the initial paroxysm. The age at which it begins is likewise a valuable stigma. Essential epilepsy begins in early life. When, therefore, epilepsy makes its first appearance in middle life, it is in all possibility, of specific origin. Again, syphilitic epilepsy does not pursue the monotonous inexorable course of the common affection, but bears the stamp of irregularity. This irregularity is manifested by a gradual shortening of the intervals between the paroxysms, eventuating in a series of rapidly recurring attacks, coma and death. It never exists for any great length of time as an isolated affection. It bears the stamp of multiformity. There are soon associated with it various symptoms differing from those of the ordinary disease. Cortical paresis, at first transient and following the attacks, may become paralysis and persist indefinitely.

While there is some loss of memory in essential epilepsy, especially when it becomes chronic, in the specific disease memory is very greatly impaired, and in some cases complete amnesia is manifest from the very first attack. The symptoms of paresis or paralysis of the oculomotor nerves are often added to the combination. Double optic neuritis frequently co-exists, this being in itself characteristic, in that its course is more rapid than when dependent upon any other lesion, not excluding cerebellar tumors. These stigmata also render valuable aid in the differentiation of syphilitic from parietic dementia.

1. Headache is present in both affections, but has different characteristics in each. In specific dementia it is of the usual persistent, paroxysmal, nocturnal type, while in paresis, though a very few severe spells are common, they never occur in long-continued series.

2. Syphilitic dementia pursues a characteristically irregular course. Paralytic phenomena which belong to the final stage of paresis may even precede the mental degeneration of the specific malady. The course of mental decay in paresis is progressive, with but few exceptions, while that of specific dementia is variable. In the latter some symptoms may wholly disappear to be replaced by others of a very different nature. Great mental improvement may take place, the mind may clear up and lucid intervals of long duration supervene.

3. If in a doubtful case, ptosis, strabismus, aphasia, or other paralytic symptoms develop, and especially if it be short-lived, the diagnosis is rendered certain, for suddenness and brevity are the brands of the motor phenomena of cerebral syphilis.

To recapitulate: Syphilis of the nervous system usually manifests itself in middle life, its serious complications being preceded by headache, insomnia or somnolence. It has an acute or subacute onset, pursues an irregular or atypic course, presents a multiplicity or multiformity of phenomena—the distribution of the paralytic symptoms being quite erratic—and causes a very early and marked impairment of the mental faculties.

Anatomic Studies in Insane Asylums.—Nissl made an urgent plea at the German Congress of Alienists, in September, for co-operation in the exact study of the anatomic foundations of the psychiatry of the brain. He proposed that a certain accepted region of the cortex should be studied by his method on a large number of brains in the various establishments, which will further the cause of science much more than a few single brains exhaustively studied. —*Klin-therap. Woch.*, September 25.

THYROID EXTRACT.

SOME RESULTS OF ITS ADMINISTRATION ON THE RED AND WHITE CORPUSCLES AND HEMOGLOBIN IN CASES OF ANEMIA ASSOCIATED WITH MELANCHOLIA.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-ninth Annual Meeting of the American Medical Association held at Denver, Colo., June 7-10, 1898.

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The field of thyroid therapy, in the light of our present knowledge, is quite limited; experimental data have accumulated during the last year indicating various results. The most favorable, also the most reliable, were given by Ewald of Berlin, in epileptic psychoses, acromegaly, rachitis and Basedow's disease, to the International Congress of Medicine at Weisbaden; also by Professor Bruss of Tubigen, on goiter of the follicular variety, as being affected in a certain and prompt manner; cretinism is reported on by Schmidt; tetany and acromegaly by Schultz of Bonn.

Since beginning a series of experiments in cases of anemia, accompanied, or preceded, by melancholia, I have also observed some recent results, some of which were very good, obtained by Dr. Babcock of the St. Lawrence State Hospital, New York, in a variety of selected cases of mania and melancholia. At the Upper Peninsula (Mich.) Hospital for the Insane nine cases were under treatment in the first series, seven females and two males, all suffering from some form of metal depression.

Blood examinations were made before treatment, weekly, during and afterward, consisting of the enumeration of the red and white corpuscles and the estimation of the percentage of hemoglobin in each case. The counts were made with the Thoma-Leitz instruments, also by centrifugalization; the percentage of hemoglobin was estimated by Fleischl's hemometer. In normal blood in adult life the average number of red cells per cm. is estimated at about five millions for men and four millions five hundred thousand for women. The normal number of white cells per cm. is seven thousand five hundred. In hemoglobin examinations 100 per cent is considered normal when using Fleischl's instrument.

Case 1.—A. K., female, age 27. Had been under treatment about three months, with very little, if any, noticeable improvement. Strong symptoms of passing into primary dementia were present. A selected diet, tonics, exercise and different forms of electricity were all utilized in her case, without any apparent improvement. She was pale and anemic, with a phlegmatic temperament, and was hallucinated. Liver and intestinal secretions inactive, complicated by constipation and mental inertia. Thyroid treatment was begun, giving one 5 gr. tablet three times a day; the dose was gradually increased until fifty grains were being taken daily. This treatment was continued for one month. The temperature and pulse were taken twice a day. During the first ten days of treatment the temperature fluctuated between 98 and 99.4 degrees. When the maximum treatment was given the temperature rose to 101 degrees, remaining there but one day, when it declined to normal, remaining there during the last week of treatment. Pulse at beginning numbered 62; on the second day 50; on the tenth 100; and during the remainder of the month ranged between 98 and 72, the latter when treatment stopped. Pulse increased in rapidity and volume as the temperature rose. When treatment was discontinued there did not appear to be either physical or mental improvement, and for this reason it was no longer continued; her weight now commenced to increase rather rapidly and in a month she gained seventeen and one-half pounds.

Blood examination.—Red cells were normal, or a little above, at beginning and remained so during treatment, until about one day before treatment was stopped, when they diminished about one million; they were about one-sixteenth normal size. Hemoglobin was below normal at beginning and increased about 10 per cent. during treatment; 90 per cent. at commencement, 81 third week and 77 at close. White cells were below normal at beginning, increased 3460 the first week, dropped during the fourth week, and at the close there was an average increase of 2760. In this case the red corpuscles diminished in both size and number, while the white, as also the hemoglobin, increased.

	Red corpuscles.		Leucocytes.	Hemoglobin.
	Thoma-Leitz.	Centrifuge.	Thoma-Leitz.	
Feb. 22.	4,544,000		5,400	70 per cent.
Mar. 1.	4,736,000		8,860	72 per cent.
Mar. 8.	4,560,000	3,696,000	8,660	75 per cent.
Mar. 16.	4,776,000	4,032,000	5,040	81 per cent.
Mar. 22.	4,704,000	4,368,000	8,160	77 per cent.

Case 2.—M. E., female, age 23. Profoundly depressed, with an anemic appearance. Small amount of adipose tissue. Had been under treatment for nearly five months, without any beneficial results. No physical disease present. When thyroid treatment was commenced the temperature was subnormal, 97 degrees; pulse 80, with cold extremities. Mental activity very sluggish. Second day after this treatment had begun, temperature increased 1 degree; on the tenth day it was 99 degrees, and remained there during treatment. Three 5-gr. tablets were given per diem, and the dose gradually increased until 35 grains were being taken daily. The temperature reached its highest point when 25 grains were being taken. The pulse in this case did not vary much with the change in temperature; during the last week of treatment it ranged from 100 to 116, being a difference of from 20 to 36 at the commencement of treatment, while the temperature remained normal or below. This case was both stuporous and stubborn, was affected rapidly, even by small doses. The cold extremities and surface generally was changed, the blood filling the superficial capillaries and continued so, with some improvement in mental activity, which lasted during treatment; no permanent improvement followed. This patient had received, prior to being admitted at the Upper Peninsula Hospital, a very severe burn, which necessitated amputation of arm at shoulder and subsequently quite extensive skin grafting. During the thyroid medication the old wound, which had almost healed, took on an irritative condition, retarding granulation quite seriously. Physical condition did not change, although she now shows a gain of five pounds in weight.

Blood examination.—The red corpuscles were small and above normal in number from the beginning of treatment until the close, about five million per cm. Leucocytes numbered 8330 at commencement and 5250 at close, showing a diminution of 3080. Sixty-seven per cent. of hemoglobin at beginning increased to 85 during the first week, second week 77, third 82 and fell to 64 at close of treatment, being lower than when treatment was begun. This case differs from the others in that the amount of hemoglobin was reduced, also the number of white corpuscles, while the red cells were not perceptibly influenced.

	Red corpuscles.		Leucocytes.	Hemoglobin.
	Thoma-Leitz.	Centrifuge.	Thoma-Leitz.	
Feb. 24.	5,072,000		8,330	67 per cent.
Mar. 2.	5,528,000		7,650	85 per cent.
Mar. 9.	4,992,000	4,516,000	6,940	77 per cent.
Mar. 16.	5,032,000	4,312,000	8,350	82 per cent.
Mar. 23.	5,956,000	3,696,000	5,250	64 per cent.

Case 3.—H. G., male, age 30. Treatment begun with 15 grains and increased to 45 per diem. Before beginning treatment temperature was 97 degrees; on the third day 98; on the sixteenth 99.4, the highest point reached during treatment, dropping again to 98 and remaining there during the remainder of treatment. Pulse, 72 at beginning, increased to 100 and dropping again to 80 when treatment ceased. This case was of more than ordinary interest; a young man of good family became depressed and attempted suicide by cutting his throat with a meat-ax. After being received at the hospital, he was placed on appropriate treatment, such as tonics, exercise, gymnastics, games, etc., everything with a view to the removal of the cloud from his mental horizon. His case did not yield to this line of treatment: periodic depressed spells were becoming prolonged. At this time he was placed on thyroids. After two weeks' treatment, temperature began to increase, and *pari passu* the mental depression began to give place to a brighter, more cheerful and observing condition; so marked was the change in his general appearance that his friends, in visiting him, observed the improvement. No relapse has occurred and

the periods of mental depression which were quite frequent before, have entirely disappeared. Patient was discharged, in every way much improved and, to all appearances, entirely recovered. His physical condition was a great deal better, having gained twenty pounds.

Blood examination.—Red cells were found to be normal, or slightly below, both in number and size; at commencement numbered 4,728,000, and about the same at the close. The leucocytes were below normal at commencement of treatment (5900) and at the close numbered 8,230, being an increase of 2330. Ninety-one per cent. of hemoglobin at beginning and 94 at the close. This case showed a marked increase in the white corpuscles and a 3 per cent. increase in the hemoglobin, while the character and number of the red cells were not materially changed.

	Red corpuscles.		Leucocytes.	Hemoglobin.
	Thoma-Leitz.	Centrifuge.	Thoma-Leitz.	
Feb. 26.	4,728,000		5,900	91 per cent.
Mar. 3.	5,096,000		6,280	90 per cent.
Mar. 10.	4,680,000	4,704,000	8,500	85 per cent.
Mar. 17.	4,784,000	4,256,000	8,230	94 per cent.

Case 4.—L. B., female, age 36. Under thyroid treatment one month, commenced with 15 grains and increased to 30 per diem. Temperature 98.5 when first dose was given; four days later was subnormal; on the tenth day rose to 99.4, the highest during treatment, and then ranged from 98 to 99 during balance. The pulse was slow at first, and remained so during the greater part of treatment, except during the last few days, when it ran up to 110 and 112. This patient's intellect was not very well developed; had given illegal birth to a child. Was anemic and did not respond to chalybeate and other adjuncts for the building up of the mental and physical condition. She suffered from melancholia agitata and did not improve, either physically or mentally, as the result of this treatment. It is now four months since the treatment ended, but the same fixed delusions and hypochondriacal condition remains. Her weight fluctuated and is now a little below what it was when treatment was discontinued. No blood examination was made in this case.

Case 5.—L. H., female, age 33. Mother of four children. Suffering from a mild form of melancholia with hallucinations. Had been under treatment in the institution about eight months before beginning with the thyroids, without any benefit. Commenced with the usual dose and increased to 25 grains daily. Temperature increased about 1 degree almost immediately, and at the end of thirteen days reached 101.2 degrees, declining gradually to normal and not rising again during remainder of treatment. Circulation increased gradually in conjunction with the temperature: when the latter was highest the pulse was 100, showing an addition of 40 beats, it being but 60 at commencement. At the close of treatment, there was no improvement, either mental or physical; indeed the depression seemed to be more profound and a more anxious appearance generally. Treatment was ended on December 22, and she was then placed on general tonics, together with electricity similar to that which had been given her prior to the thyroid treatment. Her weight now began to increase: during the first month gaining ten pounds; the second month eight pounds, and on the 23d of the third month, when she was discharged cured, her weight showed an increase of twenty-two and one-half pounds. A dense mental cloud which seemed to hang over her less than three months before, and seemed to be deepening, after this treatment gave way to a brighter, happier, more cheerful and appreciative responsive condition, which can only be appreciated thoroughly by her family, friends and those having her welfare at heart. No blood examination was made.

Case 6.—E. S., female, age 25. Mother of two children. Depressed. Had been considered mentally unbalanced for upward of four years before being received at the Upper Peninsula Hospital. Had made an attempt to destroy her two year old child by burning. Began taking 18 grains of thyroid daily, and increased to 27 grains in two weeks. Temperature was 97.4 at beginning; on the third day increased two degrees, and remained at 99.4 during the balance of treatment, with the exception of a brief interval, when it declined to about normal, but immediately rising again. Examination of the urine revealed, at first, traces of albumin, with very few pus corpuscles, urea normal, 2.8 per cent.; at the close of treatment, pus corpuscles had increased, specific gravity increased from 1012 to 1026. Pulse had increased from 66 to 116. Two weeks after treatment ceased her weight had increased six and a half pounds.

Blood examination.—The red blood cells were reduced, also the hemoglobin, the latter 14 per cent., and the white cells increased about one thousand.

	Red Corpuscles.		Leucocytes.	Hemoglobin.
	Thoma-Leitz.	Centrifuge.	Thoma-Leitz.	
Mar. 12 .	5,072,000	4,704,000	7,540	94 per cent.
Mar. 19 .	4,884,000	4,704,000	7,630	90 per cent.
Mar. 28 .	5,040,000	4,368,000	7,640	80 per cent.
Apr. 2 .	5,176,000	3,696,000	6,950	82 per cent.
Apr. 8 .	4,364,400	4,368,000	7,030	83 per cent.
Apr. 15 .	4,704,000	4,256,000	8,850	80 per cent.

Case 7.—E. A. C., female, age 45. Suffering from melancholia, with delusions. Would sit in the hall without apparently observing any object or person, from day to day. Suffered from hemicrania. Began by taking 16 grains and increased to 35. Temperature was normal at beginning, and was not increased throughout treatment, but decreased, being 97 degrees at the end of thyroid medication. Circulation was much more affected than the bodily heat, increasing from 74 to 120 per minute during the first ten days of treatment. Urinal examination showed pus corpuscles, epithelium and traces of albumin present throughout treatment; specific gravity 1018; urea 1.2 per cent. Weight remained practically the same during treatment, also after.

Blood examination.—In this case the red blood corpuscles were slightly decreased and the white increased, the latter about two thousand. Hemoglobin remained substantially the same.

	Red Corpuscles.		Leucocytes.	Hemoglobin.
	Thoma-Leitz.	Centrifuge.	Thoma-Leitz.	
Mar. 26 .	4,448,000	4,368,000	5,160	80 per cent.
Apr. 3 .	4,061,600	4,256,000	6,400	82 per cent.
Apr. 8 .	5,088,000	4,480,000	6,950	82 per cent.
Apr. 15 .	4,401,600	3,696,000	7,000	80 per cent.

Mental influence.—In the last two cases there was a marked change: a despondent and forlorn appearance has given place to a brighter and more cheerful condition.

Case 8.—P. F., male, age 44. Suffering from stuporous melancholia. Began treatment with 15 grains per diem and increased to 30. Temperature was immediately affected, increasing from 98 to 101 on the third day after treatment had commenced. On the sixteenth day it rose to 102, declining to 101, and remaining there during balance of treatment. Pulse was not influenced so much as the bodily heat, not varying more than twenty beats. Notwithstanding the temperature was markedly influenced there was no improvement in the mental activity. Pus as well as blood corpuscles and traces of albumin and epithelium were present in his urine. In this case the bodily weight was not changed to any appreciable extent.

Blood examination.—The white cells, numerically, were not changed; the red cells were slightly diminished, while the hemoglobin was reduced 14 per cent.

	Red Corpuscles.		Leucocytes.	Hemoglobin.
	Thoma-Leitz.	Centrifuge.	Thoma-Leitz.	
Mar. 28 .	4,548,000	4,592,000	6,850	79 per cent.
Apr. 4 .	4,184,000	4,144,000	7,570	76 per cent.
Apr. 11 .	3,700,000	4,592,000	6,660	75 per cent.
Apr. 18 .	4,208,000	4,480,000	6,500	65 per cent.

Case 9.—E. B., female, age 44. Mother of four children. Suffering from melancholia gravis or hypo-melancholia; great mental anxiety. Impairment of motion and inhibition, which dated back about one year from the death of her husband, who was killed by an accident in a mine. There was an entire suppression of the menstrual molimen. Every remedy, therapeutic and otherwise, was exhausted in her behalf, without permanent benefit. She began taking one 5-grain tablet three times a day on March 26, 1898; on the fourth day after beginning treatment the temperature dropped to 97 degrees. Twenty grains were given; the system seemed profoundly impressed; the temperature rose to normal, dropping again to subnormal, treatment was relinquished on the eleventh day on account of the increasing exhaustion. The pulse and respiration were increased slightly. The systolic cardiac impulse very much decreased. Lost eleven pounds in weight during the eleven days of treatment. No improvement in mental or physical condition either during treatment or since it has ceased.

Blood examination.—Red corpuscles increased 728,400; leucocytes 1,330, and hemoglobin 7 per cent.

	Red Corpuscles.		Leucocytes.	Hemoglobin.
	Thoma-Leitz.	Centrifuge.	Thoma-Leitz.	
Mar. 25 .	3,624,000	4,144,000	5,200	70 per cent.
Apr. 2 .	4,362,400	4,368,000	6,530	77 per cent.

THERAPY AND THEORY OF ACTION.

There are, according to some very reliable authorities, two main theories advanced. The first is the auto-infection theory—the gland having for its func-

tion the destruction of the natural toxins; without the latter we have the condition known as myxedema. The second is the internal secretion theory—the thyroid being considered as a secreting organ. The secretion is taken up by the lymph vessels and is necessary for the proper metabolism of the body, especially for nervous and connective tissue. According to either of these theories, the administration of the desiccated gland supplies the lacking secretion, which may be some chemic substance that is necessary to health or even life. Ewald, in a pithy sentence, states that the gland acts as an antitoxin against certain elements that appear as by-products of tissue change. The exact constituents of this substance have never been definitely made known. An organic iodine compound from the sheep thyroid has been extracted, called thyro-iodine, and in the present state of our knowledge the weight of authority is in favor of this being the effective chemic agent in thyroid therapy.

The rationale of this treatment is not very clear. It may be of great value in mental diseases as a method of diagnosis, but it is difficult to comprehend just how this treatment could improve a case where degenerative changes have taken place in the cell structures. Based on the theory of auto-infection, frequently cases have occurred where malaria, typhus and pleurisy are capable of developing in the blood antitoxins that have resulted in curing cases of mental disease. It is not unreasonable to suppose that in cases of mental alienation due, it may be, to some toxin, rather than to a lesion of the brain, the action of the thyroid is to promote metabolism. This being the case, the utility of thyroid therapy is obvious. In the series of cases treated by me, I have observed that those who were not benefited are developing symptoms of organic disease and passing into a condition of chronic dementia, while in those who were improved, it is a reasonable deduction, on the antitoxin theory, that the condition was functional, and that cellular disorganization had not taken place. Nine cases received the thyroid medication and were under close medical supervision; in five cases there was a marked change for the better, the other four were not, so far as we could observe, favorably influenced, physically or mentally, either during the treatment or since. Three of the five who were improved began to increase in weight during the treatment, and two of them did not until after treatment was relinquished. The psychologic effect was observed almost from the beginning of treatment in those who were permanently improved.

It was noticeable that the minimum dose would produce a systemic effect in some more rapidly than a maximum dose in others. Every case requires close observation and the dose graduated in accordance with the effect produced upon the nerve centers and circulation, or in other words, every case must be a law unto itself. Fifteen grains per diem was the maximum dose to begin with, in some gradually increased to fifty in accordance with indications.

The Modern Magazine.—Managing Editor—"How many pages have you?" Foreman—"Two hundred and twenty-four." Managing Editor—"Two hundred and twenty-four! That would be too bulky. How is it proportioned?" Foreman—"One hundred and ninety pages of advertising and thirty-four pages of reading matter." Managing Editor—"Bring me the proofs of the reading matter. We will have to cut down to 200 pages."—*Ohio State Journal.*