

Volume 2 – Experimental Researches

Editorial Note

- Jung used word associations to develop idea of complexes;
- Volume 3 includes work on development of dementia praecox;
- Volume 8 gives his reflections on the association studies, plus general view of psychic structure and processes
- Vivid account of association theory in volume 18 with Tavistock lectures
- This contains Jung's six contributions to word association, carried out at university of Zurich beginning in 1902, which was in Burgholzli
- "psychological significance of association experiment" was Jung's inaugural lecture

**PART I STUDIES IN WORD ASSOCIATION**

**The Associations of Normal Subjects (1904)**

1: important to distinguish between normal responses and abnormal ones; wants to set a control;

2: looked for patterns and any laws in normal people;

3: associations subject to attention, of cardinal importance; it modifies the association;

4: attention links associative process with rest of psyche;

5: this is an investigation of attention and its effects on association;

6: encouraging results here;

I. General Experimental Procedure

7: breakdown of demographics, difficult to get normal people, two authors experimented on each other, Riklin;

8: classification of stimulus words, 400 total;

9: varied the words; took out patterns, taken from everyday life;

10: difficulties because of Swiss German dialect; uneducated group didn't get dialect German or standard German;

11: Swiss German is mostly acoustic-motor, rarely printed; explained experiment to subjects beforehand;

12: stopwatch was 1/5 second;

13: first series was to establish base time;

14: second series was with internal distraction, asked to attend to their own psychological phenomena;

15: third series was with external distraction, subject had to make pencil marks in time with metronome; 60 per minute, then 100 per minute; was sped up with some to defend against habituation;

16: couldn't introduce too much novel stimuli as to not confuse the stupid subjects;

17: an attempt to exclude extraneous effects;

18: took measurements from subjects in various conditions;

19: total of about 12,400 associations;

## **II. Classification**

### **1. General**

20: there's not necessarily a psychological connection between stimulus and response; there is simply a psychological process here, the nature of which is difficult to judge; notes likelihood for greater psychological differentiation in educated subjects;

21: must take into account not only logical quality but external circumstances;

22: will use Kraepelin-Aschaffenburg scheme for classification, whatever this is; of course it's not exhaustive; 2

23: jumping association vs judgment association; defends Kraepelin-Aschaffenburg;

24: classification of Munsterberg and Bourdon are too logical, based on abstractions without sufficient context;

25: it's about the verbal symbol, not the image, but even if it was the image it's difficult to fully penetrate the meaning to the subject, as said in paragraph 20;

26: verbal facility here can really affect results; for lack of a better;

27: hope for the best here;

28: flight of ideas as external manifestation of internal processes; yeah, like everything in this experiment is such a manifestation

## 2. Special Classification

### a. Internal Association

29: grouping: classify by coordination, superordination, subordination, or contrast;

30-37: coordination, two parts are linked by similarity in content or matter; association by coordination is at the least a vague similarity; two categories in the loosely connected associations are (1) stimulus image meaningful by coincidental attribute or (2) stimulus image linked by unessential attribute; 32: formation of coordination is due to external circumstances; 33: there's coordination through example; 36, overview of coordination classifications; 37, difficult if not impossible to give extensive classification of coordination though;

38-40: subordination, reaction is considered minor part of stimulus word, or special instances of stimulus word, sometimes a predicate;

41: superordination, an abstraction of stimulus word;

42: contrast, opposite, easily understood;

43: then we have groupings of doubtful quality

44: summary of coordination, subordination, superordination, contrast and groupings of doubtful quality;

45: but wait there's more, predicate

46: goes into Kant's analytic/synthetic dichotomy; analytic judgment is contained in concept, synthetic is not; or maybe the meaning of a concept is dependent on its units and nothing more;

47: snake and green is synthetic, as if some attributes of a snake wouldn't come from experience;

48: classification of the predicate association (1) stimulus word a noun, reaction an adjective or (2) stimulus word an adjective, reaction is a noun;

49: other predicative connections; it's all predicative regardless of the type;

50-54: consider noun-adjective predicative connection, adjective describes internally meaningful characteristic, or an addition to the stimulus; personal element more prominent in second type

55-58: adjective refers to an external, less significant characteristic; let's go on to noun-verb relation;

59: the subject relation, noun is stimulus word and reaction is subject of definite activity;

60: the object relation, noun is stimulus word or the reaction is the object of definite activity

61: predicates are coordination by example, different from object relation;

62: predicates also include place, time, means, and purpose;

63: another kind of predicative relation, not sure how much this matters;

64: predicative relations, overview;

65: then there's causal relationship, oh boy, everyone got this?

### **B. External Associations**

66: Co-existence, similar with temporal co-existence, or immediate succession, same with spatial co-existence;

67-69: identity, reaction is synonymous expression of stimulus word, either from same language or different language ie translation;

70-75: linguistic-motor forms, images that have been canalized through verbal practice, there are (a) canalized verbal associations, (b) proverbs and quotations, (gamma) compound words, and (epsilon) interjections;

### **C. Sound Reactions**

76-80: corresponds with Aschaffenburg's group "stimulus words acting only by sound" (a) word completion (b) sound, homonym (c) rhyme; no point in dividing this into meaningful and meaningless, due to rarity of meaningless ones, though you'd think it be because rarity of meaningful ones;

### **D. Miscellaneous**

81-96: indirect association, difficult to say whether link is conscious or unconscious, five forms (a) connection by common intermediate concept, usually conscious link (b) centrifugal sound-shift, an inner reaction that's meaningful, but replaced in expression with similar sound, (gamma) centripetal sound shift, stimulus word internally replaced by a similar sound, which then determines reaction; link is half conscious or unconscious, this centripetal sounds shift is largest instance of indirect association, due to insufficient feeling tone of stimulus word; (epsilon) shift by several intermediate links;

92-93: meaningless reactions, often names of objects in environment as response to pain or embarrassment

94: failures, absence of reaction, cause is usually emotional

95-96: repetition of stimulus word, kind of a failure, cause is emotional;

### **E. The Egocentric Reaction**

97-99: either direct ideas of reference or subjective value judgments;

### **F. Perseveration**

100-103: repetition of a word even if stimulus has ceased, preceding association conditions the next reaction, two cases of it (a) reaction is to previously used stimulus or (b) reaction is not an association; indicative of complex;

### **G. Repetition**

104: both of content and stylistic form across the 400 words;

### **H. Linguistic Connection**

105-110: association from acoustic, phonetic properties; some French guy found phonetic correlation on previous word association, though found words were more associated by meaning than by phonetic resemblance; linguistic connection on grammatical form and number of syllables; phonetic agreement along consonance, alliteration, the same ending;

111: summary of special classifications of words;

## **Part Two**

### **Results of Experiments**

#### **A Results obtained from Individual Subjects**

114: most difficult was to produce an internal distraction, yeah too subjective, literally; figures in tables are percentages

##### **I. Educated Women (14 subjects)**

115: external associations predominate over internal ones; notes changes due to lassitude;

116: poor association correlation with distraction because more mental energy going to the distraction activity; poor association ie canalized; poor association as increase in linguistic/motor forms of association;

117: no relationship between sound reaction and motor excitations, rather sound reaction with diminished attention; distraction primarily affected internal associations;

118: distractions make us regress to phonetic reactions;

119: increase of linguistic and phonetic reactions are blunted reactions; sound reactions don't occur when attention is fully placed on association;

120: faulty attention impeded association quality;

121: meaningless reaction up six percent in external distraction;

122: increase of perseveration during distraction, perhaps due to lack of association, uh yeah would say so;

124-130: Subject two, external associations only slightly predominate over internal, minor variations from first subject, not sure how much this matters; failures in the first 100 words, sounds like she's emotionally inhibited, indication of complex; sound affected indirect association, as we would suspect; internal distraction with this subject more successful (good example of internal distraction here in case there was some confusion), notes how internal distraction doesn't influence reaction due to a failure of the internal distraction to go deeper than periphery attention;

131-135: subject three, external associations predominate with linguistic motor form; internal distraction was particularly successful; blunt of emotional reaction with decreased attention, makes sense; variability in attention is the main thing that affects results in all association experiments, regardless of where it comes from; drowsiness as

more psychological than physical, calls it autohypnosis; notes sphere of attention, which sounds like beginning of S/N distinction;

136-145: subject four, sister of subject three, similar reactions as sister though is more distracted by the affect of past engagement, her psychology will be explored later; an increase of internal association during distraction, explained by attention change; strong visual reaction;

144-145: subject five, mother of three and four, similar reaction type again, hmm; increased blunting in younger daughter; others found more internal associations in old than in young subjects;

146-148: subject six, highly charged value judgments; egocentric associations, noteworthy that she's a poet;

149: subject seven, mother of subject six; internal associations dominate, most subjective value judgments, some highly charged;

150-153: subject eight, elder sister of six; more internal associations, subjective reaction type, again with the egocentric reactions in this family; asserts familial disposition; notes this family of six, seven, eight are predicate types, since much of their associations are predicates;

154-156: subject nine, predominance of predicates, couldn't do external distraction due to distraction issues; notes predominance of internal association in educated subjects;

157: subject ten, subjective reaction type, egocentric; perseverations occur solely with distraction; large number of failures, probes some issues here; subject has somnambulant dreams; says he'll discuss this more in a publication on hysteria and anomalies in association, an allusion to Association, Dream, and Hysterical Symptom pg 353;

158-159: Subject eleven, mother of subject ten, predicate type with value judgments, she got bored in second hundred; possible similarity due to kinship;

160: subject twelve, objective reaction type, here we see Jung making the distinction between introversion and extroversion;

161: subject 13, diffident so many repetitions, awkward;

162: subject 14, objective reaction type, second hundred associations couldn't be obtained due to external reasons whatever this means;

163-164: summary of educated women; predicate types had smaller distraction, older showed internal association over external, as previously found;

## **II. Educated Men (nine subjects)**

165-169: subject 15; lots of scenarios for this guy, objective reaction type, verbal, primitive linguistic mechanisms; theoretically, a sleeping subject could only give sound reactions; notes complex explicitly, an emotionally charged complex in which attention is bound up; why is he talking about the subject like he's a she; this guy was very interested in the experiment, assumed it was predominantly verbal, meaning of stimulus word tends to result in internal associations, makes sense; coordinating relationship when subject is trying to be objective, predicative relationship when subject keys in on the stimulus word meaning; notes an attitude phenomenon when subjects have agenda or pretensions about experiment;

170-177: subject 16, blunt reactions, sound reactions; blunting increased with internal distraction; decrease of sound reactions with external distractions; same type as subject four; this guy is trained psychologist; trying to think of analogy for this; go back and read paragraph 174;

178: subject 17, blunt reaction type; conducted on hot day, shows in word choice;

179-181: subject 18, doctor, 36, internal distraction and fatigue show decrease of internal associations, get into complexes,

182-200: constellations and complexes, begins to see how psychological issues prevent us from engagement with reality in a healthy way; subjects fail when words are emotionally charged;

201-207: subject 19, physician, 25, internal distraction stronger than external; notes perseverance here, not sure how much this matters, indicates internal association but not complex;

208-222: complex-phenomena and the unconscious, this subject 19 was in love with a Jewish girl, notes how this showed up in reactions; no indications of complex during distractions, which would make sense;

223-234: subject 20, 25, science teacher, not sure these variations matter; predominance of subjective reactions, indicates complex around school and bride; not as conflicted though as subject 19; still brings up fiancée a lot;

235-241: subject 21, 23, physician; likens fatigue to distraction, some complexes here not sure if anything noteworthy about them;

242-251: subject 22, 24 chemist; constellations around love and occupation, thinking about sex;

252-258: subject 23, 25 yrs physician, fatigue more effective than distraction; no constellations of note;



259-266: summary and remarks of educated men; complexes are unconscious of course, typically don't emerge until results are analyzed, longer reaction times invariably indicate complexes;

### **III. Uneducated Women**

267-291: subject 24, nurse 18; in uneducated subjects generally more internal reactions and fewer linguistic motor forms; notes complex re personal life; more influenced by pop culture, sundry experiences; definite article the used to disguise complex; "didn't understand" stimulus words that touched on complex, indicates repression of the complex; complex reactions seem to all fall under umbrella of avoidance;

292-305: subject 25, south German 22, many slow reaction times again indicates complex; seems to be an erotic complex; blushes easily; easily influenced by distraction, object naming, notes how she was making great effort in her participation;

306-333: subject 26, nurse 21; complex appear as well under distraction as they did for most subjects in this group; notes the subjective reactions; who doesn't have a love/sex complex; still quoting Goethe; complexes hidden behind quotations, again; Jung theorizes more about complexes

334: subject 27, nurse 23, similar to subject 25;

335-343: subject 28, nurse 28, predicates low, groupings low; complex re lover deserting her, manifested in reaction time length; repetitions inconsequential;

344: subject 29, nurse 18, egocentric reactions aplenty, distributed evenly; complexes behind failures, subject reticent to talk about it, some kind of family thing;

345-348: subject 30, nurse 27, notes repetition of form, nothing egocentric, some complex indicated but no psychological analysis carried out to determine what's going on ;

249-354: subject 31, maid 27, value judgments thought not particularly egocentric; notes repetition; perseveration with dog because she was recently attacked by one; strong personal participation, wanted to say fox but said wolf instead; failures due to complexes;

355-357: summary, various temperaments react differently to the distraction;

### **IV. Uneducated Men**

359: subject 32, nurse 40, high failure and egocentric reactions;

360-364: subject 33, nurse 25, external associations, complex re military service, engagement; no quotations;

365: subject 34, nurse 54, unsuccessful distraction, no complexes of note;

366: subject 35, nurse 37, predicate type, notes variations, not sure how important this all is without background;

367: subject 36, guy 30, egocentrism decreases with distraction; a lot of repetition in second part with distraction;

369-371: subject 37, guy 36, no egocentric reactions, objective type; notes similarities reactions with other similar typed subjects, 25, 27, and 36;

372-374: subject 38, tech student 17, predicate type, successful distraction regardless; notes long reaction times but not analysis of complexes;

375-381: summary of uneducated men, subjectivity and feelings less prominent than in uneducated women, this difference barely exists among educated subjects; educated men more feminine, ouch; again, most complexes are of erotic/love/romance nature;

## **B. Calculations of Averages**

### **I. Experiment under Normal Conditions**

382: attention has greatest effect on variation; noted by effects of distraction;

383: sees attention as a directional idea, either promoting ideas or feelings, or inhibiting ideas or feelings;

384: intimates focus/attention/decision fatigue;

385: lowering attention through distraction brings other reactions to the forefront;

386: old memories crop up in state of internal distraction;

387: distraction is like mania, looks like a flight of ideas;

388: fatigue is a kind of distraction, also alcoholism yeah; Jung's explanation of this is a physical fatigue

389-400: so disturbance of attention leads to blunted reactions, sound reaction; this is helpful in diagnosis, in understanding reactions generally; analysis of the various groups and how reactions are explained by their differences, but this doesn't explain all differences; poor selection of his uneducated subjects since they came mostly from the hospital nurses, more like half-educated; females show high internal associations, internal associations increase in second half of experiment; make subjects show blunter reaction type than females; notes why increase of failures in second hundred for both groups, may not be due to fatigue rather the feeling-toned words in second half; men produce more egocentric reactions; egocentric reactions probably connected with perseverations; notes the inverse relationship of indirect association and sound reactions (because one is more N, the other more S);

401-411: differences between educated and uneducated; educated show blunter reaction type; educated results could be thought of as more distracted; Jung explains this poorly, really it seems the educated subjects simply think about it more; uneducated subjects stick to meaning of stimulus word more than educated; uneducated have less ego-centric reactions; educated subjects have greater sound reactions by seven-fold; educated subjects re more space-y; so uneducated women highest degree of attention, educated men the lowest; the origin in the difference of attention (1) experiment is more novel to uneducated subject (2) what the uneducated subjects more used to answering commands, which is what the stimulus word seems like (3) uneducated subjects think of words more concretely;

412-422: subjective type, character as a principle of classification, subjective versus objective reaction; personal oriented versus reality oriented; subjective can be divided

into three groups (alpha) stimulus is feeling tone (beta) memory (gamma) image evoked acts through both feeling and memory; this notes one factor in type, but not all of them; notes the phenomenon of repression, complexes, and how this affects the experiment; notes how suppression is betrayed, which he already talked about;

423-426: Objective Type, uses words based on their own similarity, connection; constellations of a profession are not taken to be psychological constellations; when word is important, response aims therefore to be as “correct” as possible;

427-433: Egocentric Attitude, simple constellation type of this, experiences and memories prevail; complex constellation type, feelings prevail; predicate type, judgments prevail;

434-435: Sex Differences under Normal Conditions, not much difference, really; men have more sound associations, more indirect associations; men have more egocentric and perseveration, due to their inhibited behavior;

436-468: Averages of the Distraction Experiment; distractions of course tend to blunt reactions; educated women show more blunt reactions than educated men; uneducated = more visceral, and women = more visceral; distraction has greater effect on men overall; sound is greatest link for indirect associations; Claparede thinks indirect associations stem from several intermediary reactions, each too small to be noticeable; stupefaction could be emotional illiteracy when it comes to the complex; women more solid in their egocentricity under distraction; notes on the observation some people tend to be more image-focused; notes why attention cannot be as easily divided among women; educated subjects less distracted re maintenance of grammatical form;

469-474: Average of Predicate Type; predicate type is in whom internal associations dominate over various linguistic-motor reactions, seven men and two women in this category; no change under distraction, this is due to the dominance of the predicate type’s inner image; peculiarities of predicate type explained (1) large number of predicates, fueled by inner image (2) large number of egocentric reactions, what sounds like later to be introversion (3) failures, large number of, due to complexes, which predicate types would be more tuned in to;

475-487: Influence of Grammatical Form of Stimulus Word on the Reaction; nouns will be answered more easily because they occur more often; there are patterns here but not sure how much they matter; many contrasting results here, again not sure this matters; what’s important to note here is how these observations lay foundation for types later on (egocentric vs objective);

488-492: Summary; decrease of attention blunts reaction; distraction causes increase in indirect association; educated subjects have blunter reaction type; no difference occurred in degree of division of attention between educated and uneducated subjects; individual differences account for largest variation; objective type vs egocentric type, predicate style is part of egocentric type

493-498: Explanation of Graphs; educated subjects had fewer internal, more external, and more sound associations under normal conditions; definite, regular decrease in internal associations from normal conditions to 60 beats to 100 beats metronome; decrease in internal association with more distraction, increase in external associations with more distraction; predicate type reactions change less under distraction;

### **An Analysis of the Associations of an Epileptic (1905)**

499: epileptics show intellectual and emotional degeneration; yeah not exactly current but oh well we may still learn something;

500: let's look for a delineation of epileptic degeneration;

501: this has already been researched before;

502: previous word association with epileptic shows predicate repetition and accentuated egocentricity; unconscious reactions, when reaction has no association with stimulus word;

503: someone else posits this is because mental slowness in epileptic causes them to answer less easily;

504: Jung notes similar observation of unconscious reactions in *On Simulated Insanity*, in volume one;

506: Fuhrmann's next test subject, 16 years old, observed restriction in reactions;

507-509: Riklin in his association experiments on epileptics, find they cling to word form, egocentric, personal constellations, strong emotional charge; these are basically the epileptic character; perseveration also in imbeciles and idiots, not just epileptics;

510: epileptics have same symptoms as imbeciles and idiots, only fewer;

511: there's an institution for epileptics in Zurich, so Jung got subjects there; 158 subjects total;

512: Jung excluded subjects that only contracted epilepsy after puberty; this is to discarded subjects that have congenital mental deficiency;

515-517: technique on obtaining the associations; basic instructions given with examples; new list of stimulus words for this experiment, breakdown;

518: the subject, M Joseph Toolmaker, born 1863, trauma from dead wife it seems, began to wander; physical trauma present as well; seems to have issues with alcohol;

519-538: first 12 reactions given, never with one word, long reaction times; predicate type; uneducated subjects tend to form sentences more than educated ones, perhaps an indication of low status; low quality of associations, tautological or definitional; notes the egocentric reactions with three “I” occurrences; he is influenced by personal reminiscences, charged complex, and predicative type; imbeciles and the educated have highest percentage of egocentricity, though they’re of a different nature; imbeciles and epileptics are more explanatory than the educated; pleonasm noted;

539: further reactions and breakdown; this subject speaks like he’s unsure whether he’s being heard; he’s constantly trying to clarify his meaning like a low status person would; this mixed with clunky sentences, faulty formations; imbeciles have similar clunky formulation but without intention of clarity;

541-557: further clarification; subject made gestures of confirmation or completion with many reactions; stimulus words repeated with 30 percent of reactions (geez); hysterics tend to repeat a triggering stimulus word in a question tone; notes more perseveration, repetition at triggering stimulus words; notes awkward reactions of repeated words, long reaction times, poor analogy; notes prolonged reaction time in epileptics, though more investigation is required for this; explains this phenomenon because feeling tone intensity is greater in epileptics, ugh he already said this; part of this epileptic’s complex is the hospitalization, fear he may never rejoin society, test done before Christmas when patients are more down on themselves;

558-559: Summary; this epileptic adapts himself to stimulus word in the same, low-status way uneducated subjects do; similarities with imbeciles, normies; Jung doesn’t want to draw any generalizations from this one case, experiment; there is great variation among epileptics;

### **The Reaction-Time Ratio in the Association Experiment (1905)**

560-567: what reaction time is, indicates all the steps that constitute reaction time; large intervals are normal, no need to measure down to fraction of a second; used one-fifth second stop watch; notes limited precision of stopwatch; material for this analysis taken from Riklin and Jung during associations with normal subjects, the 38 cases in first, main paper; reaction times were taken in 26 of these cases; seven uneducated women, seven uneducated men, six educated women, six educated men;

568-576: Average Duration of an Association; notes what others have found to be averages; there is little agreement among them for clear reasons give; probably mean takes into account previous reactions, arithmetic mean does not;

577-578: Sex and Reaction Time; men had shorter reaction time by one second, or women 62 percent longer; explains this by the low cultural stratum of the uneducated women;

579-583: Education Level and Reaction Time; uneducated longer due to more internal associations; and women have more internal associations, which will make reaction time longer in addition to uneducated;

584-593: The Influence of the Stimulus Word on Reaction Time; reaction tends to be in same grammatical form as stimulus; uneducated more likely to be influenced by form of stimulus; probability of noun grammatical repetition is higher because there are more of them; man, he just repeats himself;

594-598: Influence of the Reaction Word on Reaction Time: lower reaction times for adjectives and verbs; so when the stimulus is adjective or verb, it's longer reaction time, but subjects are quicker with adjectives and verbs as reaction words;

599-600: Influence of the Quality of the Association on the Reaction Time: external associations take less time than internal associations; sound reactions not necessarily shorter even though they're the lowest form of reaction, due to a disturbance Jung will discuss later;

601-604: Prolonged Reaction Time: prolonged is any time longer than average for the subject; goes through what causes longer reaction times, complexes, difficulty with stimulus word, subjective associations... let's look at what causes complexes by looking at reaction time results from further subjects;

605-610: Subject No 1, housewife: note sound displacement, Engelhard becomes angelheart; cut and pierce causes slight anxiety but not enough to retard reaction; notes how other reactions that are off or long are caused by her complexes; mepriser is despise in French; she's afraid of her husband's infidelity during her pregnancy; these reactions may tell Jung something is going on, but not what is going on; there's a reverberation of complex after it is triggered; yeah obvious complex around pregnancy;

611-615: Subject No 2, educated man, middle age, physician; shows less sexual complex than the woman; more about money, ambition; sure it gives us a cross-section of complexes but not without further analysis;

616-621: Subject No 3, young educated man; love complex in foreground, then family, then ambition; a lot of repetition here;

Quantitative Ratio of Prolonged Reaction Times in a Greater Number of Subjects:

622-632: Stimulus Word and Prolonged Reaction Time: the question of whether we can predict reaction time based on a word; an analysis of several stimulus words and what they could mean, why they may cause a prolonged reaction; stimulus words that refer to an affective image cause prolonged reaction; this is kind of question begging but he does note erotic words as affective;

633-636: Incidence of Prolonged Reaction Times with Individual Subjects: relationship between intensity of affect and reaction time; low status people are more likely to inhibit emotions in presence of researcher who we tend to view as high status, is really what Jung is saying here;

637-638: General Recapitulation: female subject reaction times 63 percent longer; uneducated subject reaction times 33 percent longer; shortest reaction times follow nouns, longest follow verbs and abstract nouns; quality of reaction affects length, or vice versa; long reaction times caused by complex; prolonged reaction followed by affective words;

### **Experimental Observations on the Faculty of Memory (1905)**

639: notes an immediate forgetting of stimulus word with hysterical subjects, Freud sees it as an indirect repression; complex that causes this of course needs to be identified; free association useful but time consuming; after a 100 word association test, they repeat the words giving subject time to remember what they said the first time; looks at two cases of pathological cases to see what happened;

642-647: Case No 1: 32, professional musician, stage fright; sounds like a Jerry Springer episode; notes how forgetting occurs with strong feeling-tones words, of a critical nature;

648-659: Case No 2: 22 educated man; excitable, sensitive, can't take a joke; had numerous love affairs; failed engagement; directionless; again with memory failure at complex points, longer reaction times at the forgetting; Freud on forgetting and repression; catatonic state is amnesia to the nth degree;

### **Psychoanalysis and Associated Experiments (1906)**

660: let me try to sum up hysteria: psychological incontinence;

661: hysteria caused by psychic trauma, literally painful, sexual

662: brief overview of nature of unconscious, interesting how this needed to be aid in 1906;

663: easy to lose footing and orientation when conducting psychoanalysis;

664: complexes and repressions make themselves known in associations;

665: so let's look at connection detailed between psychoanalysis, the theory of it, and association experiments;



666: case overview of Miss E; sleeplessness, restlessness, and excitement, irritable, impatient; 37 years old, teacher; alcoholic father; illness onset in recent years; sounds like a lot of anxiety here;

667-702: The Association Experiment; analysis of Miss E's reactions, where complexes may exist;

703-726: Psychoanalysis: Jung began free association with her; subject feels stuck in the neurosis; she has some shame she doesn't want to talk about; turns out the gardener hit on her and she reproached herself for wondering what it would be like to sleep with him; talked about sex with the maid, who was having sex with the gardener; third session, again more interest in sex; guilt about pupil's death; note how subject was resistant to analysis yet famished for it; yeah a lot of shame about sex; vicarious fantasy about sex; notes the nature of repression, how it presents and relates with denial; pattern of obsession is anxiety, how it functions; talking through painful memories was necessary for the patient to see the past for what it was, as represented by a new image of the woman receiving her last sacraments; gots to talk bout stuff;

### **The Psychological Diagnosis of Evidence (1906)**

728: on evidence in court, how it may not be entirely objective and influenced by psychological issues of witness; let's look at history of this idea and how it unfolded;

730-734: inception of word association, by Wundt; then more theory with Kraepelin, then Aschafenburg showed psychological effects present with reaction words, noted various types of associations; Bleuler introduced word associations at Psychiatric Clinic Zurich; gradually we learned reactions were predictable, notes this through example of young man and his K-drama complex; complex noted as a large number of similar ideas, feeling tone as the cement that holds ideas together, good way of putting it; influence of complex on feeling and behavior is called a constellation

735-739: on whether these complexes work by some law; and here's the Kantian shift in philosophy to psychology, sure we may not be in touch with reality, but through understanding out psychology, we can devise laws or at least general patterns through which we'll be more likely to be in touch with reality; complex constellates outside of our awareness, or at least it can; Jung's intention was to investigate this phenomenon, even whether we can veritably hid our complexes, not give them away; reaction words that seem to be inconsequential can have rich meaning upon further investigation;

740-754: now let's look more closely into contents of reactions: review from our perspective of reaction themes, reaction times and what they mean; review of reproduction method, how failure to reproduce indicates complex; review of perseveration;

755: the purpose here will be to use word association on a criminal so he can betray certain facts and memories, even if he wants to hide them, like proto lie detector test, so we know this is going to be a pragmatic disaster;

756: let's go through a previous experiment by Wertheimer in Kulpe's laboratory at Wurzburg; subject shown image he had to commit to memory, then in association had to not give away the fact that they have memorized the image; Jung admits these associations used in court may not be the most accurate, simply as another point of reference;

757-768: sure, you can use word association to identify complexes, but to distinguish evidence in a court is more dicey;

769- : right, so let's look at that case; oh, it's the case from previous, young man of notable family steals from old guy;

771-778: Experimental Procedure: Jung chose words that would be most likely to stimulate complex if young man was guilty; also prima facie irrelevant stimulus words thrown in to pick up perseveration; mean of reaction times for the suspect's class, since he's educated, is two seconds; some kind of complex is indicated here; Jung accused him of being a thief right there in the room after the test ended; may have worked in this circumstance because thief wasn't a hard-boiled criminal;

779-792: took on two subjects, Informed and Uninvolved, as controls in this case; results of these based on word choice alone are similar to the culprit, perhaps the Uninvolved was a thief himself; so word association worked in this case but quite by accident; Jung simply intuited the culprit did it; though the culprit did have longer reaction times, indication of stronger emotions during those reactions; culprit also has way more incorrect reproductions; hey, word association isn't perfect but it's promising;

## **Association, Dream, and Hysterical Symptom (1906)**

### **I. The Associations**

793-795: let's look at word associations experiment with subject who has hysterical symptoms; female, 24, fair intelligence, youngest, twitches made writing impossible, tic-like attacks, menarche increased severity of attacks, sensitive to heat, afraid of going mad, hallucinations; complains, visions of blood, fever with cold feet; imagines black man reaching out with black hands, clutches her arm, imagines white female apparitions; menstruation ceased since Jan 05 (it's Oct 05) ocd like symptoms, suspected autoimmune disease;

796-800: let's go over the first test: mostly external associations; results are as if she was distracted; yes she has difficult time with attention; long reaction times;

801-803: Test II: she gives up after word 28; room is 55 F, thinks it's unbearably hot yet experiences same temp as pleasantly cool in summer; possibility the stress of the test is really her effort in complex repression;

804-807: Test II, four days later; shorter reaction time, reduction in failures;

808-809: Test IV, eight days later; again, looks like distraction experiment; increase in reaction time, more failures;

810-: Test V, couple weeks later; results look normal, like she's no longer distraction; way fewer external associations; failure still high; been in treatment since test IV; still signs of pathological emotion repression present;

814-815: Text VI, couple weeks later now Dec 1; she went 100 reactions, Jung stopped it, not her; same reaction time of 5.2; same test given yet no reduction in reaction time; more indication subject is fighting against her complexes, so to speak;

815-816: further analysis: strong inhibitions, again, projects her bad mood on to Jung; presence of an erotic complex, but this diagnosis could be Jung's perseveration from past subjects; subject thinks she didn't go to school because of misbehavior but really it was her tic; through her illness, subject no longer had to go to school and garnered attention for herself; fear inherited from mother over marriage, childbirth, now it makes more sense; she's distracted by her attempt to hide complex around mainly eroticism;

817-822: Summary of the Analysis: subject's laughter indicates there is a repression there, or she's thinking something she's not saying; in my view she has anxiety from avoidance, anxiety aggravated by her mother's anxiety re love and childbirth (given mother's illness), all made worse because she was "rewarded" for her illness;

## II. The Dreams

823-824: previous dreams about fire, red, and blood, which Jung casually interpreted as love and passion, she burst out laughing, embarrassed;

825-827: First Dream, Nov 27, room filled with cats, making noise, anxiety present; how Jung interpreted dreams, he would have subject associate re images in the dream, not emotion present in dream; cats represented sexual partners who fought, taken from subject's experience;

828-829: Second Dream, Nov 30, room full of mice that make a lot of noise, mice have big heads, dark ears like cats, red glowing eyes; again, this is about mating, and all the "noise" and confusion that comes with it;

830-831: Third Dream, Dec 1, she goes to shop in town, big dog jumps on her to get food; idea of mating, of course, it's going to take something from her;

832-833: Fourth Dream, Dec 2, black man leads someone down the corridor; black man is sexual complex, it's leading her and others to the hospital;

834-835: Fifth Dream, Dec 3; subject with woman, house on fire, white figure, guess a woman, emerges from behind house and scared them both; the woman in the dream is another patient who has a crush on Jung, also reveals subject has crush on Jung;

836-837: Sixth Dream, Dec 6, subject shows father through institution, which means she now wants to stay and hopes Jung will cure her;

838-839: Seventh Dream, Dec 6, her mother keeps getting in way of patient's maturation, mother is cause of illness, still hopes for sexual relationship with Jung now as a way to cure her;

840-841: Eighth Dream, pick up stones and coins, wash the stones, and put on kitchen table with coins on top, then shows them to her brothers; this means subject wants to go home, now views other relationships as healing, not just a fantasized relationship with Jung;

842-843: Ninth Dream, Dec 12, she sees intimacy and connection with family as a way to get better but it may get weird;

844: clearly dreams indicate erotic complex; next let look at how complex manifests in hysterical symptom;

### III. The Hysterical Symptom

845-: St Vitus dance symptom ie Tourettes: of course patient doesn't know the cause, hysterics only know cause of ancillary ideas; Tourettes was a great way to get out of schoolwork; combined with the sexual complex she received from her mother, so symptoms got worse after menstruation; her regimen not coincidentally corresponds to textbook defenses against sexual excitement; the treatment worked but she regressed when she went home, which only tells me the treatment needs to be ongoing, but this wasn't in the ken of Jung outside a mental hospital;

### **The Psychopathological Significance of the Association Experiment (lecture, 1906)**

\*good recap up until now in case you missed anything\*

863: two different kinds of psychologists, scientists and religionists;

864-867: psychopathology suffered by hands of religionists; Kraepelin and Aschaffenburg aim is to get more scientific about psychopathology, so let's look into it; first some historical context;

868-869: Wundt and his association experiments; we cannot have rigid laws of association if free will exists; an indication we have free will but not total free will, so there must be some truth to laws of association though they're not as rigid as the scientists like Wundt make them out to be; in the second half of paragraph 868, Jung attempts to debunk free will on the basis that we cannot choose all of our unconscious motives, but this is a straw man in that only a religionists would defend free will by saying that we have access to every one of our thoughts, only that we have access to some of our motivation, at least more than is on the surface level; the question isn't whether we have 100 percent free will, but to what extent do we have it and how do we expand the range of our will; but Jung was young here and moving from a perceptual faculty to a conceptual faculty, which is in part what makes his work magnetic—his transformation needs to be the transformation of everyone and psychology included;

870-883: Aschaffenburg's discovery of a law, the distinction between internal and external associations ie a response in which the meaning or conceptual content is the essential connecting link; then there are external associations where link is a contingency; then there are sound associations; introduction of fatigue and distraction to identify pattern in external and internal associations; through fatigue and distraction they saw an increase in external associations; mania, boredom, tiredness, all increase external association;

884-885: why uneducated gave more internal associations, because educated people are used to dealing with words by themselves outside the context of a sentence;

886-897: the predicate type explained; association depends on education, family, complexes ie who we are or our personality; longer reaction time indicates complex; using this observation combined with seemingly nonsensical association we can tease out complexes;

898-907: though there are still difficulties with normal subjects; complexes as black spots we think we have forgotten but make itself known during associations, even with normal people; women have more simple complexes, easier to recognize, have stronger erotic complex; for men, money is more important gee wonder why;

908-: back to psychopathology, hysterical symptoms do have a logic of their own; complex also at the root of dementia praecox,

### **Disturbances of Reproduction in the Association Experiment (1907)**

918-921: Jung's paper "Experimental Observations on the Faculty of Memory" has been criticized, so he's here to defend it with the numbers; he maintains that when an association is forgotten, it's usually an indication of a complex; Jung previous points include (1) incorrect reproduction take longer, (2) incorrect reproduction occurs on further tests, (3) there's a tendency to serial or isolated disturbances in reproduction, (4)

repression best explains the failure of reproduction; (5) unease associated with the repression; reaction time as an indication of a complex;

922-925: Disturbance in Reproduction and Reaction Time: simply looking at prolonged reaction time isn't enough; good to also look at time after the reaction, in the subsequent association; numbers show two thirds of incorrectly reproduced reactions will be greater than the average reaction time;

926-933: Series of Disturbance and Reaction Time: nearly two thirds of incorrect reproduction occurs in series, which indicates complex via perseveration, reproduction error either occurs with prolonged time or right after;

934: Reproduction-disturbance and Probably Time Mean: number of disturbances with longer individual time means increases, uh increases with what?

935: Reproduction-disturbance and Complex Characteristics excluding Prolonged Reaction Times: complex characteristics include reaction by two or more words, repetition of stimulus word, misunderstanding of stimulus word, mistakes, slips of the tongue, translation into a foreign language, use of exclamations; all tend to be grouped around certain associations

### **The Association Method (1909, lecture one at Clark University)**

939-955: first in series of three lectures, first on how he conceived his association method, then on the family constellation, then on childhood; words he uses are chosen to trigger complexes; hey guy, prolonged reaction times indicate complexes; subjects who show disturbances to a stimulus word are therefore inadequately adapted to reality, oh good line; association failures, also indicative of complex; a multiple word reaction, as compensatory explanation, indicates anxiety; repetition of stimulus word means it's uncomfortable, example of short man and the word short;

956-983: where stimulus words touch upon complexes, let's look at an example of crime detection through association; money missing from a nurse's purse; chose stimulus words based on details of the theft; threw in some normal words as control; nurse B leads for reaction time change, though nurse A leads for change in complex indicators; nurse A leads in incorrect reproductions; nurse A deviates most from what is expected, so she's the most likely culprit; still profound for this time to say we can have a complex, and it can affect us, yet we may not know it's there;

984-990: associations reveal our emotional types, not so much an intellectual type, again why uneducated people respond with richer reaction words; reviews objective type, complex type, definition type (common among stupid people, imbeciles (35-49) intellectual significance of stimulus word emphasized; predicate type, emotional significance of stimulus word emphasized; predicate type is compensation for deficiency in feeling;

991-998: reproduction discussed, this is good review; we may remember emotion, but not so much what is said under emotion; here, he says it again, association tests are not an evaluation of complexes but an introduction of complexes; an example of how he conducts association tests with protocol; the example of the woman, from previous, projected her own desire for infidelity on her husband, much sexual repression;

**The Family Constellation (1909, second lecture at Clark University)**

999-1007: his pupil Dr. Furst applied association test to 24 families, 100 subjects; 15 groups of associations, ie whether and to what extent associations track in families and between families; children more similar to their mothers; sons more similar to their fathers; daughters more similar to their mothers; notes the similarity between a mother and her daughter where father is a reprobate, daughter will become accustomed to dissatisfaction, suffering, and so also marry a reprobate; good note about what influences the child is “unconscious personal affective states of his parents and teachers;

1008-1014: on how we choose to be with people who are emotionally familiar ie like our parents; a good example of this from a patient who kept choosing psychotic men; another example of a woman who couldn't find a man who measured up to her father, this of course due not to the father but to the attachment with him;

## **PART II. PSYCHOPHYSICAL RESEARCHES**

### **On the Psychophysical Relations of the Association Experiment (1907)**

1015-1019: apparatus review; for galvano-psychophysical reflexes, conducts two volts of electricity through the subject's body, enter through one hand, exit through another, so galvanometer will indicate an increase in amount of current ie feeling tone in body with latent period of about six seconds; then we have feelings through anticipation of a stimulus word, thus showing feelings can be objectively represented; Jung creates an apparatus that is more suited for feeling-tone measurement;

1020-1035: experiment review; this subject seems to have an issue with ships and water, turns out she wanted to drown herself; goes through a couple more subjects, notes the rise in curve at complex indications;

### **Psychophysical Investigations with the Galvanometer and Pneumograph in Normal and Insane Individuals (1907)**

1036-: purpose here is to measure galvanic reflex of psychological and sensory stimuli, and to study respiration of same stimuli; measure both these simultaneously and compare; also take reaction time into consideration; a kymograph measures motion and pressure in curve form;

1037-1045: Apparatus Employed: a review of research on the galvanometer, seems to be sensitive to nerve activity; normal mental activity doesn't affect galvanometer; emotionally charged mental activity does, good to find a Youtube video that explains how galvanometer works because Jung doesn't cover it in enough detail;

1046-1057: The Physics and Physiology of the Psychophysical Galvanic Reflex: change in resistance, measured by galvanometer, most likely brought about by sweat or intracellular stimulation; warm/moist increases curve, cold/dry decreases curve; expectation, emotion, imagined emotion cause change in galvanometer in normal individuals; note of various stimuli and how they affect galvanometer and pneumograph; it makes sense that the stimuli have less effect with repetition; there's latent time in stimuli and galvanic response, which varies slightly among people; likewise different people who have different temperaments indicate different normal galvanic lines;

1058-1065: The Pneumograph as an Indicator of Psychic Processes: notes what previous researches noticed between relationship of psychic processes and respiration; seem to be many confounding variables that affect respiration; inhibitions associated with variations in expiratory curve; intellectual emotional or conscious innervation associated with inspiration;



1066-1078: The Galvanometric and Pneumographic Curves in Dementia Praecox: here Jung says DP indicated by emotional blunting, diminution of the entire psychic energy; sequelae is like symptoms; dementia praecox more profound effects than hysteria; no full recovery from dementia praecox; latent time greater in dementia praecox but not as excessive as we would initially think;

1079-1089: Association Experiments: overview of association experiments, still good to review;

1090-1106: Results, Case 1: to determine amplitude of galvanic curve during association tests, compare it with the average, which is 4.9 mm; some galvanic details, respiration idiosyncrasies;

1107-1124: Case 2: shorter reaction times in second text, but higher galvanometer curves, further indication these two don't measure the same thing; second association test presents with an altered constellation;

1125-1138: Case 3: figures make sense; not sure what Jung's saying here besides galvanic reaction may indicate complex;

1139-1149: Case 4: nothing of much note, what am I missing;

1150-1156: Abstract of Tests with Word Associations in Normal individuals: parallel between length of reaction time and height of galvanometer curve; no quality summation due to lack of material;

#### Word Associations in Dementia Praecox

1157-1166: Case 1: galvanic deviations moderate with long reaction time, which is what we would expect from a subject who's tuned out; gee this galvanometer isn't adding that much;

1167-1175: Case 2: same phenomenon as previous case;

1176-1179: Resume: suppositions about dementia praecox and its variations seem to be true in that it's caused by complex; though disturbances are too varied, will try to find more common themes in the future; uh, think this French says this Fere guy also noticed a change in galvanic needle coincides with change in a plethysmograph (blood pressure)

#### **Further Investigations on the Galvanic Phenomenon and Respiration in Normal and Insane Individuals (1907-08)**

1180-1185: Fere says change in resistance isn't caused by changes in epidermis rather in circulation (blood pressure with plethysmograph); Jung, however, showed epidermis was seat of resistance, nope wasn't the blood supply; change in resistance not due to

change in contact with electrodes; most reduction in resistance occurred when electrodes placed where most sweat glands located; yo it's the action of the sweat glands in epidermis that explains resistance change;

1186-1196: mixed results previously with pneumograph; using mostly uneducated men which may affect results; body position affects results; there are good illustrations online of what this set up looks like; notes how experiment itself makes subjects tense, changes breath; deliberate inspirations cause little change, sighs however do, must be associated with complex, and of course they are; six parts of the experiment I quiet periods of four minutes, subject was told no stimulus was going to occur II stimulus was weight dropped from height of three feet III subject act to spontaneously say word or phrase then to remain quiet IV three physical stimuli a low whistle, weight dropped, and post card shown to subject V four sentences spoken by researcher VI another quiet period of four minutes like in part I;

#### Normal Subjects

1197-1229: galvanometric curve higher in beginning, then becomes shorter due to expectation; inspirations deeper and more frequent at beginning than at end; II, galvanometric reactions vary based on disposition; III, little variation in galvanometric curves, rises at moment of speech or a little previous; IV, respiratory rate rises with galvanic curve, mostly; V, galvanic curve fades with each sentence, as is expected, yes more reaction from third, critical sentence; VI, shows fewer irregularities than part I, respirations more slow

#### Epilepsy

1230-1246: pneumograph couldn't be used for abnormal subjects; more reactive in some instances, less reactive in others, depends on degree of dullness

#### Catatonia

1247-1256: reactions vary based on extent of disorder; each form is discussed separately; reactions depend on the kind of catatonia;

#### Hebephrenia

1257-1262: similar to catatonic, different from normal; physical stimuli causes more reaction than psychological stimuli;

#### Paranoid

1263-1270: somewhere in between normal and dementia praecox group;

#### Chronic Alcoholism

1271-1276: reactive to falling weight, other physical stimuli as well;

#### Alcoholic Dementia

1277-1281: the less cerebral the stimulus, the more reaction;

#### General Paralysis

1282-1310: some reaction to the falling weight; high average but low median to whistle reaction; euphoric patients are more involved than demented ones, of course;

#### Senile Dementia

1295-1310: mostly dull reactions, depends on the extent they're paying attention; reaction dependent exclusively on constellations; distractions lead to more dull reactions still;

#### Summary

1311: galvanic reaction depends on attention, physical stimuli; normal reactions greater than pathological reactions in general; pneumograph summary, no definitive pattern, inspirations decrease with rise of galvanic curve, varies according to individual

## **APPENDIX**

### **Statistical Details of Enlistment (1906)**

1312-1315: these guys are idiots re imbeciles; they're physically unfit as well; may be linked to poor diet; large number of alcoholics;

### **New Aspects of Criminal Psychology (1908, partly used in lecture at Clark)**

1316-1318: let's go into how association experiments can be used to suss out the guilty; this could be useful one day, yea okay;

1319-1331: technique of diagnosis of evidence, this is good review of Clark University lecture;

### **Critique and Qualitative Analysis**

1332-1347: further analysis of nurse case from 957-982; difficulty in distinguishing normal complexes from criminal ones; yet most impact from stimulus words that pertain to the evidence;

### **The Psychological Methods of Investigation Used in the Psychiatric Clinic of the University of Zurich (1910)**

1348: 1 rapidity of perception, short exposure to simple pictures, 2 how well they can reproduce three fables, 3 fatigability of the will, 4 Jung's association to pinpoint complexes, 5 Freud's psychoanalytic method to determine the cause of the complexes pinpointed in 4;

### **On the Doctrine of Complexes (1911)**

1349-: this is a summary of diagnostic association studies and psychology of dementia praecox (volume three); pretty basic if you've just read entire volume two but good review; complexes revealed by association experiments, investigated with Freud's psychoanalysis; complexes as autonomous; hysteria is a symptom of a complex, it really is like a demon; dementia isn't a mental decay, only a disconnection of mental activity from reality; uses the term "deep psychology;"

### **On the Psychological Diagnosis of Evidence (1937)**

1357-1359: note 2, Jung thought he was the first investigator in diagnosis of evidence but turns out he was wrong, was mensch about it; Jung's going to dig up this method and try it on this case;

### I. The Experiment

1360-1365: used 407 words, 96 were evidence, 40 emotionally charged, notes disturbances as complex indicators, again good review

### II. Results of the Experiment

1366-1378: mean reaction time 2.4 seconds; short reaction time due to perseveration; evidence words prolong reaction time by about a second; more complex characteristics on average of evidence words, though not by much; poor reproduction in critical reaction; 36 reactions are maximally disturbed ie have four or more complex characteristics; 25 percent are minimally affected ie two or fewer complex characteristics;

### The Expert Opinion

1379-1388: associations under such conditions are more likely to trigger subject due to circumstances since all details of evidence is already known, this is why getting an emotionally charged baseline is necessary; one subject was much less effected by stimulus words, goes through a few examples;