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OBSERVATIONS ON THE EFFECT
OF
THYROID FEEDING
IN
SOME FORMS OF INSANITY.

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One of the best descriptions of the functions of the thyroid gland is that by Victor Horsley. (Brit. Med. Jour. Jan. 30. 1892 & Feb. 6. 1892) This paper furnishes an account of recent work on the subject and so fully details the results arrived at by other workers that I use it as my chief reference throughout this paper.

Horsley holds three views with regard to the function of the thyroid gland.

1. That it is directly a blood forming organ.
2. That it is indirectly a blood forming organ.
3. That it modifies or destroys substances which circulating in the blood are harmful to the general economy.

Dr. Gibson, in an article, on the function of the thyroid gland, (Brit. Med. Jour. Jan. 14. 1893) says, in his original paper (Journal of Anat. and Physiol. Vol. ~~XX~~. part. IV.) ^{says} that he "gave adherence to the hypothesis ad-

-vanced by Schiff, that the gland secretes some substance whose absorption into the blood is essential to life; and to the extension of this hypothesis by Sanguirico and Canalis, that the gland secretes some material which is necessary for the nourishment of the central nervous system". Gibson believes this to be the gland's chief function and explains the anaemia which occurs in animals after thyroidectomy as being due "to the very serious effect that the absence of the thyroid has upon the nervous system and upon the general body metabolism, exercising a depressing influence on the blood formation".

Horsley makes no definite statement with regard to the gland's influence on the nervous system, but remarks, that "it secretes some substance useful to the general metabolism of the body."

Of late years considerable attention has been paid by physiologists and others to the functions of the thyroid gland.

Otto Lang made some researches on the origin of the muscular twitchings in cachexia thyreopriva in dogs. (Brit. Med. Jour. Sept. 23. 1893. page. 676.) In five dogs the motor region was removed in one hemisphere. "A very remarkable phenomenon was that, after complete recovery from the extirpation of the motor region, so that no trace of paralysis remained, the paralysis reappeared the same day that the thyroid gland was removed" — This observation is a further proof of the great importance of the thyroid gland.

Less than three years ago Dr. G. Murray published the results of his treatment of myxoedema by the administration of thyroid. Since then numerous cases of myxoedemic patients successfully treated in this manner have been reported from time to time in the medical press.

Dr. John Thomson has applied the drug in cases of sporadic cretinism with marked success. (Edinb. Med. Jour. May 1893. Feb. 1894).

I was first led to try the effect of thyroid feeding on the insane, after reading the accounts of various cases of myxoedema treated in this manner, where the temperatures rose from subnormal to normal and even to feverish, with a quickened pulse rate.

Bearing in mind the slow pulses and low temperatures often noticed in asylum practice, it appeared feasible that if one could induce quicker pulse rates and higher temperatures, in fact, increase ultimate cell metabolism, there might be a corresponding mental or physical improvement, which judiciously persevered in would be a valuable therapeutic addition to the treatment of the insane.

Two mental cases were selected for observation, not because there was any hope of their ultimate recovery but because they had reached such a low stage of human degradation that the treatment if not beneficial could at least do no harm.

Glycerine extract of thyroid, was at that time, the form in which the drug was chiefly used, and my first observations were made with this preparation.

Small doses, (one thyroid lobe in seven days) gave no result and it became evident that the treatment would not justify the expense incurred if this method was continued.

I accordingly got fresh sheep's thyroids from the asylum butcher and made large quantities of glycerine extract.

Both this extract and that obtained from the druggist, were administered by the mouth, as hypodermic injection was fraught with too great danger of abscess when dealing with the insane.

This attempt was more successful; doses of the extract, equalling one thyroid lobe per day, produced changes in the pulse and temperature with corresponding mental changes.

I have not given these cases in detail for the reason that I do not con-

-sider the treatment was sufficiently accurate.

It was not always possible to obtain a regular supply of thyroid glands and frequently the resulting extract became putrid and offensive at the end of a week, even when great care, cleanliness and antiseptics were observed in the manufacture. This caused irregularity of administration.

Further, I am positive that the extracts did not always yield the same percentage of active constituents.

When the variations in the size and appearance of the thyroid lobes of individual sheep are considered, any attempt to arrive at a definite dose by comparing the action of individual lobes must be inaccurate and unscientific.

It was noticed in these two cases, that the pulse increased in rate and fell in tension, coincidently the skin became moist and warm, while the temperature rose from subnormal

to normal with at times a tendency to be even feverish.

After discontinuing the drug for a few days, a period of reaction set in; the appetite increased, there was slight desquamation of the cuticle and an improved colour and tone in the skin.

Mental changes were likewise observed. One of the patients had not spoken for several months, one day during the administration of the thyroid extract, he suddenly began to talk and soon became quite communicative. Memories of past events were more vividly brought to his mind and his powers of attending to himself were increased. He put on his boots and dressed without assistance, actions almost foreign to him since admission, a year previously.

In the other case similar changes were noted but in a much less marked degree.

The results obtained by these preliminary observations were sufficiently interesting to merit further attention,

and I was preparing to prosecute the inquiry by feeding with the raw gland divided into portions of equal weight. When Thyroid Tabloids came into the market and offered a constant supply of the drug in a convenient form and where a more accurate dose could be given.

All the cases to be described were treated with Thyroid Tabloids, each Tabloid representing five grains of fresh Thyroid gland of the sheep.

If such results were got by extracts of uncertain strength and composition. I thought myself justified in putting more hopeful cases under treatment. I now aimed at inducing fever with its resulting reaction.

Psychological literature is full of the records of cases, which made good recoveries after suffering from, the exanthemata, carbuncles, erysipelas and inflammations generally.

Dr. Clouston in his "Clinical Lectures on Mental Diseases" p. 129. Says,

"I think we shall some day be able to inoculate a septic poison and get a safe and manageable counterirritant and fever, and so get the 'alterative' effect of such things and the reaction and the stimulus to nutrition that follows febrile attacks"

The cases on which these observations are based, were not specially selected. Some had been in the asylum for a year or more than a year, others for a few days, while the remainder were patients recently admitted, who were either making no progress to recovery or were actually losing ground.

The forms of Mental Disease comprised, Mania, Melancholia, general paralysis, Syphilitic insanity, alcoholic amnesia, puerperal and lactational insanity and insanity at the climacteric.

The following was the method of observation.

First of all the patient was weighed, then put to bed and for four days pres-

ious to the administration of the drug, the pulse and temperature were observed morning and evening; the urine was collected for quantitative examination and a pulse tracing was made.

When these preliminaries were satisfactorily settled the patient had thyroid tablets administered three daily, in doses ranging from thirty to sixty grains per day, either with the ordinary meal or immediately afterwards.

When the physiological effects of the drug were well marked the observations on the pulse and urine were repeated.

The drug in most cases was administered until a feverish condition was induced for three or four days; failing this I had to be satisfied with increased pulse rate, flushing of the skin and perspiration.

To guard against dangerous results, frequent examinations of the pulse were made. When the pulse became rapid, soft and compressible the

limit of safety of the physiological action of the drug was considered to be attained.

Individual constitutions differed so much in their power of resisting the action of the drug that the amount of thyroid necessary to produce these results varied to a great extent.

The patients stayed in bed for several days after treatment was stopped, the state of the pulse indicating the inadvisability of allowing them to go about the ward as usual.

When they got up, usually at the end of a week, the weight was again ascertained and a blood examination made.

During treatment the diet was not restricted in any way.

The after treatment consisted in the administration of a tonic, Fellows' or Easton's Syrup, combined with an extra diet.

The weights were taken a fortnight after the thyroid treatment was stopped.

and afterwards at the end of each month.
Mental and physical changes were noted
from day to day.

H.G.C. Male, aged 19.; admitted Sept. 1.
1893. First attack, cause stated to be
overwork, but there is little doubt that
the attack was induced by the practice of
masturbation.
On admission he was very boyish in
appearance and poorly developed for

his age: of nervous constitution; no physical disease detected; height 5ft. 4½ in. weight 116 lbs.

His mental condition was one of acute mania, with great restlessness, intense excitement and incoherence.

He was sleepless and noisy at night; and for four nights was given half drachm doses of paraldehyde. During the day he walked much in the grounds and was prescribed a full diet.

Under this treatment he gradually recovered so that by September 15th he was free from excitement and talked in a fairly rational manner. He appeared to be making a good recovery until September 27th when he relapsed, the excitement returned and he again became sleepless.

Oct 1. Wt 118 lbs. He was acutely excited and though kept out of doors all day in charge of an attendant he did not sleep.

Oct 4. Since last note he has been continuously excited, dirty and destructive.

in his habits. Drachm doses of paraldehyde produced little or no effect on the insomnia. Today he commenced taking Thyroid tablets, and took in all thirty grains.

Oct: 5. Confined to bed; skin hot and dry; dose of thyroid increased to sixty grains per day.

Oct: 6. Slept soundly last night for ten hours; skin moist and flushed; pulse quick, the tension diminished.

Oct: 7. Much quieter and less restless: Slept well all night; evening temperature $99^{\circ}2$.

Oct: 8. Perspiring freely; evening temperature 99° .

Oct: 12. The Thyroid treatment was discontinued as the pulse had become weak and slightly irregular. With the exception of the night of October 9th, when he was restless, he has slept well, and has been much quieter during the day time.

Weight 112 lbs.

Oct: 14. The weather has suddenly become warm and close. He had a slight return of flushing of the skin; evening temperature rose to $98^{\circ}8$.

Oct: 15. Slight muscular tremors noticed.

today in his arms and legs: perspiring freely: morning and evening temperature 98.6.

Oct: 18. Was allowed up: the mental improvement is most marked, he is quiet and rational but looks thinner.

Oct: 20. Weight 117 lbs. an increase of five pounds in eight days. He asked today if he might join a working party in the garden, adding that he could keep quiet now.

Oct: 27. Weight 124 lbs. He has taken Fallow's Symp during the past week: his appetite has improved. He has perfect control over himself. A marked growth of hair has appeared on the lip and chin, and his manner and appearance have become more manly.

Nov: 3. Weight 129 lbs. His hands and feet have been desquamating freely, in large flakey pieces, for the last few days: the trunk also showed desquamation of bronny character.

Nov: 26. Wt 140 lbs. He has physically developed since the reaction to the thyroid treatment became marked.

viz, - prolonged expiration, increased vocal resonance and occasional crepitations. Height - 5 ft - 7 Weight - 120 lbs.

Mental. Subacutely excited; rambled and talked incoherently; had delusions of a religious character.

Dec: 9. Became acutely maniacal last night.

Dec: 10. Less excited but more restless mentally; furtive and suspicious in manner; refused food and had to be spoonfed with all his meals.

Dec 12. Has suffered from obstinate ^{constipation}, requiring the administration of purgatives and enemata.

Dec. 21. Has varied greatly since last note, one day being fairly rational and quiet; the next, he mistakes the identity of those around him and talks foolishly and incoherently. His digestion has been in a very disordered condition and he is taking a mixture of Beismuth, Rhubarb and Soda with benefit.

Dec 27. His varying mental conditions are evidently due to masturbation to

which he is addicted.

Jan: 3. 1894. Has steadily lost ground for the last week is becoming dirty in his habits. Weight 120 lbs.

Jan: 6. Thyroid treatment commenced today; to have 4 tablets three daily, a dose of 60 grains per day. His temperature which has been regularly taken since January 3rd has been remarkably low. The pulse tracing showed no abnormality.

Jan: 7. Skin moist and flushed; pulse rapid and rather soft.

Jan: 8. Perspiring freely today.

Jan 9. Well marked muscular tremors of the arms, legs, lips & tongue. Temperature 98°.

Jan 11. Administration of thyroid discontinued last night as he was suffering from symptoms of gastric catarrh. Evening temperature 99°. Very wet and dirty in habits: no mental improvement; confusion and incoherence more marked.

Jan: 12. Morning temperature 99° 4:

has a slight cough and expectorates tenacious, semipurulent matter: evening temperature $99^{\circ}5$: perspired freely all day the perspiration had a foetid odour.

Jan: 14. Cough and spit continue: evening temperature $99^{\circ}2$. A physical examination of the chest showed that the incipient apical phthisis, noted on admission, was in an active condition; - expiration was markedly prolonged and crepitations fine and coarse were detected on expiration and inspiration.

Jan 16. Has become restless, emotional and foolish and there has been a slight return of excitement. Temperature. 98° .

Jan: 18. There was a return of fever yesterday & this evening his temperature rose to 99° .

Jan 22. Weight 111 lbs. His temperature has been normal since the 18th inst: He got up today. He took food well and was more active mentally than

he has been since admission.

Jan: 25: Complains of feeling very hungry. His memory has become impaired, he cannot remember his way to or from the dining hall, or the bed he sleeps in.

Feb: 5: Weight 118 lbs. Has gained seven pounds in last fortnight, but mentally he has not improved. The cough and expectoration have gradually been getting less and have now completely disappeared. Physical examination of the chest showed no extension of phthisis, the crepitations were finer and less frequent than on January 14th.

March 5: Weight 124 lbs. A further gain of seven pounds in the month. His habits are still degraded, he wets his bed almost nightly and during the day occasionally spews water when sitting in a chair. He still masturbates; lacks energy and initiative; has to be shown to and from the dining hall and asks nightly what bed he is to sleep in.

April 5: Weight 137 lbs. Clean in habits:
Memory improved: His mental re-
covery is slow but there is a satisfactory
improvement in bodily condition.

A.B. female aged 34.

Admitted January 4, 1894: Second
attack. Domestic worry was given
as the exciting cause
State on Admission.

Physical. Pale and sallow; complexion

muddy: in poor condition: chest free from physical disease. Height - weight - 89 lbs.

Mental. Restless and impulsive, constantly jumping out of bed: memory impaired, She was unable to tell the ages or the names of her children; had hallucinations of sight and hearing.

Jan 10. Since admission she has suffered from insomnia. Restlessness and impulsiveness are constant symptoms. Her appetite is capricious. She has been ordered a mixture of iron and quinine.

Jan 17. Mistakes the identity of those about her; is incoherent in conversation and impulsive in conduct.

Feb: 1. There is no improvement in her mental condition.

Feb 4. Weight 90 lbs. Has been in bed since last note to facilitate regular observations on the pulse & temperature.

To take four Thyroid tablets 3 times daily.

Feb 5. Pulse quick, but no change in tension. Mentally she is emotional and irritable.

Feb. 7. Tremors in the muscles of the tongue, lips, arms and legs. She is very emotional, frequently bursts into tears without obvious cause. Her temperature last night was $99^{\circ}5$.

Feb. 9. Thyroid discontinued as the pulse was very rapid and small.

Yesterday her evening temperature was $99^{\circ}6$ & tonight it is $100^{\circ}6$.

Feb. 10. Quiet and fairly sensible.

6 p.m. Pulse feeble and fast: she has taken no food all day: to take an ounce of whiskey at once followed by a second at seven o'clock.

8 p.m. Pulse stronger but continues very rapid. Evening temperature $100^{\circ}4$.

Feb. 11. Wet and dirty last night: To-

day she does not look well and occasionally moans but complained of no pain.

Feb. 12. Her temperature yesterday ranged between $99^{\circ}1$ and $100^{\circ}8$. This morning her temperature is $99^{\circ}5$.

She was reported at 6 p.m. to have a swelling in the abdomen which on examination proved to be a full bladder.

Twenty-eight ounces of clear urine were drawn off by catheter. The rectum contained a hard scybulous mass of feces which, by mechanical action, prevented the expulsion of urine. An ordinary enema failed to remove the impacted feces.

Feb. 13. Temperature still ranges between 99° and 100° . The rectum was emptied today after the injection of two drachms of glycerine.

Feb. 15. Temperature now almost normal. She is brighter, but excited, foolish and restless.

Feb. 17. For the last three mornings she has been very sensible and quiet on first awakening from sleep, but as the day goes on she becomes foolish and excited.

Feb. 19. Weight 80 lbs. She is much improved, speaks quietly and answers questions in an intelligent manner.

Feb. 23. Is now taking part in the ward work. She sews a little and the restlessness has disappeared. Takes her food

with good appetite.

March 5: Weight 88 lbs. A gain of eight pounds in the fortnight. She has taken a mixture of iron and quinine since February 20th. Her pallor is due to blood lost through the hemorrhages from internal hemorrhoids. This loss of blood has been much reduced by regulating the action of the bowels with mild laxatives.

March 13. Showed an inclination to a return of excitement and foolish conduct.

March 16. Is improving again.

March 20. There is marked improvement. Her skin is clearer and she is in much better condition. Mental state remains satisfactory and she appears to be on the fair way to recovery.

April 5: Weight 94 lbs. A fortnight ago desquamation commenced but was confined to the feet. She is now quite recovered & looks forward to her discharge.

Two additional cases of acute excitement were put under Thyroid treatment but the drug was discontinued for special reasons. One was a female patient, aged fifty-two, suffering from acute mania, following an attack of influenza. She was in very poor condition and weak health. Two Thyroid tabloids were administered thrice daily for five successive days. The following is a brief resumé of the observations made.

- Jan: 1. 1894. Last night slept for less than two hours. Commenced taking thyroid tabloids.
- Jan: 2. Maniacal and restless: no sleep last night.
- Jan: 3. Continually shouting & crawling about her room. no sleep.
- Jan: 4. Slept for two hours.
- Jan: 5. no sleep last night. Today her skin is moist and warm; pulse quick and small; medicine discontinued.
- Jan: 6. Slept four hours; skin flushed and perspiring freely; temperature 98°.
- Jan: 7. Slept six hours.
- Jan: 8. Slept two hours. Her skin is dry and harsh; pulse fast.

The drug was discontinued because it was evident that the maniacal excitement alone was reducing her body weight so rapidly that the additional loss of weight which almost invariably results from taking thyroid was more than the patient could stand.

She has since then made a satisfactory recovery but of course the thyroid treatment may not have contributed to the result.

The second case was that of a male, aged thirty-eight; a General Paralytic in an acutely maniacal condition. The same result followed thyroid administration as in the previous case; coincidently with flushing of the skin and perspiration, the patient slept for long periods of nine and ten hours. When awake however, his excitement was not any less. Eight thyroid tablets were given per day, for three days only, the loss of weight from continued excitement indicating that the patient was

unable to stand the treatment.
 He died of general paralysis about
 a month later.

A.T. female, aged twenty-two.

Admitted Sept. 8. 1893: first attack.
 Cause, unknown; probable hereditary
 predisposition: sister insane.
 State on Admission.

Physical. In weak health and poor
 condition; complexion sallow and waxy;

anaemic, but no active physical disease detected. Height and weight not taken.

Mental. Dull, depressed and desponding.

Stated that she was dying and could not outlive the day. Previous to admission she jumped out of a window, and is now under the delusion that her bowels are ruptured and that she passes nothing but water.

Sept. 10. Lay in a trance like condition, when spoken to she gasped, and whispered that she was dying. Refused food and was fed regularly with the nasal tube.

Her condition remained unchanged for a month after admission.

She lay in a helpless, trance like state and was under the delusion that she could neither move nor speak.

Did not resist when fed artificially by tube, which was necessary three daily. She lost weight and her muscles became soft & flaccid.

Oct 6. Weight 110 lbs. To take four thyroid tablets three daily.

Oct: 9 Dose increased; took sixteen
 tabloids today; pulse fast and soft.

Oct 10. To take six tabloids thrice daily.

Oct 11. Took in all twenty-three tabloids
 today; skin flushed and perspiring,
 temperature subnormal; has become
 dirty in her habits.

Oct 14. To stop medicine tonight. Since
 October 12th she has taken twenty-four
 tabloids per day. Her skin is much
 brighter and clearer; has been fed
 regularly by tube since treatment
 commenced, and the thyroid tabloids
 were administered at each feeding.

Oct 15. Morning temperature 99°;
 the weather was warm and close
 for the time of year; evening tem-
 perature 98.4.

Oct: 18. Very dirty in habits no mental
 change.

Oct 22 A mild "faradic" current was
 applied to the hands and effectually
 dispelled the delusion that she was
 unable to move.

Oct 25. The faradic current has been

applied daily to the arms and legs.

She is no longer under the delusion that she cannot move them.

Oct: 27. She has improved rapidly since the 22nd inst: and is now out of bed, dressed and sitting in a chair. She takes her food and feeds herself.

Oct: 28 Weight 100 lbs. Cleanly in habits: desquamation of hands and body has commenced; Says she feels very hungry.

Nov: 4. Weight 106 lbs. A gain of six pounds in a week. She has practically recovered, sews, reads and works in the ward.

Nov: 11. Weight 111 lbs. Now works in the kitchen.

Dec: 11. Weight 145 lbs. She looks well, has rapidly laid on flesh during last month, and is now stout & rosy.

Dec. 29. Weight 148 lbs. Discharged recovered.

The application of Faradic electricity complicates the treatment of this case and renders

the benefit derived from thyroid treatment - an unknown quantity.

The loss in weight during treatment and the improved appearance of the complexion was evidence that the drug was not inactive. The rapid gain in weight during the period of reaction, and the desquamation of the skin, can hardly be put down to the effect of Faradic current.

MELANCHOLIA.

C. F. Female aged twenty-three.

Admitted Aug. 15, 1893. First attack which has lasted eighteen months:

Strong hereditary predisposition to insanity, her father and paternal uncle having been insane. Exciting cause said to be amenorrhea.

State on Admission.

Physical. Pale and anaemic; symptoms of latent phthisis in the apices of both lungs. Height 5 ft. 5 in. Weight 96 lbs.

Mental. Great mental enfeeblement; understands little of what is said to her and cannot answer the most simple questions correctly.

Her expression and manner are those of congenital imbecility but her parents deny that she was always weak minded.

Sept. 12. Simple, foolish, stupid & confused; of late her habits have been

very dirty. She has taken an iron and quinine tonic since admission.

From November 22nd to December 8th she was in bed suffering from pleurisy at the base of the left lung, while the phthisical areas in both apices became active. Her temperature in the evenings usually reached 100° but fell to normal in the morning. There was no mental improvement.

Jan 6. Her temperature has been normal and subnormal since Dec. 8. She has been put to bed and ordered four thyroid tablets three daily. Her weight is 102 lbs.

Jan 7. Face flushed, skin moist; evening temperature 99.4.

Jan 10. To discontinue thyroid to-night. Her pulse is quick and small; morning temperature 99.7; evening temperature 99.9.

Jan 12. The apical phthisis has again become active. She has a cough and spit: dirty in habits; no mental change.

Jan 14 Yesterday she was very restless, flushed and perspiring; vomited after

admitted December 1. 1893. First attack.
duration three months: strong heredit-
ary predisposition to insanity & phthisis.
Exciting cause, domestic trouble.

State on Admission.

Physical. Pallid and anæmic; miserably
thin; incipient phthisis in apices of
both lungs. Height Weight 98 lbs.

Mental. Depressed and desponding;
frequently remarked "what is the
use of living!" Harbored under delusions
of impending disaster and death.

Attempted suicide before admission
by jumping through a window.

Dec 14. Resistive and partly stuporose;
stands for long periods in the same
position.

Jan 1. Weight 100 lbs. Has improved
somewhat, occasionally smiles
when spoken to but resists when
asked to dress or go for a walk.

Jan 11. Has become more markedly
stuporose and resistive.

Feb 1. Weight 104 lbs. Though improved
in bodily condition, there is no mental change.

Feb. 4. Commenced taking four thyroid tablets thrice daily.

Feb. 5. Pulse fast and soft; tongue tremulous: a decided mental change, she answered questions quickly and with intelligence.

Feb. 6. Emotional and foolish; skin flushed and perspiring.

Feb. 7. Complained of headache; muscular tremors of tongue, lips, arms and legs.

Feb. 9. To stop thyroid treatment; pulse rapid and small. Has again become more confused and stuporose.

Feb. 10. Morning temperature 99° . Evening temperature $100^{\circ} 1$.

Feb. 12. Takes food well but refuses to speak. There were symptoms of increased phthisical activity in the apices of both lungs.

Feb. 18. Mental condition unchanged. Her temperature has been ^{sub.} normal since the night of the 16th inst.

Feb. 19. Weight 94 lbs. Was allowed out of bed today.

Feb. 24. Her friends saw her today and remarked, that she was more like her usual self than they had ever seen her since her illness commenced.

March 5. Weight 98 lbs. Has been on tonic treatment since February 20th. Mental condition improved. Her skin is clearer and complexion brighter.

March 15. Works in the ward and danced at the last weekly entertainment.

March 20. Answers questions sensibly; remembers the delusions she expressed when admitted but now says they were mistaken ideas. Is still suicidal.

April 5. Weight 102 lbs. Bodily and mental improvement continues and she appears to be on the fair way towards recovery. She has however quite lately expressed suicidal intentions.

April 15. Is feverish and in bed; there are symptoms of active phthisis in the left apex.

J.J. Male aged forty-six. Admitted June 4. 1893. First attack; duration six weeks prior to admission. Cause, business worries.

State on Admission.

Physical. Thin but wiry; skin dry, harsh and deeply pigmented. No physical disease detected, but a thorough examination was impossible on account of resistance offered by

patient. Height - Weight: not taken.
Mental. In a state of profound resist-
ive Melancholia

For the first fortnight he re-
fused food, saying it was filth, and
was fed by nasal tube. It took four
attendants to dress and undress him.

July 25: Evidently unable to assimilate
his food; is much weaker; skin dry,
and dusky in colour; breath foul.

He is in bed; no active physical disease
detected but his temperature has
risen to 99.1: habits dirty.

His condition at this period
was critical and death from ex-
haustion seemed imminent.

July 29. Was today given one thyroid
tablet with each feeding.

July 30. Dose increased to two tablets
thrice daily: is perspiring profusely.

Aug 2. To stop taking thyroid. Physically
he has much improved and his skin
is clearer.

On August 9th he took food vol-
untarily. Here the improvement

ceased. During September he made no progress, but ate well and slept soundly; habits continue depraved. Oct 4. Weight 123 lbs. Recommenced thyroid treatment, to take four tablets three daily.

Oct 6. Skin flushed and moist; evening temperature $99^{\circ} 5$.

The medicine was discontinued on October 9th. His temperature was continuously feverish from October sixth to October twelfth. He had also a cough and spit. Examination of lungs revealed physical symptoms of active phthisis.

Oct 15. Weight 114 lbs. Was excited and abusive, refused his food.

The weather is warm and close, his temperature has again risen to $99^{\circ} 2$.

Oct 16. Had a return of the delusion that the food given him was filthy: evening temperature $99^{\circ} 4$.

Oct: 17. Quiet and took food voluntarily.

Oct: 18. Dressed himself for the first

time since admission. Physical symptoms of active phthisis have disappeared.

Oct 22. Slight mental improvement.

Takes food greedily - habits dirty

Oct 29. Weight 120 lbs No further improvement.

Nov 9. Desquamation of hands & feet.

Nov 12. This is the first day he has not wet himself for a month

Nov 13. Used the chamber utensils of his own accord to-night before going to bed.

Nov: 15. Has been cleanly in habits for the last two nights.

Nov: 24. Restless and fidgety; again dirty in habits.

Nov 29. Weight 126 lbs. Has improved in appearance and condition.

Mentally there is no real progress.

Dec. 29. Weight 132 lbs. Continued physical improvement but no corresponding mental change.

He still dresses and undresses himself, but is stupid, confused and

resistive and pays little attention to his surroundings.

When T.T. was apparently dying of exhaustion from mal-assimilation of food, the reaction following small doses of thyroid gland appeared to give him the necessary jillip which tided him over this crisis, further than this his appetite became more healthy and he took food voluntarily which, with rare exceptions, he had not done since admission, two months previously.

He is still an inmate.

Latterly he has shown increased mental activity and has given his friends minute instructions concerning his business and money matters. His habits are also cleaner.

A.C. male aged twenty-five.

Admitted May 6. 1892. First attack:
 cause stated to be masturbation.

State on Admission.

Physical. In average health and con-
 dition. No physical disease detected.

Height 5 ft 6 in. Weight 150 lbs.

Mental. He was stuporose and was with
 difficulty got to answer yes, or no, to
 simple questions.

A week after admission he became obstinately silent and sat or stood for hours in one position.

July 23. Remains in a stuporose condition, has to be dressed and undressed.

From this date to December 1st there was no mental improvement.

He occasionally had impulsive outbursts and broke windows. His habits were degraded: he drank his urine and masturbated to excess.

Dec. Spoke today but simply reiterated "I want to go home". The following day he resumed his usual state of silence and lethargy.

Thyroid treatment began on January 4th 1893; he took the glycerine extract of half a thyroid lobe daily for a fortnight.

Jan 9. Flushed and perspiring; temperature 98°: pulse full and soft.

Jan 11. Spoke today and answered questions readily: he can dress and undress without assistance.

Jan 18. Has relapsed: has to be dressed

but undresses himself.

Feb. He is now more active than he was before treatment commenced and has made two or three attempts to escape during the past week.

Feb. 8. The same dose of glycerine extract of thyroid was repeated.

Feb 15. Treatment continued for a week is upon the whole more active minded

May 1. Has neither lost nor gained ground since last note.

May 4. Weight 136 lbs. To take four thyroid tablets thrice daily

May 8. Dose increased to six tablets thrice daily.

May 9. To take eight tablets thrice daily. Pulse rapid and soft-

May 10th Morning temperature 99° 2. evening temperature 100° 4. To take nine tablets thrice daily.

May 11th To take ten tablets thrice daily. The temperature continues high, ranging from 99° to 101°.

After this date the dose was gradually reduced and finally discontinued.

ned on May 14th. From the beginning to the end of treatment the patient never complained of pain or discomfort; nor did he exhibit any unsatisfactory symptoms, beyond slight irregularity and intermission of the pulse on May 14th. These symptoms disappeared by the following day.

Two days after cessation of treatment the morning temperature fell to 98.2 and the feverish symptoms had disappeared on May 19th.

May 23. Weight 143 lbs. A loss of thirteen pounds in seventeen days. Has improved mentally and for the first time has given some information about his previous history. He appears to be totally uneducated and can neither read nor write. His conversation is coarse and profane. The mental improvement commenced while he was still feverish and was not confined to the period of reaction alone.

June 6. Weight 153 lbs. His hands, feet and body are desquamating.

Has taken his food with great appetite since last note and has almost regained the weight lost during treatment.

July 6. Weight 152 lbs. No further mental improvement. During last month has had several outbursts of irritability and slight excitement.

From this date up to the time of writing (April 16. 1894) no further change has been noted. The patient is more rational and a more useful member of society than he has ever been since admission. He looks after himself. Keeps himself clean and fairly tidy and gives monosyllabic answers to questions. He still masturbates and on one occasion was detected drinking his urine.

CHRONIC MELANCHOLIA.

S. A. Female aged thirty-seven.

Admitted February 14. 1890: first

attack: Domestic trouble being the only known cause.

History. She has been insane for fourteen months, part of this time has been passed in two other asylums, and part at home.

State on Admission.

Physical. In indifferent health and condition. No active physical disease detected. Height 5 ft. 2 1/2 in. Weight 114 lbs.

Mental. Subacutely excited, nervous and irritable; irrational in manner and sometimes used abusive language.

During the earlier part of her residence in the asylum her mental condition varied a good deal, at one time she was irritable and suspicious but expressed no definite delusions, at another she was acutely depressed, threatened suicide and was for some months under special supervision.

As time went on she became more listless and apathetic, careless of her dress and personal appearance and appeared to be drifting into confirmed melancholia.

On Nov: 1. 1893. her condition was as follows. — Temper capricious and uncertain; spent most of the day absorbed in herself, would neither employ herself nor read; unreasonable in her likes and dislikes; seldom spoke except to her husband when he visited her; She was thin and took food badly. Complexion pallid, skin

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dry and scaly.

On Nov: 22. she was put to bed to facilitate observations on the pulse, temperature and urine. The first time her pulse and temperature were taken she resisted and was very abusive and angry. Her weight was 121 lbs.

Nov: 25. Commenced taking thyroid.

To take four tablets thrice daily.

Nov: 27. Face flushed, complained of pains in legs and head. Pulse quick and soft: evening temperature $98^{\circ}8$.

Nov: 29. Fine muscular tremors in the arms, legs, lips and tongue. Complaints of slight headache.

Dec 2. Pulse rapid and soft. Her temperature has never been higher than $98^{\circ}8$.

A sudden change has occurred in her manner, she is pleasant, laughs and talks sensibly. Her complexion has become clear and her skin soft.

Dec 3. Felt sick and disinclined for food. Thyroid administration stopped.

Dec 7. She continues bright and pleasant. Wrote a sensible letter

to her husband. This morning she fainted when walking from her bed to the bathroom.

Dec: 11. She got up today for a few hours, but felt weak.

Dec. 13. Weight 115 lbs. Is menstruating.

Dec. 14. Has relapsed to an emotional, irritable condition of mind.

Dec 15. Pleasant and sociable today, occupies herself sewing. Has not slept well for two nights.

Dec. 17. Has dyspeptic symptoms and refuses food. Mentally dull, morose and irritable.

Dec: 21. Sleeps better and under treatment the dyspeptic symptoms have improved. She takes her food better.

Jan 21. Very variable, one day irritable and the next cheerful and talkative. Her friends say she is much improved, more intelligent and more active minded than she has been since first becoming insane. Her temper at her best was never a good one.

March 22. There has been no further change in her condition. Her husband is satisfied with the late improvement and took her home today. She was discharged improved.

H.S.P. Female aged forty-three.
Admitted May 10. 1892. First attack.
Domestic worry and the climatic
were given as causes.
State on Admission.

Physical. Pale and anaemic: no active physical disease detected: skin deeply pigmented. Height 5 ft 2 in. Weight 98 lbs.

Mental. Acutely melancholic; restless, wringing her hands in terror and distress, saying she saw the flames of hell leaping up around her.

Continued acutely depressed until August 1892. When her bodily condition improved and her mental condition became more variable.

She was always depressed, but the depression was not so acute as formerly. She occasionally mused herself sufficiently to read or sew but these efforts were feeble and spasmodic.

Feb: 1. 1893. Weight 114 lbs. Has steadily gained weight; her state of depression again became acute; is actively suicidal and is under observation night and day.

June 1. Weight 120 lbs. No mental improve.

-ment; she spoke seldom, generally refused to answer questions, walked up and down the gallery wringing her hands and muttering to herself.

Dec. 1. Weight 120 lbs. She appeared to be passing into dementia and an unfavourable prognosis was given to her friends.

Dec 12. To commence thyroid treatment, four tablets thrice daily.

Dec. 13. Pulse quick and soft.

Dec 15: Pulse rapid; face flushed; complains of sickness. Thyroid discontinued. Since the 12th inst. she has taken 240 gr of thyroid extract.

Dec. 16. Tremors of the tongue and slight twitchings of the limbs. Pulse rapid but not weak.

Dec: 17. No mental change observed.

Dec: 18 Complained of nausea and vomited. A sinapism applied over the epigastrium relieved the symptoms.

The temperature rose on the evening of the 15th to $99^{\circ}.2$ and on the evening of the

16th to 99°, since then the temperature has been normal or subnormal.

Dec. 22. Weight 112 lbs. Was allowed out of bed today. She has lost eight pounds since December 12th.

Dec. 24. Up to the present she cannot be said to have mentally benefited by the treatment. The skin however is less pigmented, complexion clear, pulse quiet; 88.

Dec. 28. A decided mental change is apparent. She is unusually irritable, answered sharply when spoken to.

Jan 2. Much brighter and more active minded than she has been since admission. She was most assertive in her statements and insisted on leaving the asylum at once.

Jan 5. Weight 115 lbs. A gain of three pounds in the fortnight. There is a decided increase of mental activity. She addressed me in angry tones, saying that the doctors made an undue use of their power giving patients poisonous medicine which

Made them very ill and did us good at all. - she evidently referred to the thyroid tablets.

Jan: 11 Quieter and more agreeable in manner. No longer shuns the society of her fellow patients. Employs herself usefully and amuses herself by reading.

Feb: 5. Weight 118 lbs. Improvement continues.

March 5. Weight 118 lbs. Her friends, who had not visited her for some time, were much astonished at the change in her condition. They think she is now in her usual mental state and that her health is better than it has been for years.

March 26. Has become quite fastidious about her personal appearance. She danced tonight at the weekly entertainment for the first time. Her friends have arranged to try her at home next month. They consider her quite well.

S. G. male aged thirty:

Admitted May 2. 1893. First attack
 cause, domestic trouble.

State on Admission.

Physical. Thin but wiry: no disease
 of heart or lungs detected. There is a
 history of acquired syphilis which ran
 a severe course. The disease was con-
 tracted two years ago. There is a coppery
 rash over the trunk. Pulse 72 - of high

tension. Height 5 ft. 6 in. Weight 136 lbs. Mental. Enalted, says he is related to the Queen. Incoherent but not excited; erotic in his remarks.

Aug 1. Weight 135 lbs. Has been under specific treatment since admission; all active symptoms of syphilis have disappeared; pulse tension high; no mental change.

Aug: 4. Commenced thyroid treatment. To take four tabloids thrice daily.

Aug: 9. Morning temperature $99^{\circ}1$. no change in pulse rate or tension.

There are tremors of the tongue and muscles of forearm.

Aug 12. Pulse softer and increased in rate, 102. Dose of thyroid increased to eight tabloids thrice daily. Morning temperature $99^{\circ}5$.

Aug 14. To stop medicine. Pulse tracing showed fall in tension

Aug: 15. Was visited by friends who made him a present of green apples and cheap pastry, of which he ate largely before it was discovered. At night had

a headache and foul tongue. Weight 128 lbs.

Aug. 19 Symptoms of acute dyspepsia for last three days.

Aug. 26. Weight 120 lbs. Continues to suffer from dyspeptic symptoms; frequently refuses food. No mental change.

Sept. 1. No mental improvement.

The syphilitic eruptions have returned: specific treatment resumed.

Oct. 1. Weight 120 lbs. Looks more healthy takes food with better appetite.

Syphilitic rash has disappeared.

Nov. 1. Weight 130 lbs. Physical improvement marked. No mental change; so incoherent in speech as to be almost unintelligible.

Dec. 1. Weight 133 lbs. No change or improvement mentally.

No improvement was observed in this patient at any period of treatment. His slow return to his usual weight I believe to have been due to gastric catarrh, occasioned by

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T.A. male, aged forty-one.

Admitted July 1. 1893. First attack,
cause, alcoholism.

State on Admission.

Physical. A tall, strongly built man.

No physical disease of heart; lungs or abdominal organs. His gait was

awkward, his feet dragged especially when moving rapidly; there was slight dulling of sensation to pain in the feet and legs; a condition probably bordering on peripheral neuritis. The arms and hands were unaffected. Height 5 ft. 9 in. Weight 144 lbs.

Mental. He was facile and the expression of his face was one of foolish hilarity. The chief symptom was complete amnesia in certain directions; the following is a good example. He would ask, 'what day is this?' and was told, Monday; he replied, oh! yes of course this is Monday. Two or three minutes later he would say, 'what day did you say this was?' and was told, Thursday, when he again replied, 'Of course! I forgot, this is Thursday.' His memory for faces was good and he showed fair mental ability in addition, subtraction and multiplication. Aug: 1. Weight 151 lbs. Has improved in appearance and condition, but

his memory is still most defective.

He cannot tell the names of any of the attendants or patients in his ward.

He does not remember what he had for breakfast, dinner or tea if asked half an hour after any of these meals.

Nov. 1. Weight 164 lbs. His memory has not improved, he cannot tell the day, month or year. If asked what weather we had yesterday invariably replied "well it rained a little in the morning I think & was showery in the afternoon;" although the preceding day might have been remarkably fine.

Nov. 3. To commence taking two thyroid tablets thrice daily.

Nov. 9. Skin slightly flushed and perspiring. No change in pulse or temperature. Dose of thyroid increased to four tablets thrice daily.

Nov. 12. Pulse rate increased; 105. No other change noted. Complained of headache. Evening temperature 101°.

Nov. 13 Urine very dark in colour with

a heavy deposit of urates on standing.

His temperature continues feverish.

Nov: 15. Stopped medicine last night as he complained of headache. Morning temperature 98.8. Evening temperature 98.4.

Nov: 18. Weight 156 lbs. A loss of eight pounds since he commenced treatment.

There has been no mental change either during or after treatment.

Nov: 22. He has been out of bed since last note. Today he was emotional and wept but could not say why he wept beyond the statement; that he was thinking of his friends.

Nov: 24. Complained of pains in the back and legs.

Dec. 2. Weight 158 lbs. Much in his usual; no improvement in memory.

Jan. 2. 1894. Weight 160 lbs. No mental change.

Feb 2. Weight 165 lbs. His memory has not improved and practically is as bad as on admission. Physical state satisfactory.

A.U. Female, aged twenty-two.

Admitted April 22, 1893. First attack, exciting cause childbirth: duration of disease on admission, one month, twenty days. State on Admission.

Physical. Pale and anemic in weak health and poor condition: No disease detected in lungs: venous bruit at root of neck: basic cardiac murmurs. Thyroid enlarged. Height 5 ft. Weight 101 lbs.

Mental. Depressed and silent: memory impaired; had hallucinations of sight and hearing.

Aug. 28. Very dull and depressed, desponding and anxious looking; she refuses food and has required artificial feeding: her habits are degraded, yesterday she attempted to wash her face in her urine.

To take six, five grain, Bland Pills a day.

May 12. Improved somewhat; she now works a little and takes her food better.

May 19. Relapsed; very dull: has to be spoon-fed at each meal.

May 20. Weight 100 lbs To take two thyroid tablets three daily and to continue Bland Pills.

Since treatment commenced her pulse has gradually quickened but there is no change of tension: temperature unaffected. Muscular tremors of arms first noted on May 23rd.

May 27. More active minded; she speaks a little and her interest is more easily roused. Dose of thyroid increased to four tablets three daily.

There was little change until June 4th when the drug was discontinued.

She occasionally refused food. The pulse was rapid and small but not weak.

June 5: Weight 92 lbs. Is still in bed.

June 7. Complaints of pain in throat and swallows with difficulty. On examination the condition of the pharynx was one of acute follicular inflammation.

June 8. Inflammatory condition of the throat rather worse. To take, Tinct:

Serri Perchlor: Mmis. 10. Liq: Annum: Acetat:

Zp. Glycine Mmis 20. every four hours.

June 9. Morning temperature $99^{\circ}2$: evening temperature $98^{\circ}4$: pulse rapid and feeble: respirations quick and shallow: fed entirely on egg custards.

June 10. Condition of throat remains unchanged. Mentally less confused, and says she feels very ill.

June 11. Evening temperature $99^{\circ}4$. She appears stronger and suffers less pain.

From this date she made a rapid and good recovery. She remained in

bed until June 19th when her weight was 89 lbs. She was at that date rational, spoke sensibly and remembered recent events clearly.

She was convalescent but not quite well when she was transferred to a neighbouring asylum on June 26th weight 92 lbs.

I have ascertained that she was discharged a month later from this asylum quite well and weighing 114 lbs.

PUERPERAL MELANCHOLIA.

M.E. Female, aged thirty-two.

Admitted June 6. 1893. First attack, exciting cause - childbirth: duration of illness on admission twenty-one days: symptoms commenced three weeks after labour.

State on Admission.

Physical. Tall, gaunt and sallow: expression wearied and exhausted.

No active physical disease detected.

Height 5 ft. 5½ in. Weight 147 lbs.

Mental. Dull and listless; confused; memory impaired; is under the delusion that her children are to be killed.

June 12. Dull, anxious and depressed; very suspicious in manner; habits dirty; unable to dress herself or do the most simple work in the ward. To take a tonic mixture containing iron and quinine.

July 3 Weight 147 lbs. Eats and sleeps

well. No mental improvement, if anything rather more confused and stupid.

July 20. Commenced thyroid treatment today. To take four thyroid tablets thrice daily. Tonic discontinued.

July 21. Pulse rapid and soft.

July 22. Skin moist and warm. Evening temperature 99° 6.

July 23. Tremors of tongue and lips

July 25. Dose reduced to two tablets thrice daily.

Evening temperature continuously feverish from July 22nd to July 26th; pulse rapid and soft but not weak. Aug 1. weight 144 lbs. Medicine discontinued last night. She has been out of bed since July 29th and apparently feels no inconvenience from treatment: pulse very rapid but firm and steady: improved mentally during the last two days, Dressed and undressed without assistance. Aug: 5: Considerable mental improvement; works in the ward; fairly

intelligent and rational; no longer believes in her delusions.

Aug: 7. Weight 145 lbs. Continued improvement. Pulse still rapid.

Aug: 9. Relapsed; is dull and desponding; menstruating.

Aug: 17. Has regained the ground lost in relapse noted on August 9th.

Aug: 24. Weight 152 lbs. Appearance much improved. Passes her time reading, sewing and knitting. Complains today of rigors and sore throat.

Aug: 26th In bed with a threatening abscess in the left foot.

Aug: 30 Abscess lanced today. She has suffered a good deal of pain, and has slept little for the last four nights.

Sept: 7. Weight 151 lbs. Made a good recovery; her complexion has become clear and healthy; is now up.

Sept: 25. Mental and physical improvement continues.

Oct: 27. Ward discharged today, recovered.
Weight 153 lbs.

M.A.S.C. female aged thirty-two.

Admitted August 24. 1893. First attack, commencing three weeks after confinement. Duration of illness on admission, fourteen days. Hereditary predisposition to insanity - mother was insane. State on Admission.

Physical. Much exhausted from excitement and sleeplessness. No active physical disease detected. Thyroid gland enlarged.

Height and weight not ascertained.
 Mental. Suffered from hallucinations
 of hearing, answered imaginary voices
 and listened to their replies. Memory
 impaired; was unable to talk con-
 nectedly as at intervals her mind
 would suddenly become a blank.

Aug 30. In a semi-conscious; incoherent
 condition, gave rambling disconnected
 answers to questions and did not
 know where she was. Degraded and
 destructive in habits; refused food.

Sept 5. Since the 2nd inst. has been
 confined to bed with fever. Her tem-
 perature ranged from 103:6 to 100:2.

Today her temperature has fallen
 to normal. Nothing was detected
 on physical examination to account
 for her symptoms. She is depressed
 sullen and obstinately silent;
 has to be spoonfed at every meal.

Sept 11. Now takes food without pres-
 sure but with little appetite: con-
 tinues confused and depressed.

Sept 20. Gradual improvement,

more rational and active minded; has however delusions of identity.

Sept. 28. Relapsed yesterday: became impulsively violent, thrust her head through a pane of glass: actively suicidal and required constant supervision.

Oct. 8. Weight 124 lbs. Impulsive and aggressive; made homicidal assaults on the nurses and would suddenly throw her cup, dish or spoon, when at meals, at anyone passing; capricious in her likes and dislikes.

Nov. 1. Weight 123 lbs. No mental improvement; dangerous to herself and others; always in charge of a special nurse.

Nov. 3. To take two thyroid tablets thrice daily.

Nov. 5. Complains of headache; pulse rapid.

Nov. 7. Emotional, has prolonged outbursts of laughter, without cause.

Nov. 8. Skin flushed and moist; evening temperature 99°.

Nov. 10. Dose increased to three tablets thrice daily. Fine tremors of tongue and lips; twitchings and jerkings of arms.

Nov. 13. Medicine discontinued; pulse quick and small, but quite regular.

Temperature has not been more than a fraction above normal since the night of Nov. 8.th.

Nov 18. Weight 122 lbs. Much improved in personal appearance; skin clear: no mental change.

Nov 21. Rational and quiet this morning: the delusions of identity which she has continuously expressed, have now disappeared.

Nov 24. Since last note her condition was satisfactory. Today she complains of feeling ill and looks pale and anxious, was put to bed: no active disease detected. By the evening much of her previous impulsiveness and unsane conduct had returned. Temperature 99° 6. : is menstruating.

Nov 25. Restless and slept little last night: mental state today

not improved: evening temperature
97° 6: pulse 120.

Nov 30. Since November 27th obtained
no sleep without hypnotics.

Dec. Distinct mental improvement.

Dec: 2. Weight 115 lbs. Her conduct has
lost much of its impulsiveness; she was
however very troublesome and had an
insane aptitude for teasing others.

Dec. 8 Occupies herself usefully, sew-
ing and reading: does not look at all
well, her complexion has lost much
of the fresh appearance noted when
under thyroid treatment: was again
reported to be menstruating.

Dec 10. Much improved; quiet and
womanly in manner.

Dec 15. Saw her friends today they were
struck with the improvement in her
mental condition and said this was
the first time she had ever spoken to
them sensibly & taken an intelligent
interest in home matters since becoming
insane.

Dec 17. Weight 122 1/2 lbs. Mentally

convalescent: physically improving.
 Dec. 25. Weight 126 lbs. Was today
 discharged recovered. She was looking
 well but would have benefited by
 a longer residence.

M. D. female aged twenty-two.
 Admitted October 6, 1893. First attack.
 Exciting cause childbirth with severe
 protracted labour. The illness com-
 menced a fortnight after parturition,

and was of seven days duration previous to admission.

State on Admission.

Physical. Pale, anaemic; apparently exhausted after acute excitement.

No active physical disease detected.

Height Weight 114 lbs. Thyroid gland enlarged.

Mental. Excited and talkative; very emotional; incoherent and inclined to be impulsive; expressed many delusions, e.g., that she was an angel; that this was judgement day; and had likewise delusions of identity.

Oct 12. In a state of acute maniacal excitement - shouting, swearing and gesticulating; perfectly incoherent in her utterances; refuses all nourishment and has required artificial feeding since admission.

Dec. 4. Weight 101 lbs. Continues talkative, incoherent and impulsive, but the acuteness of the symptoms had abated.

Dec 12. To take four Thyroid tablets

thrice daily.

She continued to take Thyroid until December 21st when the drug was discontinued as she complained of sickness. Beyond quickening of the pulse and slight, almost imperceptible, tremors of the arms, no change was noted. There was no flushing of the skin and no perspiration.

Dec 27. Weight 98 lbs. Destructive, noisy and turbulent; has delusions of identity.

Jan 10. Weight 107 lbs. No change or improvement.

Feb 10. Weight 107 lbs. Continues noisy, impulsive and foolish.

March 10. Weight 119 lbs. Marked physical improvement but no corresponding mental change; she appears as foolish and as insane in conduct as before treatment commenced. She is however less turbulent and impulsive in her actions.

April 1. Weight 120 lbs. Gradually settling down, but is not yet well.

E.E. female aged thirty-one.

Admitted December 22, 1892. First attack; duration on admission two weeks. Cause, over-nursing.

State on Admission.

Physical. Anaemic and in poor condition; much pigmentation of skin; no active physical disease detected. There was

considerable dulling of sensibility to pain and touch all over the body.

Height 5ft. 3in. Weight 124 lbs.

Mental. Dull, depressed and emotional.

Mental reflexes slow, she took fully a minute to answer the most simple questions. Expressed no delusions

Dec. 28. Acutely melancholic, sobbing and wringing her hands. Required much pressure to induce her to take sufficient food. Told me her husband had been murdered and that her brother-in-law told her so during the night. To take Syrup. Ferrus. Minis 30. Three daily.

For the next three months little change was noted. Her weight did not vary. Her mental symptoms though less acute than on admission were still those of profound melancholia.

April 1. Weight 124 lbs. Reported to have taken an epileptic fit at 9 o'clock this morning. At 10 am when I was in the Infirmary ward she was reported to be in another epileptic fit. Went down at once but then

convulsion was over. I am not prepared to say whether this was or was not an epileptic seizure; some of the characters of the case suggested hysteria, while others were quite compatible with true epilepsy.

During April and the early part of May she was alternately lachrymose and passionate, and once made a feeble attempt at suicide by strangulation.

May 21. Weight 122 lbs. To take four thyroid tablets three daily.

May 23. Evening pulse 108. Skin flushed and moist.

May 25. Dose increased to six tablets three daily. Complained this morning of headache.

May 27. Morning temperature $98^{\circ}2$: at midday she looked feverish, temperature $100^{\circ}2$: evening temperature 98° . Complained of headache: tongue tremulous.

May 28. Morning temperature $97^{\circ}9$: midday temperature $98^{\circ}6$: evening temperature $97^{\circ}4$. Very emotional, alternately

laughing and crying: muscles of the arms were tremulous and twitching.

May 29. Very sulky and morose, complained of headache - To stop Thyroid.

Pulse rapid but regular in rhythm.

June 2. To recommence Thyroid in doses of four tablets thrice daily.

June 4. Evening temperature 99°.

June 5. To stop Thyroid. She is impulsive and passionate, resists having temperature taken or pulse counted.

June 7. Weight 122 lbs. Appetite improved: continues sullen and liable to passionate outbursts.

June 14. Attempted to escape this evening when walking in the grounds.

June 17. Weight 132 lbs. Quite changed in manner, is quiet and rational, says she feels much better. Skin on hands and feet desquamating.

From this date she made a rapid and good recovery. On July 1st her weight was 148 lbs.; this rapid increase appeared to me so improbable that I reweighed her to assure myself

Physical. In very weak health, pale and thin, evidently induced by the excessive and unduly prolonged lactation. Breasts engorged with milk.

No active physical disease detected.

Height 3 ft. 5½ in. Weight 102 lbs.

Mental. Subacutely excited; inclined to be incoherent; expressed the delusion that people tried to poison her. Jan 25: Mistakes the identity of those about her; frequently shouts and gesticulates; has hallucinations of hearing.

For the next ten months she made some progress but had frequent relapses into irritability and impulsive excitement, when she expressed delusions.

Jan. 1. 1893. Weight 122 lbs.

She gained weight steadily until by May 1 she scaled 132 lbs. There was however no mental improvement; she was foolish excitable and impulsive.

May 21. To take four thyroid tablets three daily.

May 25: No change in pulse or temperature. To take six tabloids three daily.

May 27. Complained of headache: evening pulse 100. Today she took in all twenty Thyroid tabloids.

May 28. Slight tremors of tongue and lips. Evening temperature $99^{\circ}2$.

May 29. Skin moist and flushed. Took twenty-four tabloids.

May 31. Complaints of slight occipital pain. Yesterday and today took twenty-eight tabloids per day.

June 1. To take ten tabloids three daily. Evening temperature $98^{\circ}6$: pulse 90.

June 2. Took ten tabloids after breakfast: she complained of feeling sick and actually vomited. To stop Thyroid.

June 6. Since last note has been suffering from a bilious attack and her temperature has been feverish in the evenings. Today she said she felt quite well again and took her food as usual.

June 7. Weight 118 lbs. While under treatment she was less irritable and

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B.

expressed no delusions.

June 15. Weight 118 lbs. Appears to be quieter more rational and coherent than before treatment commenced.

Hands and feet desquamating.

July 1. Weight 122 lbs. Again impulsive, under the influence of delusions; capricious in her likes and dislikes; most uncertain in temper.

Aug: 1. Weight 128 lbs. No mental improvement; worse in appearance, dresses her hair in fantastic shapes; impulsive in actions.

Nov 1. Weight 132 lbs. Continues incoherent, childish and irritable; has lately made unprovoked assaults on other patients as if under the influence of delusions or hallucinations.

Nov 3. To take two thyroid tablets thrice daily.

Nov: 7. Pulse rapid.

Nov: 10. Weight 130 lbs. Dose increased to four thyroid tablets thrice daily.

Tongue tremulous.

Nov 11. Tremors of the limbs.

- Nov: 14. To stop taking thyroid as she again complained of feeling sick.
- Nov: 18 Weight 125 lbs. No mental improvement: she takes her food well: pulse continues rapid.
- Nov 20. Desquamation of the hands and feet in flakes and of the limbs and body in branny scales. Appears to be free from delusions.
- Nov 26. Weight 126 lbs. Pulse rapid, 120.
- Dec: 2. Weight 129 lbs. She has improved in appearance but her mental condition is unsatisfactory; she is again uncertain in temper and impulsive in actions.
- Jan: 2. Weight 136 lbs. In good health but no mental improvement.
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MELANCHOLIA CLIMACTERIC

H. E. Female aged forty-eight.

Admitted January 11. 1893. First attack, which has lasted one year and three months on admission. Transferred from another asylum.

State on Admission.

Physical. Skin dry, harsh and pigmented; hair hard and brittle; pale and anaemic. No physical disease detected. Height 5ft 7 in.

Weight 106 lbs.

Mental. Depressed and nervous; suspicious of those about her, and watched every action closely. Much enfeebled, understands little that is said to her.

Jan: 17. Dull, depressed and emotional;
 said that God had forsaken her, that
 she had no hope in this world or the
 next.

For the next few weeks she was
 treated with internal antiseptics -
 Liq: Sodii Chlorinata - and also with
 numerous tonics, Iron, strychnine,
 Quinine &c without effect. She in
 fact became worse, was actively
 suicidal and required constant
 supervision day and night.

April 1. Weight 103 lbs. To take
 two thyroid tablets thrice daily.

April 4. Dose increased yesterday
 to four tablets thrice daily. Today
 her temperature rose in the evening
 to $98^{\circ}8$. Her pulse was rapid, 100,
 but no change in volume was detected.

Skin flushed and perspiring.

April 5. No thyroid administered today.

April 6. Resumed four tablets
 thrice daily.

April 10 Weight 99 lbs. Medicine
 discontinued. Pulse fast and small.

Slight tremors of limbs. No mental change.
 April 20. To take two thyroid tablets
 thrice daily.

April 28. She has mentally improved
 during the last two days. Today
 she took note of her surroundings,
 and was observed to laugh at the
 antics of a kitten.

May 1. Weight 100 lbs. To discontinue
 thyroid. Looks in much better
 physical condition and is more
 active in mind.

May 8. Her delusions have disappear-
 ed; takes food well. Skin has lost
 the pigmented dry look and her
 hair is less brittle and softer.

May 15. Has recovered her mental
 balance. She voluntarily re-
 marked, that she could not under-
 stand why she had been so suspicious
 of everyone, adding that her appetite
 was much better and she now enjoyed
 her food.

June 1. Weight 110 lbs. Has gained ten
 pounds during last month. Her mental

Condition continues satisfactory
 June 30. Weight 114 lbs. Discharged
 recovered.

M.A.O. Female, aged fifty.

Admitted April 11. 1893. First attack,
 of five weeks duration on admission.
 Cause of insanity stated to be privation
 and domestic worry.

State on Admission.

Physical. Thin, sallow and pigmented.

Harsh breathing and increased vocal resonance over the apex of left lung.

Incompetence of Mitral Valve.

Height 5 ft Weight 116 lbs.

Mental. Melancholic in appearance and expression; much feeble, only partially understood remarks made to her, and had great difficulty in answering the most simple questions.

Memory impaired.

April 17. Dull and depressed with outbursts of restlessness and purposeless, subacute excitement. She has refused food and requires to be artificially fed: has delusions about her food, saying it did not nourish her and that she is full up to the neck.

During the next few months she gradually became more used to her surroundings, took a sufficient quantity of food, and started to work in the ward. Further than this however there was no improvement either mental or physical. The chief symptom in her case was constant

restlessness, she could not sit to read or sew.

Aug. 4. Weight 116 lbs. To take four thyroid tablets three daily. Her pulse was of high tension.

Aug. 7. Morning pulse, 105; morning temperature $99^{\circ}1$; evening temperature 99° .

Aug. 8. Tongue tremulous.

Aug. 10. Lips and facial muscles tremulous.

Aug. 12. To stop medicine. She felt faint this morning when getting out of bed. Pulse rapid but not weak, tension little affected. Her temperature has been irregularly feverish since August 7th.

Aug. 16. Emotional, weeps when spoken to, and can give no cause for her grief. The weather since the 14th has been warm and close; her temperature which has been below 99° for three days is again feverish.

Aug. 20. Weight 109 lbs. Allowed out of bed and for the first time since

admission she eat quietly and did some sewing. Complains of slight pains in limbs.

Aug. 24. Has improved in appearance.

She is still most industrious, but now can sit and occupy herself sewing and reading.

Aug. 28. Weight 112 lbs. Relapsed:

Much of her restlessness has returned.

Sept. 4. Weight 115 lbs. Has improved somewhat.

Sept. 25. Weight 116 lbs. Regained

the ground lost during relapse noted August 28th and is gradually becoming more active minded, sensible and rational.

Oct. 21. Weight 121 lbs. Brighter and more cheerful. Improvement gradual but quite noticable.

Nov. 23 Her skin has now completely lost its pigmented appearance.

She answers questions quickly and with intelligence.

Dec. 29. Was discharged recovered. Weight 131 lbs.

E.F. female aged forty.

Admitted Sept 29. 1893. Second attack
 cause probably privation. On her first
 attack she was admitted April 6. 1893
 weight 126 lbs. and discharged recovered
 July 29. 1893. Weight 134 lbs.

State on Admission.

Physical. Anæmic and thin; skin
 pigmented: rough mitral systolic mur-
 mur: no disease of lungs. Ht 5ft. 2in. Wt 122 lbs.

Mental. Dull and depressed; would scarcely speak; after pressure she said that she was guilty, & that there was no hope for her.

Oct 5: Very anxious looking, bursts into tears when spoken to, refuses to answer questions; mutters to herself "I can never undo the past."

Oct 6. To take two Thyroid Tablets twice daily.

Oct 13. Pulse rapid but no change in tension. To take four Tablets twice daily.

Oct: 15. Medicine stopped last night.

Morning temperature $104^{\circ}4$: pulse, 130, small, weak and irregular: she says she feels very ill. Ordered one ounce of whiskey every two hours. Evening temperature 99° : pulse, 110, regular, but small.

Oct 16. Complaints of headache; limbs tremulous. Her general condition has improved.

Oct: 19. Her skin has lost its pigmented appearance. She is more active minded and intelligent; says she feels much better and asks for double rations at meal times.

Oct: 21. Weight 117 lbs. She now talks to

other patients and interests herself in her surroundings.

Oct: 28. Weight 122 lbs. Industrious and very useful in the ward. The nurses say that the work she does is thorough and she can be trusted to work alone; whereas when previously an inmate, and apparently recovered, she generally scamped anything she did, and required constant supervision.

From this date she rapidly improved, showed no tendency to relapse; steadily gained weight and was discharged recovered, on December 11th, weighing 144 lbs.

GENERAL PARALYSIS.

T. S. male, aged forty.

Admitted March 17, 1892. "First attack."
Duration of illness on admission one year.
Causation - Hereditary predisposition and
intemperate habits in youth.

State on Admission.

Physical. A strong, healthy man, in

good condition. Pupils equal, reacted to light and accommodation. Soft-systolic mitral murmur. Height 5 ft 6 1/2 in. Weight 152 lbs.

Mental. Depressed, confused and stupid; memory impaired; expressed delusions of suspicion about his wife.

March 23. Nervous tremulous and mildly excited. He said he wrestled with God all last night; he was told

in a vision that he had been sent to the asylum for the good of his soul, and that all his sins were forgiven.

June 1. Weight 154 lbs. Symptoms of General Paralysis became prominent during the last month. He had delusions of grandeur.

Feb. 1. 1893. Weight 158 lbs. Has the delusion that he is the Holy Ghost.

Motor symptoms of General Paralysis well marked.

July 4. Weight 162 lbs. A stout, florid healthy looking man; manner grandiose; continues under the delusion that he is the Holy Ghost; will not speak, or enter into conversation; very angry if any one touches him; presents all the motor symptoms of the second stage of General Paralysis: pulse tension high.

July 6. To take four thyroid tablets thrice daily.

July 8. To take five tablets thrice daily.

Pulse 99, less resistive to pressure.

July 10. To take six tablets thrice daily.

His arms and hands are tremulous.

July 12. Radial pulse tracing shows a fall in tension. Much pleasanter in manner, talks freely; does not mention his delusions.

July 14. To take eight tablets thrice daily.

July 15. Complained of feeling sick. To stop medicine.

July 18. Weight 153 lbs. Scooped at the idea of his being the Holy Ghost, saying he was only a good Christian. Converses freely and expresses no delusions.

July 20. His old delusions were again expressed; a radial pulse tracing showed increase of tension.

July 21. To take two thyroid tablets thrice daily.

July 23. Skin moist and flushed, pulse quick.

July 24. Dose reduced to three tablets per day.

July 24. His delusions are again in abeyance and he persistently denies having ever expressed them. Pulse

tension reduced.

July 29. To stop thyroid.

Aug 8. His pulse has again become high tensioned and his delusions have returned.

Up to the time of writing, he is still and inmate, presenting all the mental and physical symptoms of General Paralysis.

From July 6th to July 18th he was kept in bed but during the remainder of treatment he went about as usual.

GENERAL PARALYSIS.

J. H. Male aged thirty-six.

Admitted January 24. 1894. First attack, of six months duration on admission. Causation:—Hereditary predisposition and intemperate habits.

State on Admission.

Physical. Small and poorly nourished; skin dry and harsh; symptoms of phthisical disease in the apices of both lungs. Height 5ft. 3in. Weight 117 lbs.

Mental. Exalted and talkative; judgment

impaired; memory gone: has delusions of great wealth.

Jan 30. Restless, excitable and loquacious. Promised me a bar of silver worth £1000.

Saying he had any amount of them. Since admission has slept little and sings and shouts most of the night.

He has all the motor symptoms of General Paralysis.

Feb 1. Weight 119 lbs. Rested well last

night.

Feb. 2. Looked feverish. Evening temperature $99^{\circ}.4$.

Feb. 3. Quieter but still full of his delusions. Evening temperature $99^{\circ}.2$.

Feb. 4 To take four Thyroid tablets thrice daily.

Feb. 7. Feverish; pulse quick and soft. Suffered from cough and spit; auscultation symptoms of active phthisis were detected in the apices of both lungs.

Feb 10. To stop Thyroid. His evening temperature has never been below 99° since the 5th uid.

Feb 13. Weight 116 lbs. Was allowed out of bed today for a few hours.

Feb 16. Occasional crepitations at apices. Mentally quiet facile and childish.

Feb 27. Weight 124 lbs. Physical symptoms of General Paralysis persist; his delusions are less vivid and he is quiet and orderly in manner.

March 27. Weight 130 lbs Skin healthy smooth bright colour. Memory less

faulty; much mental enfeeblement.

These twenty-three cases give a general idea of the effect of thyroid feeding in large or moderate doses, on various classes of the Insane.

I now proceed to give a resumé of the more important symptoms.

Circulatory System.

Subjective Phenomena. In several cases there was a tendency to fainting when in the upright position. One patient actually fainted when walking from her bed to the bathroom.

Dyspnoea occurred in one case who suffered from incompetence of the mitral valves.

The Pulse. The changes which occurred in the pulse, were the first indication that the drug was affecting the patient.

These changes were, increased pulse rate, increased volume and diminished tension. In every case the pulse be-

-came rapid and in the majority, the tension was lowered.

The increased rate was usually combined with excitability or irritability of the pulse; i.e. if when the pulse was being counted, the patient coughed, laughed, spoke or moved there was a perceptible quickening of the pulse rate.

Among the later pulse changes were irregularity, intermission and compressibility.

There was much variation in the time which elapsed, after the discontinuation of the treatment, before the pulse became normal. It will be noticed in some of the charts, which accompany each case, that the pulse is still rapid at the end of the record.

Sphygmographic tracings of the radial pulse were taken in seventeen cases. The first tracing was obtained immediately before the patient was subjected to thyroid treatment; the second several days after thyroid

treatment-commenced, when the pulse gave indication of being affected on digital examination.

The following tracings give an idea of the alterations found. I need not multiply cases, but will content myself with giving typical examples. The chief distinctions between the pulse tracings taken at different times were:—

1. A.T. Pulse irregular and undulating: percussion stroke weak, short and oblique; apex rounded: line of descent gradual, presenting faint undulations corresponding to aortic notch and diastolic wave.

2. Pulse regular but undulating: percussion stroke more vertical and longer; apex less rounded: line of descent more oblique, presents faint traces of aortic notch and diastolic wave.

S.G. 1. Pulse slow, regular in rhythm & force.

Percussion stroke short and oblique; line of descent well sustained, no traces of aortic notch or diastolic waves, but presents several little wavelets.

2. Pulse regular in rhythm and force. Line of ascent long and vertical; apex acute; line of descent fairly oblique; predicrotic wave follows directly on the percussion stroke without any intervening notch; aortic notch shallow followed by faint dicrotic wave.

M.E. 1. Pulse regular in rhythm & force. Line of ascent practically vertical; apex acute; line of descent oblique presents aortic notch and dicrotic waves.

2. Pulse smaller and weaker but regular. Percussion stroke short and slightly oblique; line of descent falls to aortic notch followed by dicrotic wave.

H.E. 1. Pulse regular in rhythm and force.

Cardiac percussion stroke short and weak; apex rounded; line of descent long, falls gradually.

2. Pulse fuller but irregular in rhythm & force. Line of ascent longer, more vertical; apex more pointed but tends to form plateau with predicrotic wave; line of descent oblique and less sustained, shows in places dicrotic wave.

3. Pulse weak, irregular in rhythm and force. Percussion stroke short & oblique; apex more acute; line of descent oblique, presents faint traces

of aortic notch and diastolic wave.

T.S. 1. Pulse regular in rhythm and force. Line of ascent practically vertical. Prediastolic wave prominent tending to form a plateau with apex. Line of descent falls rapidly to aortic notch followed by well marked diastolic wave.

2. Pulse regular. Line of ascent vertical and fairly long; apex acute: line of descent less rapid and presents diastolic & pre-diastolic waves and aortic notch.

A.T.

1.

Pulse 85 Pressure 5/35.

A.T.

2.

Pulse 107 Pressure 5/30.

S.G.

1.

Pulse 56 Pressure 4/32.

S.G.

2.

Pulse 76 Pressure 5/30.

M.E.

1.

Pulse 87 Pressure 4 1/2 mmHg.

M.E.

2.

Pulse 117. Pressure 3 mmHg.

H.E.

1.

Pulse 80 Pressure 1 mmHg.

H.E.

2.

Pulse 111 Pressure 2 mmHg.

H.E.

3.

Pulse 128. Pressure 1 1/2 mmHg.

T. S.

1.

Pulse 76 Pressure 5 mmHg.

T. S.

2.

Pulse 96 Pressure 5 mmHg.

Respiratory System.

Rapid respiration has been noted in animals and man after thyroidectomy, and also in patients suffering from exophthalmic goitre. This being the case, one would expect to find respiratory changes in connection with the cardiac disturbance induced by the action of thyroid as a drug.

The respirations were noted in 19 of the cases. On an average the respirations were slightly accelerated as the pulse rate increased. In one case, E.F., already noted as suffering from dyspnoea, the respirations became very rapid.

It has been stated that patients suffering from exophthalmic goitre, are, as a rule, exempt from phthisis, and a suggestion has been made that phthisical patients might be benefited by treatment with thyroid.

Five of the twenty-three cases detailed in this paper, had symptoms of phthisis pulmonalis on admission, but the disease was not active.

The immediate effect of administering

thyroid tabloids to these patients, was, the lighting up of activity in the phthisical areas, as evidenced by cough and expectoration; on auscultation, crepitations and moist sounds on expiration and inspiration. On discontinuing the drug these symptoms gradually disappeared. Four out of the five, during the reaction, after treatment, gained weight and are now in better health than when treatment commenced. The fifth is neither better nor worse.

Alimentary System.

The tongue generally became furred during the first few days of treatment.

The appetite diminished; and when the temperature was high, thirst increased. Nausea and actual vomiting occurred in several cases. I believe these symptoms were due to local causes; either from indiscretions in diet, or the thyroid acting as a direct irritant and producing catarrh of the stomach.

The vomiting did not appear to be cerebral. For all the cases had foul breath and furred tongues, and the symptoms disappeared under stomacheic treatment.

Homœopathic System.

The thyroid gland plays a special part in the metabolism of the sexual organs.

Victor Horsley remarks in his paper—
 * "Of late years the subject has been so carefully considered by Freund in its chief bearings that it is hardly necessary for me here to do more than point out how the truth of the conjunction of the functional activities of these parts, is confirmed by the far greater liability of the female sex to suffer from myxoedema. The harmony between the two sets of organs is evinced by the enlargement of the thyroid occurring when active changes happen in the sexual organs. What is the nature of the change which requires the increased activity of the thyroid is not yet known, but that such a need should arise is comprehensible from the altered condition of the blood in pregnancy and menstruation."

All the puerperal and climacteric cases and one of the lactational, had goitre in more or less degree. All these have made good recoveries, with the exception of one

* loc. cit.

puerperal case. And I did not note any alteration in size of the gland after treatment.

Blood Examinations.

The blood of the patients undergoing thyroid treatment was examined in fifteen instances. I made observations on the blood of most of the others but have omitted them as they were probably inaccurate on account of the difficulty of examination and complications, such as phthisis.

The blood examinations were made with Gower's hemocytometer and hemoglobinometer.

The corpuscular richness was ascertained by examining two separate drops from each solution. The corpuscles were counted in never less than twenty-four squares and the average taken.

The first examination was made before treatment was begun, the second three or four days after discontinuation of the thyroid. In eight of the cases no other medicinal treatment except thyroid tablets were used. On comparing the results of the second examination with the first,

these eight cases showed a loss in percentage of haemoglobin, and a reduction in the number of red blood corpuscles; with the exception of EE, whose corpuscular richness was increased from 71.3 per haemic unit to 75 per haemic unit.

Seven cases took an iron tonic, either Bland Pills or a solution of Ferri et Ammonii Citratis, coincidently with the thyroid.

Two of these gained in haemoglobin, three showed a loss. Four gained in corpuscular richness, two showed a loss, and the seventh neither gained nor lost.

The average loss of haemoglobin in the eight cases treated without iron, was 5.9 per cent. and the diminution in red blood corpuscles averaged 7.4 per haemic unit.

On the other hand those treated with iron showed an average loss of 1.9 per cent. in haemoglobin and an average gain of 1.9 in red blood corpuscles per haemic unit.

It would therefore appear that the impoverishing effect of thyroid on the blood can in some measure be prevented by the coincident administration of iron.

Cases treated without Iron.

Before treatment

after treatment.

Case.	Page.	Hemoglobin per cent.	Red Cps. per Hem. unit	White Cps. per Hem. unit	Red Cps. per Cub. Mill.	Hemoglobin per cent.	Red Cps. per Hem. unit	White Cps. per Hem. unit	Red Cps. per Cub. Mill.
R.O.	35	54	68.1	.20	3,400,000	50	64.1	.16	3,250,000
M.E.	69	68	82.7	.25	4,160,000	64	75.2	.40	3,760,000
E.E.	80	69	71.3	.33	3,580,000	67	75	.20	3,760,000
+ C.W.	84	74	81.9	.41	4,040,000	70	58.9	.16	2,940,000
M.O.	92	64	80.1	.25	4,050,000	60	74.8	.20	3,720,000
E.F.	96	60	78.4	.57	3,910,000	56	75.6	.40	3,860,000
S.G.	58	76	89.7	.25	4,530,000	60	76.6	.25	3,790,000
T.S.	99	85	87.7	.25	4,440,000	70	81.1	.16	4,040,000

68.7 79.9

62.1 72.6

Cases treated with Iron and Thyroid.

Before treatment

after treatment.

Case.	Page.	Hemoglobin per cent.	Red Cps. per Hem. unit	White Cps. per Hem. unit	Red Cps. per Cub. Mill.	Hemoglobin per cent.	Red Cps. per Hem. unit	White Cps. per Hem. unit	Red Cps. per Cub. Mill.
A.T.	28	76	73.9	.50	3,750,000	68	78	.30	3,980,000
A.B.	21	62	59.6	.12	2,980,000	55	66.6	.12	3,760,000
J.A.	61	68	80	.25	4,000,000	64	79.3	.33	3,960,000
A.U.	65	50	79.8	.25	4,050,000	56	70.2	.16	3,510,000
M.C.	72	60	79.7	.33	3,930,000	60	81	.41	4,010,000
+ C.W.	84	62	79.3	.30	3,960,000	64	79.4	.33	3,970,000
H.E.	89	*	61.5	.24	3,250,000	*	72.6	.22	3,600,000

68 73.4

61.1 76.1

* The blood coagulated so rapidly that sufficient was not obtained at

either examination to estimate percentage of hemoglobin

+ +. Same case treated on two different occasions.

Integumentary System.

As the pulse quickened the skin became moist and at times the perspiration was profuse. Flushings, especially marked about the face and neck, were likewise constant symptoms. As treatment progressed pigmentation of the skin, if present, disappeared and the complexion became soft and delicate looking. One case was suffering from acne of the face and this condition greatly improved under thyroid treatment.

Desquamation occurred to a greater or less degree in every case after the treatment was stopped. In some patients desquamation was so slight as to be hardly observable, while in others the skin peeled off the palms of the hands and the soles of the feet in large flakes, and from the body in small flaking scales.

Urinary System.

It has been stated that in Myxoedema the thyroid drug produces a diuretic action, and I therefore thought it de-

unable to make some observations on the urine.

A quantitative examination of urine was made in fifteen of the cases.

The urine was collected prior to commencement of treatment and the second examination was made when the physiological action of the drug was well marked. The following table gives the quantity in forty-eight hours in each period.

	Before treatment	During treatment
J.H.	60 ozs.	69 ozs.
A.C.	116 "	90 "
H.E.	90 "	82 "
E.E.	115 "	100 "
C.W.	75 "	80½ "
T.S.	90 "	86 "
M.E.	104 "	114½ "
M.A.O.	98 "	126 "
E.F.	112 "	98 "
M.A.S.C.	80 "	71 "
C.W.	80 "	77 "
S.A.	90 "	96 "
H.S.P.	52 "	73 "
C.F.	64 "	74 "
R.O.	82 "	79 "
Average	87.2 ozs.	87.6 ozs.

This table would appear to indicate that thyroid when administered in large doses is certainly not diuretic in action.

In small doses it may produce a diuretic effect; but when given in large doses, diaphoresis is so profuse as to tend to reduce the quantity of urine secreted.

D. Alexander Hay. (B. M. J. Vol. II. p. 674) says

"I can prove that in myself the taking of thyroid glands or a thyroid extract — produces results which are identical with those produced by so much uric acid, that is to say, there is a first stage of stimulation, with rising acidity, well being, relaxed arterioles, and diuresis"

In none of the cases was there any evidence of albuminuria or other abnormality. No observations were made on the amount of urea or uric acid.

Nervous System.

Sensory Functions. Nothing unusual was noticed in any of the cases.

Motor Functions.

The organic reflexes were in no way altered in the majority of the cases.

We must except the following:— The breathing became dyspnoeic in the case of E.F., accompanied by irregular, intermittent pulse; temperature 101° . She had organic heart disease.

Involuntary Micturition & Defecation.

F.G.S. a case of adolescent mania, became dirty in habits and had enuresis during treatment. A.T. a female, suffering from melancholia likewise became dirty in habits and passed urine and faeces in bed; in this case I believe the cause to have been mental.

In many instances the voluntary muscles presented symptoms of overaction. Fine fibrillar muscular tremors were observed in the tongue, lips, facial muscles and limbs. The facial and lingual tremors resembled those seen in general paralysis.

I never noticed any paralysis or incoordination.

Vasomotor and Nutritive functions.

Flushings of the skin; profuse perspiration

and rapid loss of body weight were very constant symptoms. During convalescence a rapid increase of weight was the rule.

Cerebral and Mental Functions

Headaches of more or less severity were frequently complained of. These headaches were relieved by the administration of a mild purgative.

The mental condition of patients under the physiological action of thyroid varied greatly. Some became depressed, others emotional, laughing immoderately or weeping without cause. Some became irritable and had outbursts of impotent rage. On the other hand, irritable, morose and bad tempered subjects showed marked amelioration of these tendencies.

Mental improvement was noted in several cases while the patients were under the influence of the thyroid, in others this improvement did not set in until the period of reaction was well advanced. Most of the patients slept well both during and after treatment.

Heat Changes.

Although my aim in treatment was to produce a feverish condition, I was not successful in every case. nd About fourteen out of the twenty-three cases slight pyrexia was induced. The remaining eight either had no temperature as high as 99° or if the temperature did rise higher it only did so for the space of a few hours.

The temperature of patients under thyroid treatment appear to be readily affected by the temperature of the air.

For example. — E.F., A.T., H.G.C., & J.J. were all under treatment at the same time during October 1893. The weather on October 14th became warm & close; simultaneously the temperatures of these four cases rose. In the cases of E.F. & A.T. the temperatures had never during the course of treatment risen above normal, on the morning of the 15th inst. E.F.'s temperature was 101.4 and that of A.T.'s was 99° . J.J.'s temperature had been falling since the night of Oct. 12th.

on Oct: 15th his morning and evening temperature were both $99^{\circ}.2$. H. G. C's temperature had been normal and subnormal since the night of Oct: 11th on Oct: 14th his evening temperature rose to $98^{\circ}.8$ and on the 15th his morning and evening temperatures were $98^{\circ}.6$.

A further example is the case of M. D. who was under treatment in December 1893: The weather was very cold; the patient was destructive and restless, & could with difficulty be kept warm. Her temperature never rose to 98° during treatment and she showed no further reaction to the thyroid than a quick pulse. Since then she has again been under treatment during the end of March 1894; she reacted well and appears to be now recovering.

What influence has sex and age upon this form of treatment?

The effect of sex. Of the twenty-three cases detailed, eight were men, fifteen were women. One man out of the eight recovered; four were relieved; three were

not improved. Of the fifteen women, ten recovered; two were relieved; three were not improved.

These results suggest that the female sex are more susceptible to the influence of thyroid, but I believe males are equally susceptible.

An analysis of the eight male cases gives - two cases of general paralysis, one case of alcoholic amnesia, one of syphilitic insanity with arterial disease, - practically four incurable cases out of the eight. Of the four remaining cases three were recoverable; one has recovered, two are improving; the eighth and last man though improved was not regarded as a curable case.

Last year's male admissions, and curable patients resident in the asylum from the previous year, did not furnish many cases for treatment, as they either were hopeless cases on admission, or improvement set in at once and progressed favourably so that there was no need to use any unusual form of remedy.

The female admissions, last year, on the other hand, relapsed frequently or made slow and doubtful improvement and therefore furnished a larger proportion of cases for treatment.

The effect of age. With so few cases it is impossible to draw any deductions as to the effect of age on treatment. I however give the ages in tabular form:-

	Recovered			Relieved			NOT Improved			Total.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
15-20.	1	0	1	0	0	0	0	0	0	1	0	1
20-25	0	2	2	1	0	1	0	2	2	1	4	5
25-30.	0	0	0	1	1	2	0	1	1	1	2	3
30-35	0	4	4	0	0	0	1	0	1	1	4	5
35-40.	0	0	0	1	0	1	1	0	1	2	0	2
40-45	0	2	2	0	1	1	1	0	1	1	3	4
45-50	0	1	1	1	0	1	0	0	0	1	1	2
50-55	0	1	1	0	0	0	0	0	0	0	1	1
Total.	1	10	11	4	2	6	3	3	6	8	15	23

One would expect to find that age would exert some influence on treatment, when we find that "experimental thyroidectomy is very much more fatal to young animals than to adults," & that "cachexia

strumipriva has been found by all observers to occur with far greater frequency when the thyroidectomy has been performed in young individuals (Horsley loc. cit.).

A true febrile condition can be induced by the administration of thyroid without any great risk to the patient. The temperature can be kept within reasonable limits and readily reduced to normal by discontinuing the drug.

Even where the temperature does not become febrile, the effects of a fever are practically attained, the pulse becoming rapid and soft, the skin flushed and moist.

The period of reaction following cessation of treatment resembles the condition noticed in patients recovering from the exanthemata, typhoid &c. The appetite improves, the power of assimilating food increases, with a resulting gain in weight and condition.

It does not appear to be necessary to induce a febrile temperature to produce good results; so long as the

pulse is rapid and the skin flushed and moist. If these symptoms are well marked the resulting reaction is as beneficial as if the temperature had been feverish for several days.

With regard to the dose.

Thyroid when taken internally appears to exert an influence on the nervous system and especially the mental functions. If this was the only result aimed at, small doses of one Thyroid tablet thrice daily, would probably be sufficient. But the majority of those cases which recovered appeared to benefit more by the reaction which followed the febrile condition, and to induce this, larger doses must be given. I now never give more than four tablets thrice daily and discontinue the drug if the patient shows any symptom of gastric irritation. Some of the cases detailed took as large doses as ten tablets thrice daily. This enormous quantity was given in

the hope of inducing a febrile temperature; but it generally defeated its object by irritating the gastric mucous membrane.

It is an interesting fact that the puerperal, climacteric and adolescent cases made good recoveries, as at these periods the thyroid gland appears to take on increased functional activity.

Some of the most striking results were ~~observed~~ that class of patient, so commonly seen in every asylum, in whom a certain improvement has occurred but beyond that point they never advance. They linger on month after month too insane to discharge but sensible enough to feel their position keenly. The monotony of asylum routine dulls their interest in life, they become lethargic, & despairing of recovery & discharge, are liable to drift into dementia and eventually swell the list of chronic inmates.

Even if they recover after months

protracted convalescence, their mental condition cannot have benefited thereby.

To these cases a course of thyroid appears to give the necessary impetus which leads to complete recovery, while considerably shortening their sojourn in an asylum.

Again among those classed as chronic insane there appear to be cases suffering from disease of function rather than structural lesion, and given the necessary impulse, improvement if not recovery may follow. Two of the cases detailed illustrate this point - S. A. (page 49) was insane for more than four years and made no improvement. After a course of thyroid she recovered to such an extent that her friends removed her home. H. P. S. (page 53) was insane for two years. Her case was regarded as hopeless, yet she is so far improved after treatment that she now takes an interest in life and looks forward to her discharge.

As the result of these observations on thyroid feeding in various forms of insanity. I think I am justified in coming to the following conclusions:-

1. By the internal administration of thyroid a true febrile process can be induced, and the resulting reaction is beneficial to the patient.
2. The amount of the drug necessary to induce physiological action varies in different individuals, but it is seldom necessary to give a larger dose than sixty grains of the extract daily.
3. Excessive and prolonged administration of thyroid extract produces gastric irritation.
4. The use of thyroid in the treatment of the insane is accompanied by a certain amount of danger from induced heart-weakness. This danger can be minimised and almost discounted by confining the patient to bed during treatment and for some days afterwards.
5. The administration of thyroid is contra-indicated in cases of mania where the

excitement is acute, the loss of body weight rapid, and there is danger of exhaustion from malassimilation of food.

6. Thyroid treatment appears to be specially useful in the insanity of the adolescent, climacteric & puerperal periods.

7. Its exhibition is frequently useful in cases where recovery is protracted.

8. In cases of long standing where there is a tendency to drift into dementia, a course of thyroid treatment sometimes gives the necessary jillip which leads to ultimate recovery.

9. As far as the observations on General Paralysis go the results are sufficiently satisfactory to make me hopeful of better results if the patient is treated at an early stage of the disease.

10. Finally, such results as I have given, cannot fail to make an impression on those, who have the responsibility of treating the insane, and are anxious to use every method to help in furthering their cure. I believe that in thyroid feeding we possess a valuable addition to our armamentarium in the treatment of certain cases of insanity.