



McGILL UNIVERSITY  
MONTREAL

SEMINAR NOTES - Dr.D. Ewen Cameron  
McGill University, 1943

Presented to 6 young medical officers at Allan Memorial Institute in the one finished office while the rest of the Institute was under construction.

These medical officers were undergoing a six-month intensive course in psychiatry -- spending 2 months at Verdun Protestant Hospital (now Douglas Hospital), 2 months at St. Anne de Bellevue Veterans Hospital and 2 months at Longeuil Recruiting Depot, all under the general direction of Major T.E. Dancey, R.C.A.M.C.

Oct. 25 1943

Definition:

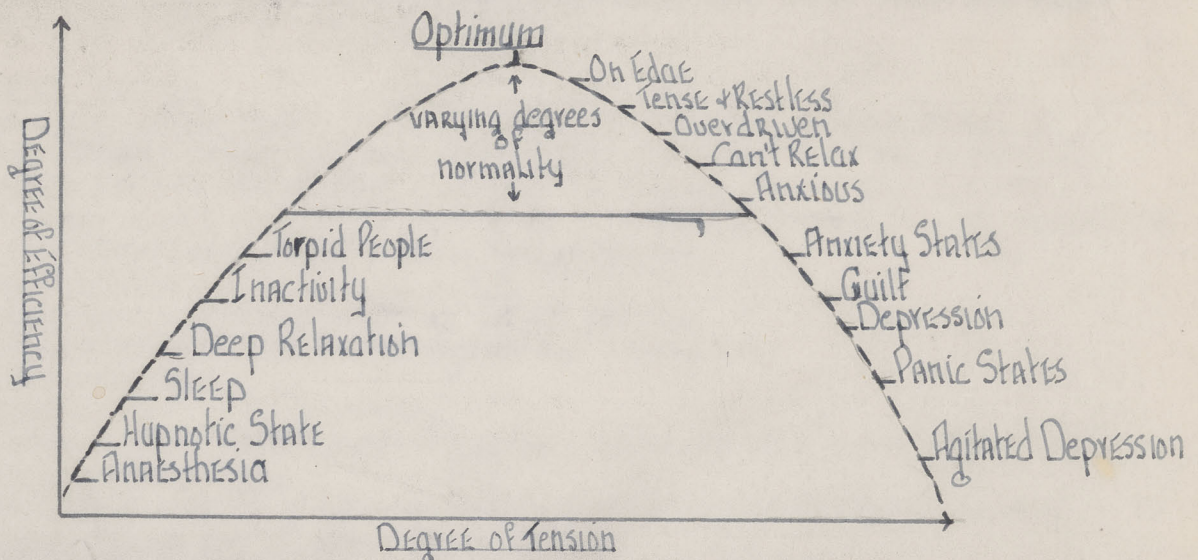
Tension is a state of psychobiological preparedness.

Responses to a state of tension fall into several groups which may be predominately

- (a) Cardio-vascular (b) gastro-intestinal (c) tremors (d) respiratory (e) genito-urinary and so on - even to state of (f) confusion.

CHARACTERISTICS OF TENSION:

- (1) Facilitative - i.e as a rule tension facilitates an action or process.  
 (2) Inhibition - inhibits all other activities at same time is facilitating one particular action. Occasionally this inhibitory component may spread to stop primary activity.



Torpid people may often do better in distracting surroundings as it tends to raise their tension. As tension rises one must have some relaxation to dissipate it. If not the tension accumulates until it may blow off in an "anxiety attack". If this "blow off" lasts for days at a time, it corresponds to "Panic States". If the inhibitory aspect dominates, one gets depression. If the inhibitory and facilitative are balanced - anxiety. If the facilitative predominates - excitement.

(3) There is a relationship between tension and learning. As one learns and approaches solution to a problem, the tension rises. When problem is solved the tension falls.

(4) Residual Tension - there is a certain residual tension at completion of a task. Residual tension may cumulate to produce an anxiety attack. Residual tension may also be a factor which urges people to complete a task which has been interrupted. This tendency to complete the first job varies directly with the similarity of the 2nd task to it. Remembering also may possibly be tied up with residual tension - as if this tension actually forces things back into consciousness.

(5) Residual tension continues during sleep. Therefore it is evident that the subjective component is only one part of an anxiety state. This varies from effort syndrome as in some cases of the latter there is little subjective anxiety.

Signs of tension during sleep.

1. Jerking of legs and occasionally other parts of body.
2. Falling dreams - possibly due to sudden increase or decrease of tension in skeletal musculature.
3. Grinding teeth - talking - walking - enuresis.
4. Relation of perspiration is not definite.

(6) Tension is Differential - which is characteristic of dexterity - as when tension is high in one part of body and low in remainder. Skill is therefore accompanied by economy in use of tension. While studying one develops high tension in upper half of body. As learned it decreases - most markedly in lower half of body. Mental defectives and psychoneurotics cannot develop such high degrees of tension, particularly differential tension.

MEASURES OF TENSION:

1. Blood pressure and pulse - but these are affected by other things too - serve only as rough clinical guide.
2. Knee jerks - less affected by other things.
3. Amount of postural swag - increased in tense anxious person.
4. Eyelids flicker - similar to above.
5. Tremor of outstretched hands.
6. Mottling and cyanosis of hands.
7. Blood vessels on back of hands are smaller.
8. Skin resistance is lowered in tension.
9. Cold pressor test 0 (Hines & Brown 1922 - immerse hands up to wrist in water at 4 degrees C for 1-2 minutes. At same time check pulse and B.Pr. which rise unduly in tension states.

FACTORS RAISING TENSION:

1. Impending action (set). - As a person gets set, his tension rises. A schizophrenic cannot maintain this longer than minute or so. A chronic, anxious patient cannot bear crowds as in church, movies etc. Reasons are not clear except one has to behave in a formalized manner in such situations - or the situations demand a sustained attention.
2. Actual action.
3. Distraction - as noted above in torpid people.
4. Prolonged effort - as in speeded up war industries.
5. Problem solving.
6. Frustration.
7. Monotony. This causes greater rise in tension in more intelligent people.
8. Lack of relaxation.
9. Inheritance - as in people so constituted as to run at higher tension levels without any of above factors.
10. Insecurity in childhood.

(Note): Survival value of tension - same implications as arise from preservation of thumb.  
Probably distributed according to normal curve.

FACTORS CONTROLLING TENSION:

1. Allowed to work at natural tempo.
2. Lack of distraction and lack of prolonged work periods with adequate rest and adequate methods of relaxation. (A) Non-competitive. (B) Not small muscle type requiring coordination and great dexterity, thereby raising tension. (C) Pleasurable. (D) Large muscle type - swimming, dancing, riding, skiing, skating, gardening, etc.
3. Trained relaxation.
4. Group activities - if patient not unduly tense.
5. Therapeutic interview - e.g. as talking to a friend - counsellors in industry - a psychiatrist.
6. Drugs:-(1) Veronal or Barbital..grs. 2½ tid or 5 times a day - beware drug rash. (2) Intra-venous Sodium Amytal - just to produce short period of relaxation - not sleep.

REFERENCES:

1. Effect of induced muscular tension on various phases of learning process. Stauffacher G. C. - Journal of Experimental Psychology 1937-21-26 to 46.
2. Effects of residual tension on output and energy expenditure in muscular work - Sharp C.H. - Journal Exp. Psych. - 1941-29-1 to 22.
3. Richers-Ousian Kina - (1) Studies in Personality Structure of Schizophrenic Individuals. (2) Reactions to interrupted tasks. Journal Exp. Psych. 1937- Vol. 16 & 17. - pages 179-196.
4. Progressive Relaxation - 1938 - Un. of Chicago Press - Jacobsen E.
5. Differential Relaxation during reading, writing and other activities as tested by K.J. - Amer. Journ. Physiology - 1928 - 86 - 675 to 693.
6. Cold pressor test in Tension & Anxiety - White B.V. and Gilder E.F. Archives Neurology and Psychiatry - 1937-38 - 964 - 984.

Oct 29/1943

ANXIETY

By Professor Cameron

ANXIETY - a total reaction and not just subjective.

Also keep in mind that anxiety neurosis is wider than anxiety attacks.

Definition: Included apprehension and fear. This is different psychoanalytic view in which fear is directed towards a particular object but this separation does not seem to be warranted.

Survival Value: Analogous to that of pain - an alarm system giving indication of things about to happen. This explanation is useful in mental hygiene with soldiers. This mechanism is tied up with distance receptors, was probably set up when interval representation set in.

Anxiety is integrated by C.N.S. and by autonomic nervous system, which look after external and internal preparation respectively for emergency. In anxiety there are the same patterns as there are in tension but if pronounced it may flow over to other systems than the dominant one.

Complaints of the patients - a shift in emphasis compared with psychoanalytic.

(1) Muscular - an increase in tension. (2) Increased tendon reflexes, occasional transitory knee and ankle clonus. (3) Tremor of hands. (4) Tremor of closed eyelids. (5) Internal tremor - complained of in abdomen and chest.

Simple derivatives from this - (1) fatigue - possibly increased tension results in exhaustion. (2) Feeling of weakness - refer to Jacobsen on muscle action currents. (3). Feeling of stiffness - face, hands and neck - sometimes generally. (4). Drawing sensations e.g. in neck and shoulders. (5). Aching - e.g. back of neck and head - head pressure and head constriction, or feeling of explosion outwards.

More complex derivatives:

(1) Glassiness of hands and (2) feet. (3) Falling dreams. (4) Jerking of limbs on going to sleep. (5) A series of facial tics. (6). Unsteadiness of voice (voice vibrato is of same frequency as muscular). (7). Sometimes actual stuttering. (8). Tightening of throat. These symptoms shade over into hysterical. (9). Weaving - a sensation which has postural sway with it - can be tested on two bathroom scales - normal about 5 pounds. May be up to 30-35 pounds in severe anxiety neurosis or agitated depression - more so in latter. There is always some postural sway - if it is stopped respiratory exchange goes up and there may be fainting. (10). Complaint of inability to move. (11). Clinking and ringing in ears - small muscles to ossicle. (12). Blurring of vision. Not tonic contraction of ciliaris muscle, evidently. (13). Teeth grinding at night. Altogether more complaints in skeletal muscular system than in others.

Higher level complaints: Complaints of irritability more common in this group than in others.

Fears of dying and losing mind go in cardio-vascular group.

Complaint of confusion more in C.U. group.

Feelings of unreality; example given of hysterical case resembling schizophrenia.

Gastro-intestinal complaints:

(1) Anorexia. (2) Nausea. (3) Gas. May actually get a pseudocyesis. (4). Vomiting. (5). Dryness of mouth. (6) Epigastric sensations of pressure and sometimes pain. (7). Abdominal cramps. (8). Diarrhea. (9). Weight loss. (10). Biting lips and aching and stiffness of jaws are skeletal musculature but related to G.I. tract e.g. people who grit their teeth. (11). Oesophageal spasm. (12). Stomach. 1900 Lecant. 1902 - Cannon. Inhibition of stomach movements by emotional disturbances. 1926 Landis - showed this in humans. Partial evidence on production of ulcers. There was an increase in death from perforated peptic ulcer in London during Blitz. (13). Mucous colitis. Cobb, Jones & White. Psychosomatic Med. Monographs.

REFERENCES: Waters  
of somatic rhythm

specific integrational emergence upon fissure  
1, 6 153-160.

acks. Arch. Neurol & Psych 1940, 43 102-110.

Postural changes in respiration. Amer.

onal influences upon oesophageal

and gastro-duodenal function. Exptal

ulcer. Psych. Med 4 5-61.

Nov. 29th & Dec. 3rd  
1943

Professor Cameron

REMEMBERING AND THE  
PSYCHOPATHOLOGY OF MEMORY

The whole problem of memory is poorly understood at the present time. For instance Strechers' statement "In schizophrenia remembering is suspended" is not clear.

The following are common lay concepts of memory:

Each person has a memory storehouse in which he places all the memories accumulated during life - some of these disappear, some are mislaid and others come out on the slightest pretext (usually unpleasant) but to some extent one can fetch out things that one wants. From this it follows that the difference between a good and a bad memory is the ease with which one can locate the searched for memory. The idea of a storehouse is not born out by anatomical studies as the capacity to remember is a function of the whole brain and different portions can be removed and no definite memory centre is destroyed but the memory loss is proportioned to the amount removed.

Noyes divides memory into three phases: registration, retention and reproduction.

This concept is mechanistic and at present the trend is away from the machine theories of human behavior

Registration - e.g. Kim's game that is exposure to a varied array of object. Attitude of person at time of exposure determines the later ability to recollect, i.e. if there were a cobra among the objects exposed. Position also is a determinant, if given a list of nonsense syllables to memorize the first and last will be registered before the centre. (Eblinghaus) this is contrary to the "gramophone analogy". Another example of emotional attitude is shown by the work of Hanowalt at Columbia. 20 pictures of persons 10 white and ten negro were presented to group of students. Later these pictures were shown again included in a much larger group of picture. The students were asked to select those previously seen. Anti-negro prejudice was associated with the remembering of fewer negro than white pictures.

Retention - Appears to be a phase of active assimilation rather than mechanical reaction.

Retroactive inhibition is shown by the following:

If you give a person a list of words to learn (A) then give him a second list (B) to learn. The nearer list B is in meaning or sound to list A the more difficult it will be to reproduce list A. Therefore list A is said to be inhibited.

If certain forms are shown and later a person is asked to reproduce these from memory there is a tendency to improve the figure. This is called pregnancy by Gestal Psychologists.

These facts have a relation to court testimony. Milton Erickson studied a case of two girls who gave evidence of a certain experience at the time of its occurrence. When checked over a period of years there was a great change in details given. Bartlett has shown that things which are suggested later become incorporated in the original memory picture and may be reproduced as such later.

Reproduction - This is an active and not a passive process. The more often a thing is reproduced the more distorted it becomes.

## REMEMBERING AND THE PSYCHOPATHOLOGY OF MEMORY

### Reproduction (continued)

Instances of pure remembering are rare - usually it is more a process of reconstruction. Stern has shown the reproduction by written evidence is more accurate than cross examination. In court the weight of evidence is often taken although the minority may be right since the more objective form a minority.

### Major trends in memory investigation.

Ebbinghaus showed with nonsense syllables that the less significant a fact is the more the secondary elaboration.

Where sleep intervenes shortly after learning there is better reproduction than if no sleep. Forgetting takes place fact in 1st hr. then slows down.

Phillipe, Stern & Bartlett are against artificiality and prefer story for recall. This is Gestalt School. Prof. Cameron new tests for memory published in Psych. July '43.

Simon & Bleule use the word All instances where the reaction of a human being to a situation has resulted in a change in a reaction to a subsequent situation - this includes not only conditioned reflexes but physiological modifications.

Ross McFarland. In the Biochemistry of memory opens up another avenue in the field of Physiological psychology.

A more dynamic division of memory is into primary reaction (or perception) rapid assimilation and reproduction or reactivation.

#### 1. Primary reaction. -

Demands a certain amount of tension - the greater the degree the narrower the field. In depressions there is so much tension wasted in pre-occupations that there is poor primary reaction.

Interference also by drugs and other toxic agents and in a delirium.

Perseveration prevents the primary reaction of what follows because the "attention is focused" on the previous fact which cannot be disposed of rapidly enough in brain disease or anoxia.

#### 11. Defects in Assimilation.-

Disturbances is progressively backward from recent to more remote memory. After electric shock there is a similar type of memory loss which regresses and recovers in the same order.

Trends of memory changes in blindfolded persons with organic disease. 1) displacement forward of objects in the room i.e. they tend to locate the furniture, etc which is actually beside or behind them, more and more to the front as time goes on. The explanation for this suggested is that the person recalls turning toward the object to locate it each time he is asked, rather than recalling the actual position of the objects as seen before blindfolding. Successive "turns" to locate an object tends to become progressively less thus all objects eventually are recalled as in front. There is also a tendency to reduplication and multiplication of objects in the same experiment. It is postulated that there may be a failure to appreciate various views of the same object as a single entity and for fusion to take place.

REMEMBERING AND THE PSYCHOPATHOLOGY OF MEMORY

Reproduction or Reactivation.

Disturbances here are primarily in the hysterical reactions or in everyday life. Many vary with hedonic tone - pleasant things tend to be reactivated and not unpleasant things, also if they fit into the setting or mood at the time. Also connected with inhibition - disinhibition may aid in recall. Hypnosis has brought back the content of memories during one case of petit mal, (non hysterical) but it is particularly useful in hysterical amnesia.

It is to some extent one can learn out things that are forgotten. It follows that the difference between a good and a bad memory is the ease with which you can locate the searched for memory. The idea of a storehouse is not lost out by anatomical studies as the capacity to remember is a function of the whole brain and different portions can be removed and no definite memory center is destroyed but the memory loss is proportional to the amount removed.

Hoyer divides memory into three phases: registration, retention and reproduction.

This concept is mechanistic and at present the trend is away from the machine theories of human behavior.

Registration - e.g. Kim's game that is exposure to a varied array of objects. Attitude of person at time of exposure determines the later ability to recollect, i.e. if there were a cobra among the objects exposed. Position also is a determinant, if given a list of nonsense syllables to memorize the first one will be registered before the centre. (Ebbinghaus) this is contrary to the "gradualness analogy". Another example of emotional attitude is shown by the work of Hancock at Columbia. 20 pictures of people in white and ten negro were presented to group of students. Later these pictures were shown again included in a much larger group of pictures. The students were asked to select those previously seen. Prejudice was associated with the remembering of faces negro over white pictures.

Retention - appears to be a phase of active association rather than mechanical reaction.

Repressive inhibition is shown by the following:

If you give a person a list of words to learn, then give him a second list (B) to learn. The nearer list B is to learning or sound to list A the more difficult it will be to reproduce list A. Therefore list A is said to be inhibited.

If certain faces are shown and later a person is asked to reproduce these from memory there is a tendency to reproduce the figure. This is called primacy by Gestalt psychologists.

These facts have a relation to courtship. Wilted Britisher studied a case of two girls who were both of a certain complexion at the time of its occurrence. After several years a period of years there was a great change in complexion. Britisher reported that when asked what she supposed the complexion had been at each later.

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PSYCHOPATHIC INDIVIDUALS:

1835 - Bitchard (Bristol) - described "moral insanity". At that time these people were considered just wrong-doers.

1888 - Kock. "Constitutional Inferiority". Broadened later by Kraepelin, but they seemed to be including affective disorders such as hypomanics.

Kahn, Healey, Adolf Meyer who came from Europe, Partridge in U.S. and Henderson in Britain have all helped to clarify psychopath.

Some of ways of classifying this:-

Kahn - 3 threefold classifications.

- (1) Impulse life - (Instinctive - sexual and aggressive).
- (2) Temperaments.
- (3) Ego functions.

Again divided..(1) A. Hyperthymic - over active.  
B. Hypothymic - phlegmatic.  
C. Dysthymic - morose, anxious.

Partridge's simple classification:-

- (1) Essentially inadequate - unable to carry responsibility.
- (2) Emotionally unstable.
- (3) Primarily antisocial.

Henderson's classification (1):-

- #(1) Henderson J. Ment. Sc. 1942, 88, 485-490.
1. Predominantly aggressive.
  2. Predominantly inadequate.
  3. Predominantly creative.

Dunn W.H. Psychopath in Armed Forces - great stress on social behaviour.

Levine - One of the distinguishing marks - priority to short term values and to acting out his desires.

Vischer - A lowered inhibition.

Karpman, B. - Stress the hardness of psychopath from early times in contrast with softness of psychoneurotic.

Problems encountered in army:-

- (1) Refractions of army disciplines.

Russians:- 73% - among deserters.

40% - among own prisoners.

9% of 72,000 neuropsychiatric casualties in 1st World War were diagnosed psychopathic individuals.

- (2) Constitutes possible focus of poor morale.
- (3) Impulsiveness - may be brave but foolhardiness may get comrades in danger.
- (4) Chronic enlisters - seek more dramatic services.

Relationship to Brain Disease especially of Diffuse Nature;

Case of doctor with head injury and later addiction to ~~size~~ morphine from which he recovered, but could never get back to previous level.

CAUSATION:-

Henderson: Constitutional factors very important.

- #(2) Knott, J.R.Gottlieb, J.S. - E.E.G. in psychopathic personality: Psychosomatic Med 5, 139-142.

Knott & Gottlieb(2) have shown that 52% of 44 diagnosed psychopaths did not meet their standards of normality - no. of slow waves present 8/sec or slower and of low voltage, or of slow waves of large voltage.

Jasper(1938) had shown these in children. Sometimes these have been treated with benefit of Benzedrine and Dilantin.

Many of them seem to arise because of difficulty in environment - divergence of discipline between father and mother seems to be a factor.

Intelligence usually within normal ranges - sometimes below - sometimes above. Frequently there are psychoses superimposed on general psychopathic trends. Question of limited psychopathology a lack of inhibition in some particular sphere and not in others. e.g. sexual and not others, money and not others.

Henderson has described a few cases who have done well.

It is worthwhile to identify type of psychopath according to possible etiology. Treatment is similar to neurotic - seeking factors and retraining. Outlook not encouraging.



December 13/1943

Prof. CAMERON

GALVANIC SKIN REFLEX - "Psychogalvanic".

Veraguth 1906 named it.

Vigoraux had described it 1888 and had considered it correlated with fluctuations in vasomotor system.

When Jung produced his word association tests this galvanic response was studied with it now.

Aspects:

(1) Fluctuations in electrical output of the body under ordinary circumstances.

(2) Variations in resistance of the skin to an impressed current.

The latter is most followed at present time. Resistance practically disappears if a hole is pricked in skin.

Great variation in different areas of skin severing nerves stops reaction (Muller).

Schiff showed that if C.N.S. severed above medulla reflex still present. In spite of this it could be shown that there was cortical representation in the prefrontal area for this (Darrow-Chicago).

1934 - Landis - showed autonomic is the controlling agency. This indicates that other things than emotional reactions can alter this - such as heat level, O<sub>2</sub> and CO<sub>2</sub> of blood. It is correlated with tension, rather than with emotion. Usually fluctuates to a decrease when something is attempted.

During sleep it increases. During fright resistance falls.

Richter in catatonics - compared with sleep but when surveyed by Wetegaard there was little left.

STUDY OF CHRONAXIE:

Lapigue - originated this concept well known in muscle physiology. It has been tried in relation to conditioned reflexes. Diminution of thoracic at periphery and cortex.

When condition had occurred.

Wechsler and Freeman studied correlation with reaction time.

BRAIN WAVE PATTERN:

Berger originated this.

Electrodes placed on skull and differs with the location of electrodes.

Patterns in a series of different waves:-

delta - slow - frequency 2-6/sec. Relatively high voltage.

Alpha - 8-14/sec.

Beta - 20-40/sec.

Picture may be confused by muscle action.

Currents with frequency of 60/sec, confused with A.C. current.

Frequency higher picked up only by cathode ray oscillograph.

For practical purposes we are concerned with delta and alpha waves.

May be disturbed by a tumor etc.

Anything which reduces brain metabolism increases delta waves and decreases alpha - e.g. low oxygen tension - hypoglycemia or hyperglycemia.

Alpha waves may be diminished in number in periods of emotional stress, but there is no good correlation between major psychoses and brain wave pattern.

Epilepsy - special pattern - large slow wave with spike - tends to be corrected by medication.

SCHIZOPHRENIA:

In all probability a group of disorders rather than a single disorder. One can identify at least during the course phases which may persist or pass one into the other.

- (1) Primarily psychomotor-stuporous or excitement (catatonia).
- (2) In thinking - inability to concentrate - mind being interfered with - also actually thinking disorders - stream of thought progressively broken up - words used with unusual meanings.
- (3) In interpersonal relations - hostility feelings of being picked on.
- (4) Accompanying disturbance of moods.

Importance because of its chronicity - only 20% admissions but 40% of population kept in hospitals.

In a study of the onset of symptoms by Cameron some of these were identified as early as 2½ years before hospitalization in people over 30 while in younger people the onset was at a shorter time before hospitalization, probably because these people are more under observation in homes or institutions.

Type in which psychomotor features are prominent - catatonics. Much work has been done on these (e.g. Claude). Although they are hardly typical of schizophrenia as a whole.

Question of differentiation of a benign stupor, with previous depression and lack of impulsiveness (Hoch-reviewed by Rachlin) but later follow-up suggested that these had been misdiagnosed.

Catatronics are in a state of temporary inhibition. During the night catatonics are in same state of activity in sleep as normals.

Agents which can disinhibit catatonics:-  
Cocaine; mixture O2 and CO2; Sodium Amytal - Blalock; Sodium Cyanide - Lindemann; Insulin. Shock therapy-for other reasons.

Exptal production of catatonia:-

Bulbocaymine - De Jong, H. - will produce catatonic - like state in animals but too toxic for man. Used in pigeons, rabbits, monkeys - it is more effective the more highly developed the cortex. Claim to production of catatonin for urine of catatonic patients which will produce this state. Claims also for substance from colon bacillus.

The stupor from bulbocapnine is released by same things which release catatonic stupor.

The muscular tension in catatonia is maintained more economically than normal muscular activity - is this due to an abnormal sugar breakdown.

Jessing - studies of nitrogen retention in various phases of catatonic reaction. Two phases could be observed:-

- (1) Retention up to time of reactive phase and then (2) excretion - with the fall of N2 there is tendency for return to normal behaviour. Second group - nitrogen excreted up to time of reactive phase and then retained. In first group throxin could prevent this process.

Other types of Schizophrenia:

Brain changes - sought repeatedly - agreement as to essential nature not common.

Spielmeier - loss of cells in 3rd layer of cortex. Dunlap in America does not agree, and no other confirmation. Others have claimed fatty masses in 4th ventricle region and hypothalamus, but possibly artefacts.

Electroencephalogram - like most other things in schiz. - shows variability than normal.

Cardiovascular - Lewis - Constitutional factors in schizophrenia - post-mortems - heart tends to be smaller than normal and lining of vessels, especially aorta-infantile type. (Aplasia). Projection of retinal vessel also gave supposed evidence of lack of development of vascular net work. This may just be part of what Hoskins speaks of as the "inefficiency" of the schizophrenic.

Blood pressure - studies - coefficient of covelation between systolic and diastolic normally - 6 while in schizophrenics it is about .8, i.e. sympathetic nervous system less active than normal.

Skin weal -to irritant less in schizo.

Adaptation to posture less efficient as indicated by B. P & pulse rate excretion of imbibed water not so well correlated with intake as normal.

Circulation time longer.

Sugar tolerance curve slightly prolonged. All of these things are modified by extent to which disease has progressed. Worse later with dementia.

Earlier the sympathetic activity seems to be set off more easily but not sustained.

Reaction set in preparation for pistol shot can not be maintained in schizo as in normals

Reduction in oxygen utilization - about 10-15% - not improved by thyroid administration.

Patients who show clinical improvement show an improvement in these indices. In cases with improvement and relapse these things slip back. Mott had described testicular atrophy but his cases had died of infections, mostly T.B.

Kretschner's theory has its limits and should not be applied too rigidly in schizo.

There are two main theories on development of anxiety.

1. James Lange theory. This supposes that the subjective part of an anxiety reaction arises from bodily sensations- i.e. skeletal, cardiovascular and gastro-intestinal sensations. (We see a bear, run and are afraid, rather than see a bear, are afraid and run). This theory has never been proved or disproved. In animals in which all splanchnic nerves have been removed, there is no visible evidence that emotional reactions are diminished. A woman who suffered a high transection of cord was known to experience normal emotional reactions. We must remember though that emotional patterns tend to become fixed and so persist. (e.g. cast-ration in adults).

2. Hypothalamic Theory - propounded by Dana and elaborated by Canon. (1,2&3)

These investigators said hypothalamus was centre at which subjective feelings of anxiety, fear or anger, were elaborated. For example, if we saw a person approaching for whom we had an intense aversion, the light enters eye impinging upon retina - impulses travel to visual centres and thence to cortex where the person is recognized - then either the recognition passed down to hypothalamus and there acquired subjective sensation of fear or hate; or concurrent to reaching cortex, another stream of impulses went down to hypothalamus and then back to cortex bringing subjective feeling.

Grinker shoved an electrode up nostril to sella tursica and claimed stimulation here gave rise to subjective sensations of fear anxiety etc. Cameron feels most of these sensations were a result of the procedure. Bard considers the hypothalamus as a sort of station where many functions forming part of a reaction are brought together.

Mood Reactions - must be differentiated from emotional reactions. Young P.T. considered emotional reactions even shorter and more intense than mood reactions, but this is not always true. Young also felt that emotional reactions were more disrupted but this too is not entirely true.

Cheerfulness in children was found to be generally more frequent than depression. In older persons there is a tendency for the more serious mood disturbances to have a depressive tinge.

The more serious mood reactions seem to be indigenous in origin as in fatigue, ill health the frustration is an exogenous cause.

#### Early Symptoms of Depressive mood disorders.

These are very important and are frequently missed in early stages.

1. Loss of interest - must be careful in phrasing this question as it masquerades under numerous names.

2. Diminution of sense of humour, closely related.

3. Increased sensitivity, feelings of "not being wanted" and of being "talked about" soon follow.

4. Difficulty in making decisions - important in business man.

5. Difficulties in concentration appears early.

6. Complaints of loss of memory - is really not a true loss of memory. Is in part due to the fact the person is so concerned with their worries, etc. that they do not pay as much attention as formerly - i.e. to remember an event must invest it at the time with a certain amount of energy or tension. In a depressed person there is not enough to go around. It is important to understand this so they can be reassured that their memory loss is not central and will be normal when depressed phase passes.

7. Lack of initiative - follows above 3.

8. Feelings of fatigue - apt to be prominent where early condition is accompanied by good deal of tension.

9. Diurnal variations are often present - i.e. depression more severe in mornings and wears off or disappears in afternoons. This is often a diagnostic feature of depression.

Note: Most patients are very anxious to be understood if one can, after hearing 2 or 3 of above, tell them a couple more they have, they will immediately feel you understand. This has a therapeutic effect as well as a practical.

#### Major Symptoms of Depression.

1. Psychomotor retardation - a general slowing up of all mental

and physical processes.

2. Subjective feelings of depression - may be expressed in numerous ways (1) feels sad, downhearted, lonely, unwanted, picked on, etc. (2) Feels he no longer has normal feelings - has loss of feelings - guilty feelings - irritability. (3) Or there may be little subjective feeling beyond fatigue.

3. Distortions in thinking - different in mood reactions than in Schizophrenia. In mood reactions there is a disturbance of perception - thinking - in early stages these may clear up temporarily under influence of mild sedative.

Forms A. Delusions.

B. Hallucinations - primarily auditory, when are predominately visual should suspect toxic origin - particularly if hallucination are in form of designs - or large fantastic pictures. Visual hallucinations can be induced in normal people with use of various drugs. The mosaic forms some of these assume are suggested as arising from projection of arrangement of retinal vessels.

4. Disturbance of sleep.

5. " " appetite.

6. Suicide.

Excitant or Manic States - it is to be noted that a certain percentage of depressed patients who recover rapidly as a result of treatment (E.S.T.) may go into period of excitement.

Symptoms of (1) Overactivity (2) Impoverishment of sleep (3) Undue optimism and expansive air - may indicate hypomanic. Many patients remain in this state, are difficult to treat and control as they continually get into trouble - have no insight and often law will not give us support.

Manic Reaction.

1. Increased psychomotor activity - overactive - restless - violent.

2. Subjective component of irritability and excitement - ecullation.

3. Flight of ideas - increased rapidity of thought but with considerable discursiveness.

4. Impoverishment of sleep

5. Anxiety.

6. Hallucinations and delusions - generally less common than in depressions - particularly hallucinations.

Nov. 5th., 1943.

Dr. Silverman.

Intelligence Testing (Benet - Simon & Stanford<sup>3</sup> Benet test)

Require trained personell. Are many tircks in giving test - eg. when giving test to dull child, do not put right answer last, as invariably they seize upon last word they hear - or see.

Scoring eg. Subject - age 10. Start tests 3 or 4 years below chrona-logical age - questions easy - puts subject at ease and makes him want to do well.

Start at age 5 - gets all correct - basic age.  
6 - 5 correct - 10 mo.  
7 - 4 " - 8 "  
8 - 3 " - 6 "  
9 - 1 " - 2 "  
10 @ 0 "  
11 - 0

Each part of test equals 2 mo. so have basic age 5 years plus 26 months..  
Mental age equals 7 years 12 mo.

I.Q. equals  $\frac{m.a.}{c.a.}$  equals 71

Chronological age - does not pass 16 years as ability to learn reaches maximum capicity at this age. (Some think reaches maximum capacity at 14 or 15)

If person 30 years old - and has M.A. of 20 years

I.Q. equals  $\frac{20}{16}$  equals 1.25

Ranges  
in I.Q. 130 - 140 - genius.  
120 - 130 - very superior.  
110 - 120 - superior.  
90 - 110 - average.  
80 - 90 - retarded.  
70 - 80 - borderline mental deficiency.  
50 - 70 - fickle minded or moron.  
30 - 50 - imbecile.  
under 30 - idiot.

CARDIOVASCULAR EXHIBITIONS OF ANXIETYComplaints:

- (1). A--Precordial pressure.  
 B--Precordial pain.  
 C--Precordial pain passing down left arm.  
 D--Precordial pain passing into back.

Not organic heart disease although we do not know whether spasm of heart muscle or relative insufficiency of heart may occur as a result of anxiety.

General practitioner may tell the patient that he has heart disease and this may reinforce the patient's belief that he has organic disease and render psychotherapy more difficult. This type of condition is often acquired, e.g. from a patient with anxiety attacks or angina. If parent dies in anginal attack the patient has a marked fixation.

This type of anxiety attack is accompanied by fear of dying or fears of losing mental control.

- (2). Palpitation - may be accompanied by flushing or throbbing through out whole body.  
 (3). Hot flushes or hot sensations may occur with this as well as with menopause.  
 (4). Constriction of veins infrequently.  
 (5). Fast pulse - may be up to 140 or 150 in anxiety attacks and it may continue between attacks at over 100. (#1).

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In arteriosclerotics it is up to .8. After adrenalin it is .3 to .4.  
 In excitement it also drops.

Question of role of emotional hypertension and irreversible hypertension.

Original idea was that reversible blood pressure became fixed after being high for some time. However the amount of anxiety which raises the blood pressure this high would only be tolerable for a short time.

Possible mechanisms. If emotional factors can produce an irreversible rise it may be this way.-- A moderate rise from 120 to 135 may occur chronically with occasional bursts higher. There may, then be a slow rise in step by step.

People with hypertension tend to have a similar reaction to cold pressor test as anxiety.

(7). Blood sugar levels. In anxiety states of long standing one does not usually find a change in fasting blood sugar but curve is usually prolonged (#3).

Hyperglycemic Index =

$$\frac{\text{Blood sugar level at 2 hours} - \text{fasting level}}{\text{Max. Blood Sugar level} - \text{fasting level}} \times 100$$

e.g.

$$\frac{115 - 90}{140 - 90} \times 100 = \frac{25}{50} \times 100 = 50.$$

or

$$\frac{90 - 90}{140 - 90} \times 100 = 0.$$

Normal = 0 - 10. Maximum possible = 100. Quite useful but does not quite take into account normal variations in same individual.

Blood sugar changes are present right down to reptiles (#6).

(Over).

(5) ... (6) ... (7) ...

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(Cont'd).

### CHANGES IN RESPIRATORY SYSTEM IN ANXIETY:

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1. Shortness of breath.
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Some of these people have small chests and hyperpnea. Occasional case with tetany from hyperventilation with hysteria rather than anxiety.

3. Tic-like interferences - diaphragmatic and perhaps included muscular group e.g. hiccupping.

Usually the depth increases rather than the rate. Very difficult to study because of conscious interference. G. Finesinger's work. Cola-subject in a barrel.

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1. Hands and feet often cold, only if temperature of room is below 80. If temp. is below 76 the anxiety neurotics hands are colder and if 60-65 the difference between blood and hands may be marked.

Wolff and Kittleman (#7) showed that a fall in skin temp. could be induced in anxiety patients. Had been devised by Cameron. A cold tolerance test and speed with which temp. returned to normal after immersion in cold water. Difficulty was in trouble controlling temp. of room.

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Subject stands in front of screen with lines to compare movement. Camera recording and a shot fired.

Phenomena of startle reveal themselves in order of proximity to brain - eyes, mouth, head, shoulders, elbows, hands. Abdomen sucked in - body bends forward - hips and knees.

In this connection as organism grows it is organized from head out. In fetal days head first and so on. Differentiation proceeds in movements in this order in post-natal growth.

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Lindemann has given adrenalin and mecheryl to anxiety neurotics and claims two types of anxiety neurotics according to reactions to these.

3. In animals. If one confuses the animal in a course to which he is accustomed. E.g. electric shock training and altering conditions speed of development of anxiety is dependent on freedom of movements. More rapidly with restricted movement. Substitutive activity can get rid of some of the tension.

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- (#6)..Britton & Kline. Emotional Hyperglycemia and hyperthermia in Tropical Mammals and reptiles. Am. J. Physiol. 1939, 125, 730-734.

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REFERENCES (Cont'd).

- (#7)..Wolff, H.G. and Mitelman, B. Exptal observations on changes in Skin Temp. assoc. with Induced Emot. States. Trans. of Amer. Neurol Assoc. 1937, 61, 136-140.
- (#8)..Landis, C and Hunt, W.A. Studies of the Astartle Pattern #6, Temporal relations, J. Psychol. 1937, 2, 487-490.
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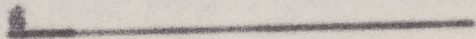
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$$\frac{95 - 90}{145 - 90} \times 100 = \frac{5}{55} \times 100 \approx 9\%$$

... 10. ... Quite useful but does not really take  
 ... variations in some individuals.  
 ... changes are present right down to reptiles (#4).  
 (#4).

November 17th, 1943.

Professor Cameron

### ALCOHOLISM

Three aspects of alcoholic intake:

1. Local social customs.
2. Alcoholic addiction.
3. Behaviour deviations.

Alcoholic intake is widespread in most cultures, and of early origin historically.

Effects - 1 - tends to reduce neural metabolism, especially cortical (1)

(1) Goldfard W., Bowman K.M. and Wortis J. The Effect of Alcohol on Cerebral Metabolism.

Am. J. Psychiat. 1940, 97, 384.

Where A.V. differences were followed, there were definite differences in oxygen uptake. Similar changes in Warburg apparatus, although reference not at hand.

Many of the changes with alcohol are similar to those of hypoxia.

2. In deep stages of alcohol stupor there is incontinence and loss of everything except vital centres.

3. Diminution in accuracy first, and then speed, drops in I.Q. scores, judgment of distances and fusion of colours. Memory fails due to lack of perception.

#### Causes of addiction:

1. Social local customs influence amount the individual takes., e.g., alcoholism among debutantes and business contact men. Drinking as a help to recall pleasant past

2. Ameliorative:

a.- Release from tension - to help sleep, etc. Get relaxation but worse the next day.

Problem of combined anxiety and alcoholism.

b • For feelings of inadequacy, e.g., at dinner parties and even before a visit to psychiatrist.

c - Release from sex restraints. Some people are more capable with drinking, but some become impotent. Frigidity in some women disappears with drinking. Some homosexuals are able to follow heterosexual activity with alcohol. This supports the conception of homosexuals as deviations due to repressions. The homosexual pattern may or may not be modifiable.

3. Symptomatic of another condition. e.g., of manic-depressive psychosis, especially in hypomanic phase. In depressive phase it may be ameliorative.

Maybe in early stages of general paresis, but progress of disease works against full establishment of alcoholism. Similar in early schizophrenia.

4. Idea of some people being allergic to alcohol, "off at the sniff of a cork."

## Treatment of Alcoholic Addiction -

Professor Casper

Several approaches.

1. Psychotherapeutic - identification of cause, e.g., if social or relieving tension.
  - a - Largely situational - little work by analysts.
  - b - Group - "Alcoholics anonymous" - a lay organization; weekly meetings which appeal to the personality type of convivial alcoholics. Atmosphere much like revival evangelistic religion which used to convert alcoholics. Another feature is that a brother who is beginning to fall off can get others to help him hold off even in emergencies.
2. Vogtlin W.L., Lemare, F., Broz, W.R., and O'Halloran, P. Conditioned Reflex Therapy of Alcoholic Addiction. Follow-up Report of 1048 cases. Amer. J. Med. Sc. 1948, 203, 583
  - c - Conditioned reflex therapy as carried out by Sigler at Chicago - after "treatment" by sterile water injections - then apomorphine injection with first drink. Vogtlin et al (2) describe a reinforcement technique along with a method which is a little less crude.
3. Institutional therapy as in Switzerland. "Trinkheilanstalten". Two years' stay just time, and longer later if relapsed.
3. Benzedrine - pushed by Myerson et al in Boston. Alices at West Coast did work on various substances related to ephedrine and stimulating effects of benzedrine developed out of this. It has been useful in the morning to overcome the desire to drink.

Try out five mgs first for tolerance and later may go up to 25 mgs a day.

Tendency to addiction is not marked.

Conspicuous and Constantovich, 1935.

Wolf and Rubin.

French 1930. J. Alcohol 105.

Psychopharmacology before 1930 available.

All these references to alcohol in psychopharmacology given in Casper's Objective and Material Psychiatry, 2nd ed.

French system in 1931-32 of systematic treatment for delirium tremens (2).

(2) French, 1932, Le traitement de complications d'alcoolisme par l'apomorphine. Ann. Nat. Medico. Psychol., 1932, 22, 187-187.

THE ACTION OF ALCOHOL

Work on relation of blood alcohol to degree of intoxication. Appears in blood in less than five minutes - excreted in urine and breath - 90%- 99% is broken down in body. Breath is largely aromatic substances. Blood level highest in 1-2 hours. Rise more slowly in abstinent people. Habitual drinkers, rises more quickly and stays a shorter time, and does not rise as high - also requires more alcohol to produce same deviation of behaviour - may be partly due to learning to handle.

Curve of intoxication does not correspond with curve of blood alcohol level, except in a general way. Correlation seems to be with speed of changes rather than absolute level. Question of relation to permeation of cell membrane.

Starling's study on 500 cases - severe alcoholism shortens life - moderate alcoholism seems to lengthen, according to Pearl's statistics, but probably not comparable group.

Alcohol does not reduce fertility, nor does it seem to be inherited, but may be acquired from parents.

Acute disorders -

Acute effects all the way from minor behaviour disturbances to coma.

4-500 cc. are lethal - not so dangerous if diluted.

Treatment of acute intoxication with coma -

1. Stomach washing.
2. Caffeine and strychnine.

Obermeyer. 1873. Ethyl alcohol rendered depressed patients more accessible.

Contoravitch and Constantovitch, 1935.

Traff and Shubie.

Neuman 1935. I.V. alcohol 10%  
schizophrenics become less accessible.

All these references re alcohol in schizophrenia given in Cameron's Objective and External Psychiatry, 2nd ed.

French system in vogue 1931-35 of strychnine treatment for delirium tremens (1)

(1) Piech, Cossa, Le traitement de complications d'alcohol par strychnine. Am. Rev. Medico. Psychol. 1938, 86, 167-187.

## THE ACTION OF ALCOHOL

If strychnine poisoning occurs give Sodium Amytal; Insulin and Glucose in Alcoholism will reduce severity of intoxication (20).

B. Goldfarb, W. Bowman, E.M., Parker, S.  
Treatment of acute alcoholism with glucose and insulin.  
J.Clin Invest. 1939, 18, 561-564.

## Delirium Tremens

Careful questioning will usually reveal that "he has had attacks of the shakes", sleeping poorly, trembling, feeling "nervous."

Biculer - many other promonitory symptoms.  
Controversy as to whether withdrawal of alcohol precipitates delirium. It now seems that acute withdrawal does not precipitate and that giving alcohol during treatment does not shorten treatment. It seems now that vitamin intake most important. Purely clinical observation suggests precipitation by sickness or accident - broken leg, etc., often seems to be associated.

Characteristics are trembling and restlessness. Mood is mixed. There is anxiety but possibly euphoria and cheerfulness. Hallucinations are variously reported - agreement that they are minute, multiple, and motile, and that they tend to appear in rows, lines, and streamers. Disagreement as to whether coloured or not - can have both. May be to a lesser extent tactile or auditory hallucinations, also such suggestibility.

Orientation disturbed and capacity to remember memories are lost on recovery.

## Treatment

- (1) Fluid intake kept up - not overload heart.
- (2) Keep at rest with large doses of paraldehyde grs. 2, a dose until asleep up to grs. 3 a day.
- (3) Good diet and high vitamin B intake.
- (4) If exhausted, digitalize early to support heart. (Death rates up to 25% have been reported in some localities).

There may be relapses after apparent remission.

## CHRONIC ALCOHOLISM

Chronic alcoholism is a condition which supervenes after several years of drinking, but the onset depends on various constitutional factors. In those people in whom damage does occur, however, it is widespread.

### Signs and Symptoms:

1. Blurred eyes. - thickened skin, coarse features, watery eyes.
2. Tremor of hands and circumoral musculature.
3. Psychological characteristics - behaves better in company than at home. The appeal of home, family, etc. lose their deterrent effect, and he becomes unreliable. He responds readily to the mood of those about him, and hence when admonished for his misdeeds he becomes quite remorseful.
4. Defects appear in memory, especially for long sustained work.
5. Gastric, renal and hepatic

Changes in the spinal fluid occur the nearer the patient's state approaches the alcoholic psychopathic.

Rosen Am. J. Med. Sc. 1941, Vol. 201, pp.270-277.

"The C.S.F.Total Protein in the Alcohol Psychopathics" report 72% of cases which show psychopathical signs give an abnormally high total protein.

### Korsakoff's Syndrome

This syndrome appears only on a basis of chronic alcoholism, and is characterized by:

- (1) Polyneuritis - severe, incapacitating wrist and foot-drop with parasthenis and other sensory changes.
- (2) Memory disturbances, especially for recent events occurring only a few minutes before.
- (3) Disorientation - due to memory defect.
- (4) Confabulation - an attempt to fill in the gaps in the picture - story is not consistent because they cannot recall what they have told previously.
- (5) Occupational Delirium. Picking at clothes and unravelling threads.

Prognosis - Poor without treatment, but occasional spontaneous recoveries reported.



CHRONIC ALCOHOLISM

Treatment - Main treatment is Vitamin B Complex injected intramuscularly. There is some improvement both in neuritic and mental picture which may go on over months, however sometimes patient goes into a dementia in spite of all treatments.