloyal to Smith if I did, and yet realized at the same time that that was silly.

Dream 135.

I was with some Italian men; section-hands, they seemed to be. I wanted to talk Italian with them; took great pleasure in their talk, and in having a chance again to use their lovely language myself. I said "Buon giorno, Come sta?" At another time, "Bene, grazie, e Lei?" They they asked me where something or other was. I can remember only "Dov'e" of what they said, but I answered "Ich weiss nicht", and was then overcome with shame at being so mixed up, and added quickly, "non lo so." There was something about beer in this dream, for I remember the taste of it very distinctly, and that it was something like the taste of Chianti wine.

Connections with waking life.

Italian. A letter recently received from Siena mentioned several of my Italian friends, and included one or two Italian words. Just before I went to bed last

night I read over an old letter from Signora B. written in Italian.

German. Have struggled lately to try and translate some letters that were supposed to be written in German, but were written in a sort of dialect that made them very hard to read. Last year in Germany I used to get mixed up between my German and my Italian.

"Dov'è" The same as "Wo ist" in German. Lately enjoyed a little joke with a seamstress working at the house that hinged on the expression, "Wo ist mein Federal?"

Beer. Have noticed that the taste of Chianti wine and of beer is somewhat alike. A day or so ago in Psychology Laboratory beer was mentioned in connection with an experiment.

I might give dozens of other dreams, and their connections, but the examples I have chosen will be sufficient, I think, to show that a trained observer can usually cover almost every significant scrap of a dream-experience with its explanation, out of the events of the waking life. The method emphasized in guiding

connections that do not at first appear, must, however, be indirect.

The fact that a record of a dream made immediately after the dreamer has awakened, will differ from a record of the same dream made after the dreamer has been awake for some time, was first formally noticed, and made the basis of a method of dream-study by Foucault in 1904.¹

His contention that the connections that appear in the dream-description between the various parts of the dream are not real dream-material, but are added to the dream-stuff at various periods after waking, he sought to demonstrate by the use of a method that consisted of successive records of the same dream. This method seems to the present writer to have an application never suspected by Foucault. To make this application clear it will be necessary to go back, for a moment, to the Freudian Theory. Concerning the forgetting of dreams Freud says,² "The forgetting of dreams, too, remains unfathomable as long as we do not consider the

1. Foucault. L'Evolution du Reve Pendant le Reveil. Rev. Philos. 58. pp. 408-481.
2. Sigmund Freud. Interpretation of Dreams. p. 410.

force of the psychic censor in its explanation. - - -
 There is no doubt that the dream is progressively forgotten on awakening. One often forgets it in spite of painful effort to remember. - - - -the forgetting of the dream does not lack a hostile intention." And,¹
 "If the report of a dream appears to me at first difficult to understand, I request the dreamer to repeat it. This he rarely does in the same words. The passages wherein the expression is changed have become known to me as the weak points of the dream's disguise, which are of the same service to me as the embroidered mark on Siegfried's raiment was to Hagen. The analysis may start from these points. The narrator has been admonished by my announcement that I mean to take special pains to solve the dream, and immediately, under the impulse of resistance, he protects the weak points of the dream's disguise, replacing the treacherous expressions by remoter ones. He then calls my attention to the expressions he has dropped. From the effort made to guard against the solution of the dream, I can also draw

 1. Op. cit. p. 408.

conclusions as to the care with which the dream's rai-
 ment was woven." In the same chapter of his book,
 "We have, then, forced upon us the possibility that it
 (the censor) abates at night, that the dream has be-
 come possible with this diminution of the resistance,
 and we thur readily understand that, having regained
 its full power with the awaking, it immediately sets
 aside what it was forced to admit while it was in obey-
 ance."

It it is true that the censor, as soon as it
 regains control of the thought formations, with the re-
 turn, after sleep, of complete consciousness, begins to
 repress the most tell-tale parts of the dream, we shall
 at once have an index to these affective dream-portions
 if we manage in some manner to keep a record of the pro-
 gression of the forgetting. Such a record I attempted
 to make with several of my own dreams. The making of this
 record, however, presented difficulties that I had not
 foreseen. It would be desirable, if possible, to make
 the times between the successive records of the dream
 reasonably short, in order that it might be apparent from

 1. Sigmund Freud. Interpretation of Dreams. p. 416.

the records whether the memory of the dream disappears, as a rule, in large pieces, or by small steps. This is, however, impossible. Unless a considerable time is allowed to elapse between records, the very making of these records stamps into the mind, not so much the remembrance of the dream itself, as the remembrance of the verbal signs in which it has been previously reported. The records will be found, in most cases, especially with persons of good verbal memory, to be exactly alike, word for word; so precisely word for word, indeed, that the fact becomes perfectly obvious that the memory is not, as I have said, of the dream-events themselves, but merely, or at least mainly, of the words in which these events have been again and again recorded. I have determined, therefore, that no more than three successive records of the same dream can profitably be made in the course of a day. Even with so few as three records, the effect of the mere verbal repetition is noticeable. I find that the first two records of the dream usually differ materially, while the third generally differs very slightly, if at all, from the second. Successive

oral narrations of the dream show the same tendency. I finally decided that the best technique for the experiment was the following: I made the first record immediately upon waking, trying in each case to make the dream-record before I had had any conversation with anyone, and while I was as yet only approximately awake. I took care not to read over any portion of what I had written, even a word or so here and there, to correct any mistake in spelling or English that might have been made. I then folded the record so that I should not accidentally see any portion of it during the day. I never made the records on days when I expected to have leisure for rumination, but selected, for the experiment, days in which I expected to be busily occupied in affairs that were of interest to me. At noon, or shortly thereafter, I made another record of the dream in the same manner as before, taking care as before, not to reread. Just before going to bed in the evening I made my third record. The results were in most cases very interesting, but as the records, being in triplicate, are necessarily rather voluminous, I shall have to content myself here

with a report of but one dream thus recorded. The dream-records follow:

Dream of May 9, 1914. Dream-record made at 7:15 A.M.

I seem to be somewhere with a man and a woman who are trying to overpower me. I don't know what for. We struggle. I try to make the strength of my wrists count. Try to twist something till it breaks, (a neck, a wrist?) All of a sudden we seem to be on an island that is floating out to see. Some accident has made the place into one. We forget our quarrels and rush out to try to get back to main-land. I think "how lucky! they would have prevailed, otherwise."

There are a lot of people getting ready to leave some place or other. It is evening. Has a "feel" like a church or C.E. function. I go and bid people goodbye, and hear somebody say, (Miss P--?) "How foolish it is to go all around a room and speak to everybody!" I feel foolish, for that is what I have just done.

I am looking into a room where "she" writes her books.

"She" is a woman I know, married. I think what an interesting room. The fire-light is playing on the walls, and the things on the walls. The stove is queer, like a big arm-chair, where the back is of hammered iron with the fire behind it. It is so hot that I think I'd better do something to it, or someone will sit on it, and burn them -

selves. . . Before, while I was looking at the fire-
light on the walls, I thought how much more expressive of
a person's personality (who has a strong one) their room
when they are out of it is than their actual presence.

(Omitted in 3rd. Had to think to recall it) I also
notice how many small things she has on her walls, es-
pecially I see a common colored calendar. And yet the
effect is good. I think; "well, so many things in a room
are not always in bad taste, then." Notice her desk.
Is big, and of mahogany, (like O.R.B's) As I am fussing
with the stove a closet-door opens and her husband comes
into the room. I am slightly embarrassed to be discov-
ered fussing with his stove, but explain.

We go out. There is some talk about cremation, and the
ashes of dead people being kept around. He picks up
some ashes out of a big tub full of them and intimates
that that is what they are. I lie down with my head on
his lap. I feel so comfortable, sleepy and happy. He
takes my face in his hands. I seem to be I should not
like it, but I do. Have a confused notion that he doesn't
care for his wife, I take one pump off. There is some

more about the other pump, but I can't remember it.

Record made at 1:40 P. M.

Dreamed that I was at some place where people were going away from some sort of an affair. I said goodbye to everybody, all around the room. Then I went into another room to put on my things, and heard somebody say, "Isn't it ridiculous to think you have to speak to everybody?" (Miss P--?) The place seemed like a church or C.E. affair. When Miss P--? said what she did I thought

------(mixed up, here.)

I seemed to be struggling with two people, a man and a woman. I don't know what it was about. We wrestled with each other. I tried to break a wrist or a neck or something. All of a sudden the place where we were broke off from the main-land and became an island. We all ran to try and get back to land. I thought how fortunate for it to happen just then; otherwise I should have lost out in the scrap.

I am in a room where "she" lives and writes. There is a funny stove in the room. It is like a big arm-chair, only the back is of hammered iron, and has fire behind it. I am interested in the room. The fire-light is playing on the walls of it. I think that it's in good

taste in spite of having lots of little things on the walls. One of the things on the wall is a colored calendar. I can now almost see the picture on the calendar, but can't quite. (Had to think hard to remember) The desk is of mahogany, and looks like O.R.B.'s desk. I think; this is where she writes her books. Then I think that a room speaks louder of the personality of it's owner (when he is absent) than its owner himself. I am afraid the stove is too hot, and that it will burn somebody. I start to fuss with it. Just then "her" husband comes out of a sort of closet. I feel kind of fussed to think that he found me fussing with his stove.

 He and I go out, (to the beach.) I lie down with my head in his lap. He takes my face in his hands. I think I shouldn't let him, but I like it. It feels comfortable and sleepy. Then I think he doesn't really like his wife, and that explains "it". I take one of my pumps off. I worry for fear someone will come and see it off. There is more about the pump, but I don't remember it.

Record made at 9:40 P. M.

I seem to be in a room somewhere or other,

68.
struggling with two people, a man and a woman. I am trying to twist something, (a neck, a wrist?) I think there is something about my own wrists, but I don't know what. While we are still struggling, the place we are separates from the main-land and becomes an island and starts to float away. We all run to try to get to the main-land. I am glad it has happened, because now the people can't keep on fighting with me.

I am at some sort of an affair. It seems as if it were a church or a C. E. affair. Everybody is getting on their things to go home. I have gone around the room we have just come out of, and said goodbye to everybody separately. I hear somebody say, (Miss Pomeroy) "How foolish to say goodbye to everybody like that!"

I am in "her" room, where she lives, and writes books.

I am looking at the walls. They have lost of things on the, yet seem in good taste. One of the things is a common colored calendar. There is a funny stove, like a big arm-chair. The back of it is of hammered iron, and is the stove part. I am watching the light from the stove play on the walls. I am afraid that the stove is

68241

~~N. W. School~~

N. W. School

too hot, and that somebody will sit down in it, and burn themselves. So I start to monkey with it. While I am doing it "her" husband comes out of a closet. I wonder what he will think to see me fussing with his stove.

He and I go out. I think it was to a sort of a beach. I lie down with my head in his lap. I think to myself that I ought not to do that, but it is nice and warm and sleepy and comfortable, and I do it, anyway. I take one of my pumps off. Then I worry for fear someone will see me with it off. I have a feeling, "Well, this accounts for "it". He doesn't like his wife."

The first of these records, as will at once be noted, bears all the marks of having been composed by a person in an only half-awakened state. Even the present writes, who spells according to her "taste and fancy" would hardly, when fully awake, make such a break as that in the sixth line of the record. In the narration of the third incident of the dream, too, the sentences are short and choppy, and once, at least confused. "I seem to be I should not like it, but I do, " should, of

course, read, "I seem to feel", etc. This record was made, then, before the complete return of consciousness. It is interesting to note that even before the dream could be once recorded a part of the dream is already leaving the memory. "There is some more about the pump", the first record says, "but I can't remember it."

Let us now notice the differences between the three records. Taking the narrations of the three parts of the dream in succession, let us trace the omissions and additions that appear. The records differ in the following details:

(1) The order of the incidents is indifferent in the three records. In the first, the incident of the struggle comes first, in the second, the incident of the struggle comes second, the incident of the good-bye coming first. In the third record the first order has returned.

(2) "I try to make the strength of my wrists count", appearing in the morning record, is missing in the noon record.

(3) "Then I went into another room to put on my things",

appears in the second record only.

(4) "I feel foolish, for that is what I have just done", in the early report is almost forgotten in the noon edition, where we find, in place of it, "When she said what she did, I thought, -----(mixed up here)"

(5) "She is a woman I know, married", is missing in the second and third reports.

(6) The part about a room's expression of its owner's personality appears in records (1) and (2), but is forgotten by record (3). In record (1) the pronoun used in this connection is "their", (sex not stated). In record (2) the pronouns used are "he" and "him", (sex determined.)

(7) The desk, "of mahogany, like O.R.B's" was recalled only with difficulty in the making of the second report, and by the time of the third report was entirely forgotten.

(8) The picture on the calendar does not appear until record (2) and is lost again in record (3).

(9) "There is some talk about cremation, and the ashes of dead people being kept around. He picks up some ashes

out of a big tub full of them, and intimates that that is what they are." This rather striking incident of the first report fades out of the memory between the first and second reports, and does not return.

(10) "I worry for fear someone will come and see it" (that my pump is off) does not appear in (1), but appears in (2) and (3). That there was something more, not remembered, about the pump, is recalled in (1) and (2) but is forgotten in the last record.

Now there are certain striking features about the differences I have just summarized. Firstly, not only omissions may occur, as Freud led us to expect, but also additions may be made, as Foucault noticed. Secondly, the parts that fade out of the dream are not always those less interesting and striking incidents and descriptions that we might expect would be speedily forgotten, but, on the other hand, often present dramatic and picturesque features that make their loss from memory hard to understand. Thirdly, the loss from the memory of an incident in a dream is often a progressive affair; that is, it grows increasingly more difficult to recall

with successive records, until it finally disappears altogether, or the memory of an incident itself will fade entirely away, leaving in its place, only a memory that there was an incident, now impossible to recall. The effect on the memory of the dream-description of something corresponding to the Freudian censor seems to appear here, in the progressive forgetting of certain of the dreampoints, and in the fact that the dream-incidents that are forgotten are not those incidents that we should have judged most likely to be lost. We have, then, another clue for the start of psycho-analysis.

We now approach the third and last of the main divisions of the present chapter; namely, methods of dream-study based upon suggestion. Under this head the writer will present the work she has done upon artificially producing dreams or artificially controlling the nature of their content. The first work undertaken was with the method outlined by Andrews in the study reviewed in the history. Visual stimuli were used. Andrews reports that her stimuli were small squares of colored glass, illuminated from behind, and similar

squares of colored paper. In my own work upon this method, I used only the illuminated squares marked with black crosses, since the colored paper squares are only a much less satisfactory form of the same sort of stimulus. The technique of the experiment was very simple. It consisted of fixating the illuminated square for a period of about five minutes after the experimenter had been in the darkened room for some little time, enough to begin to feel sleepy, and just before actually going to sleep. Red, green, blue and yellow were the colors selected for the experiment, but after a few trials the use of the yellow stimulus was discontinued, and a deep purple was used in its place. The reason for this change was that the yellow, with a bright light behind it presented too attenuated a color to make much impression. The colors were used in irregular order, but care was taken not to use the same stimulus twice in succession.

As to the criterion that shall mark off stimulus-suggested from other dreams, none of the previous experimenters offer anything definite. It is, more-

5.

over, extremely difficult to set up such a criterion. When the stimulus is, as in this case, a color, it is surely not enough that the dream show that color. This similarity might, of course, be entirely apart from the effect of the stimulus. This same is true, if one, green for instance, could occur in so many dreams, wherever, indeed, any summer out-door scene was represented, that the mere occurrence of the color green in a dream could have no special significance. I therefore took as my criterion, not only that the color of the stimulus appear clearly in the dream, but that the square form of the colored stimulus, the cross on the square or some other characteristic of it should also appear. For this reason I had to reject several dreams as showing positive results that would very probably have been included as positive in the results of Andrews. While they may very well have been stimulus-suggested, they did not bear the signs of the stimulus that I have just mentioned.

From this series of experiments, on three out of eight nights I obtained dreams that appeared to have

been suggested by the stimulus. The following are examples.

Dream of Night of April 18th, 1914.

Second night of experiment with box-apparatus.

RED STIMULUS.

There was some dreaming that could not be recalled on awakening, but the only vivid dream consisted of a vivid visual image of a girl with very bright golden hair, the sort that is almost red. I remember seeing her whole person at first, then she bent over, and I could only see a square, filled with bright, golden, shining hair. (It should be noted, in explanation of this dream, that the light behind the opening of the box was so strong, that the red color of the stimulus shaded off to a sort of reddish yellow at the outer edges.)

Dream of Night of April 17th, 1914.

First night of experiment with box-apparatus.

YELLOW STIMULUS.

See a sort of notice-board, with notices in black on it. It says in heavy black letters, Mr. B. has to

leave 2:30-4--To Entertain At ---

Then

and a mark like this,

Here the yellow stimulus seems to have suggested the light placard of the notice, and the black cross to have been responsible for the heavy black marks on the sign. The stimulus dreams all occurred during the first half of the experiment. After the fourth night there seemed to be no sign of the effect of the stimulus on any of the dreams.

I tried next the effect on the nature of dreaming of a different sort of stimulation, given, however, as in the previous case, before the subject went to sleep. Instead of actual visual sensation I decided to use as stimuli visual and auditory imagery. For this test I arranged a series of seven quotations, selected for their vivid imagery, on slips of paper. These slips were to be read one each night, without the subject's seeing any of the others. I used for this test three observers. Out of the seven nights

on which the experiments were carried out, Observer (1) had three stimulus-dreams, Observer (2) had one, and Observer (3) had one. In every case the stimulus-dreams occurred at the beginning of the series. That actual stimulus-dreams were produced seems clear from such examples as the following:-

Observer (2) Stimulus,--"The Hound of Heaven".

I dreamed that I was at Hawthorn and 13th Street. Dogs were jumping around me, and I patted them.

Observer (3) Stimulus,--"Against the red throb
Of its sunset heart,
I laid my own to beat".

I dreamed that I saw a big red human heart, and a man's hand was squeezing the blood out of it, as one squeezes a bag in making jelly.

The work here reported completes the survey of the methods experimentally studied. The writer is strongly of the opinion that the methods which make use of the association method in both its forms are those that offer the best problems for the further investigation of the phenomena of dreams.

BIBLIOGRAPHY.

1. Andrews, G.A. Studies Of The Dream Consciousness. Amer. J. of Psychol. 12, pp 131- 134.
2. Calkins, M.W. Statistics Of Dreams. Amer. J. of Psychol. 5, pp 311- 343.
3. Delage, Y. Essai Sur La Theorie Du Reve. Rev. Scient. 1891, pp 40- 48.
4. Freud, S. Die Traumdeutung. English title, The Interpretation Of Dreams. Trans. by Brill. 3rd edition, 1911.
5. Freud, S. Papers On Hysteria. Trans.by Brill. New York, 1909.
6. Foucault, M. Le Reve. Paris, 1906.
7. Foucault, M. L'Evolution Du Reve Pendant Le Reveil. Rev. Philos. 58, pp 458- 491.
8. Friedlander. Hysteria And Modern Psycho-analysis. J. Of Ab. Psychol. 5, pp 297- 327.
9. Heerwagen, F. Statistische Untersuchung Uber Traume Und Schlaf. Wundt's Philosephiche Studien, 5, p 88.
10. Jewell, J.R. Psychology Of Dreams. Amer. J. of Psychol. 16, pp 1-35.
11. Jones, E. Freud's Theory Of Dreams. Amer. J. of Psychol. 21, pp 283- 308.
12. Jones, E. The Oedipus-Complex As A Key To The Solution Of Hamlet's Mystery. Amer. J. of Psychol. 21, pp 72- 113'
13. Jung, C.G. The Association Method. Amer. J. of Psychol. 21, pp 219- 269.
14. Leroy, B. A Propos De Quelques Reves Symboliques. J. de Psycho. Norm. et Path. 5, pp 328- 365.
15. Maeder, A. Essai D'Interpretation De Quelques Reves. Archiv. de Psychol. 6, pp 354- 375.
16. Maury, A. Le Sommeil Et Les Reves. Paris, 1878.
17. Nelsen, J. A Study Of Dreams. Amer. J. Of Psychol. 1, p 385.
18. Onuf, B. Dreams And Their Interpretation As Diagnostic And Therapeutic Aids In Psychopathology. J. of Ab. Psychol. 4, pp 339- 350.

19. Patrick, G.T.W. and Gilbert, J.A. A Study Of The Effects Of Loss Of Sleep. Psychol. Rev. 1896, p 482.
20. Prince, M. The Mechanism And Interpretation Of Dreams. J. of Ab. Psychol. 5, pp 139- 195.
21. Robert, W. Der Traum Als Naturnotwendigkeit Erklart. 1886.
22. de Sanctis, S. and Neyroz, U. Experimental Investigation Concerning The Depth Of Sleep. Psychol. Rev. 9, pp 254- 328.
23. Titchener, E.B. Dreams Of Tasting. Amer. J. of Psychol. 6, pp 505- 509.
24. Waterman, G.A. Dreams As A Cause Of Symptoms. J. of Ab. Psychol. 5, pp 196- 210.
25. Weed, Hallam, and Phinney. A Study Of The Dream Consciousness. Amer. J. of Psychol. 7, 405- 411. 0