

TAYLOR (J.M.)

THE TREATMENT OF EXOPHTHALMIC GOITER.

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FIVE years ago I wrote a brief paper on the early recognition of exophthalmic goiter and reported a number of cases.² Since then other cases have come under my observation, both in my own practice and in that of friends. These I have carefully considered, especially from the standpoint of curability. Most of my original cases are now well, and I shall, in brief, report their present condition and the means that were used to bring about this good result. Others will be referred to as illustrating interesting features.

In looking over the literature of exophthalmic goiter, I notice that there is a growing conviction, which I myself have always felt, that this disorder is a very manageable one. Undoubtedly some cases are not to be made well; certainly a large proportion can be most satisfactorily helped, and many entirely cured. The general measures that I have employed with advantage have chiefly the element of rationality to recommend them. It has been said, and rightly, that those disorders which have recommended for their treatment the largest array of medicines and measures are the ones of which we know least. Certainly a large and con-

¹ Read by title at the meeting of the American Medical Association, June 6, 1893.

² Journal Amer. Med. Assoc., April 14, 1888.



trary lot of remedies are urged for this disorder ; some are claimed by their authors to be almost specific ; others are backed up by a large array of cases ; and yet few, to my mind, are, singly considered, much better than the rest.

In looking over my paper referred to, certain conclusions then formulated seem still to obtain with equal force. The most important measure is the early recognition of the symptoms that in their entirety represent the malady. I am inclined to doubt more strongly than ever that, with early recognition and judicious treatment, the disorder need at any time become so serious in its results as we have been led to believe.

Without discussing the reasons at length, my convictions are that exophthalmic goiter is a vasomotor disturbance, and not related to any specific disease of the thyroid gland. It has not been shown to have any connection with the functions of the thyroid as a trophic organ, or at any rate to depend upon either an increase or a diminution of the normal secretions of that gland.¹ It has happened that all of the symptoms of Graves' disease have come on with great suddenness, in consequence of profound emotion, and in persons with, presumably, normal thyroids, and have again disappeared as abruptly. Unless further evidence shall be adduced to the contrary, I am inclined to regard the disorder as a cardio-vascular erethism,² or, to use the term coined by my friend Dr. S. Solis-Cohen, as a "vasomotor ataxia."³

In this connection certain tropho-neuroses are of the deepest importance therapeutically. The group of trophic and vascular disturbances associated with enlargement of the thyroid gland, including exophthalmic goiter, myxedema, cretinism, and akrome-

¹ Putnam : Trans. Association of American Physicians, 1893.

² Dieulafoy : La France Médicale, August 19, 1892.

³ Times and Register, March 18, 1893.

galia, are receiving a good deal of attention, both as to their pathology and as to their treatment, and from this search-light tendency of medical science much is to be hoped. I would be glad to believe that specific results could be hoped for from the absorption of thyroid juices and similar measures, and myself use these in suitable cases. Meanwhile, my present purpose is to relate such measure of success as has come to me, and indicate the lines upon which it has been obtained, holding in reserve the brilliant possibilities referred to.

I am inclined to agree with Raymond and Serieux,¹ who consider exophthalmic goiter a bulbar neurosis, manifesting itself in an exaggeration and permanence of the physiologic phenomena of emotion, placing the emotional state at the foundation of the disease as a psychic anomaly, a derangement of vasomotor centers, coinciding with analogous troubles in other centers of the cerebro-spinal axis. There are to be found in this disorder certain associated psychoses, with evidence of hereditary taint, signs of physical degeneration, mal-development of the facial area in the central cortex, vaulted palates, etc., seen in developmental neuroses.

Of the three features that constitute the classic symptom-group of Graves' disease, it is now admittedly possible for any two to be absent, or at least not constantly recognizable. It is common to find the thyroid enlargement absent; next most common to find exophthalmos not present; and possible, though rare, to find the circulatory disturbance to be practically wanting, in the presence of the ocular and thyroid symptoms.

The most important phenomena of the disease are connected with disturbed circulation. One or another of the more picturesque symptoms may be temporarily absent; not seldom the thyroid irregularly enlarges and collapses; the exophthalmos also comes

¹ *Revue de Médecine*, December, 1892.

and goes; but in my experience there is seldom an absence of irregular or easily disturbed vascular conditions. In two cases I have seen the more distressing symptoms quite disappear, but either slight exophthalmos or moderate thyroid enlargement, or both, remained. I have had two ladies under observation for seven and ten years respectively, who are practically well, and in whom the exophthalmos persists; and another who has considered herself well for over a year, but whose thyroid is still noticeably large. The thyroid enlargement seems to me to be the first symptom to definitely disappear, although in the case referred to it has persisted after the subsidence of the other symptoms.

The next most common feature is the relaxed state of the sweat-glands. This seems to be a uniform feature, and remains much the same in most cases. I have seen cases of slight vasomotor ataxia in which flushes came and went; but ordinarily there is a pallid, oleaginous appearance, which persists, giving the skin a macerated look, with rarely any offensive odor. Urination is not commonly disturbed; hemoglobinuria is rarely seen; purpuric areas occasionally appear; and slight hemoptysis and hematemesis may take place; nor is it common to see edema. In one particularly severe case, which terminated in wild insanity, I have noted persistent edema; when it occurs it only appears intermittently.

The temperature fluctuates considerably. In first interviews, which are attended with a certain element of nervous emotion, it is quite common to find the temperature above 100° F. In the same individual a short time afterward, the temperature taken in the mouth may be subnormal. In such cases as I put to bed for systematic rest, a rise of temperature is almost always noted for the first three or four days, followed by a steady falling until the normal is passed, the temperature remaining subnormal for three or four days, and then creeping back to the

normal, and remaining at this level, or a little below, for several weeks.

The rapid variation in arterial tension accounts for the intermittent albuminuria, the mild polyuria, and other changes in the renal secretion, as well as for the occasional blood-spitting, together with disturbances of special sense, as roaring in the ears, headache, fluttering of the heart, altered heart-sounds, dyspnea, etc. The tremor that Gowers refers to I have not often seen, except in the form of occasional tremulousness of the lip or tongue, and then mostly under excitement; but a more or less constant vibratile quality in the voice is always suspicious. The sensory disorders are not many, headache being the chief, as in one of the cases here related, in which this persisted throughout life, almost daily, worse in the morning and in certain attitudes, as stooping down, and sometimes suddenly becoming so severe as to cause vomiting.

The Von Graefe lid-symptom seems to be regarded as of less significance among clinicians as time goes on. Sharkey¹ has examined 613 patients of all kinds, and among them found 12 that presented this symptom. He states that in people of good health it can be frequently induced by staring fixedly. It constantly fails to be present in Graves' disease, and its diagnostic significance is small. The electric resistance of the body, too, has failed of its early promise as a useful indication, as hopefully outlined by Norris Wolfenden. It had come to mean little to me long ago, and observers generally now regard it as of small account. H. W. Carduff² finds the electric resistance diminished in 15 of 20 cases of exophthalmic goiter, and remarks that the phenomenon is worthless as a diagnostic sign, as it varies with the moisture of the skin. When we consider that the moisture of the skin is almost

¹ British Medical Journal, October 25, 1890.

² London Lancet, February 28, 1892.

constantly marked in well-defined instances of exophthalmic goiter, the only wonder is that much significance was ever attached to an alteration in the electric resistance as a symptom.

The order in which the characteristic symptoms appear is not always easy to determine. I am inclined to agree with Jaccoud,¹ who puts it as follows: palpitation, dilatation of arteries, enlargement of thyroid, exophthalmos. A point that seems to me to be useful, though rather a result of the characteristic changes that take place, is the diminished respiratory range or chest-expansion pointed out by Fiske-Bryson.² I had noticed that the respiratory movements of sufferers from exophthalmic goiter were almost as much disturbed as the cardio-vascular mechanism; and, purely from the therapeutic standpoint, had been accustomed to urge upon patients the use of forced inspiration. This seems to me a very tranquilizing measure, and one that is a proper part of systematic hygienic measures. In the more recent cases under my observation this limited expansion of the chest has been observed. Bronzing of the skin is not common; uniform changes, as pointed out in my original paper, such as a greasy, macerated-looking skin, are much more likely to be present, possibly as a result of the parietic condition of the surface-vessels. There seems also to be an excessive secretion of skin-oil, recognizable by the touch as well as the appearance.

Stellwag's sign—retraction of the upper eyelid—I have rarely seen.

Charcot has somewhere directed attention to the importance of elevation of the temperature as a diagnostic point. In my experience, such an elevation only persists when the patient is upon his feet and moving about. As I have pointed out elsewhere,

¹ New York Medical Journal, February 22, 1891.

² *Ibid.*, December 14, 1889.

when such a one is put to bed, the temperature subsides after a few days and becomes subnormal.

Mackenzie¹ makes the statement that when the clinical picture of exophthalmic goiter is incomplete the disease is rarely fatal; but when the picture is well-marked, the disease is dangerous to life. There are times when death occurs apparently from an overwhelming disturbance of circulatory balance—in short, a death from the disease itself; but it rarely seems to be due to trophic changes referable to the pathology of the thyroid gland.

My conviction is that exophthalmic goiter is much less rare than is generally believed, and that it is also far more amenable to treatment than is usually taught. Unless there coexists serious structural disease, excellent results, in more instances a practical cure, may be looked for if the treatment be persistently and systematically pursued. The results in my own cases have taught me to give a favorable prognosis; and if specific medication with thyroid juices and thyroid removal prove of value, these may add much greater possibilities.

It has been my experience to see several cases not clearly definable as Graves' disease, wherein the symptoms of cardio-vascular erethism were most distressing. These were often superadded to organic disorders and generally complicated with hysteria. The patients responded most promptly to tranquilizing agents directed to the loss of vasomotor balance and, in so far as this feature went, were readily relieved. It is reasonable to assume that from such cases as these, full-blown instances of exophthalmic goiter may and sometimes do arise.

A very important point clinically is that too often the significance of these symptoms is not recognized and treated, as well as that the difficulties in inducing such patients to persist in systematic measures for the long periods required are very great.

¹ London Lancet, September 20, 1891.

The treatment of exophthalmic goiter is modified in various hands by the conception of the physician as to the nature of the condition, whether it be a blood, cardiac, neurotic, or thyroid disorder. It must be also recognized that a person suffering from this trouble is always on a lowered plane of health. The degree of this may be much more serious than would appear on the surface; certainly a modification of the ordinary activities of the patient must be outlined, and under most circumstances very little laborious work allowed. When it is possible, absolute rest in bed is indicated for a time. A diet of the most uniform and tranquillizing kind, such as milk, the regular milk-diet such as Kareli outlined, is usually of use to bring the disturbed circulation as soon as possible on an even plane. This may be amplified by a judiciously selected diet in proportion to the depression of nutrition that may exist.

The diathetic element that may be back of the disorder needs careful consideration; in some of my cases it was found to be lithemia. Along with attention to the diet there must be large care in the treatment of the skin. This may take the form of salt sponge-baths, given by another while the patient is in bed, and finally, as strength improves, taken by himself; a tablespoonful of salt in a basin of water regularly applied on waking in the morning, after some little fluid nourishment; this to be followed by a brisk, rough rub from head to heel; afterward breakfast. When the skin is greatly at fault, this may be repeated before bedtime with advantage, or to supplement the skin-stimulation the dry salt towel may be used more or less often; again, an aromatic vinegar on a damp sponge may be applied to the more leaky parts, as the soles of the feet and the palms of the hands, about the small of the back. This aromatic vinegar can easily be made in any household by taking a pint of good white wine-vinegar and adding a dozen or more of

cloves, allspice, and whole peppers, and allowing it to steep. A tablespoonful or more of this applied on a moistened sponge is very comforting and relieves the over-damp skin wonderfully. In giving massage it may be important to use drying powders, such as talc or lycopodium, until the patient can endure the manipulations. A measure recommended by some, notably by J. L. Corning, for giving tone to the skin is hot bathing followed by cold ablution, but for my part I have rarely seen the need of it. During conditions of great restlessness, no doubt this would aid in securing sleep. The hot, salt sea-water baths might be very useful to this end, and I have, indeed, ordered them temporarily in a few instances, with advantage, but my dependence is rather upon the cool salt water, the aromatic vinegar, and systematic surface-rubbing, as well as upon such internal remedies as hyoscin hydrobromate in sufficient doses.

Wool or silk should always be worn next the skin, inasmuch as the cause of the disorder is often closely related to surface-chill. The frequent changing of the underwear, too, is a minor point of large significance. It is bad enough for the surface-exudations to remain uneliminated, but it is worse to keep them locked in by the clothing. If skin-leakage be extreme, it is important to change the underwear several times a day, employing, if possible, a brisk dry rub each time.

For the over-acting, tumultuous heart, there is nothing so certain to steady its beat and lower its frequency, and generally to tranquillize the whole cardio-vascular mechanism, as ice applied to the precordium. Care is needed, of course, lest some damage be caused by this very powerful agent. Ice-bags over the spinal region, too, exercise some value. In conditions of profound tumult of the heart this is valuable, and many times is useful as a more or less routine measure. Galvanization of the

great sympathetic and faradization of the cardiac region are highly prized by a number of observers, but I have never seen them do the wonderful things that Charcot, Rockwolf, and Lewandowski have claimed for them, although I think I have seen them do distinct good in a few cases. I have given faithful trial to the carbazotate of ammonium, as recommended by Hammond¹ and by Boaz,² in three cases, with no noticeable result, while the offensiveness of the drug is beyond description.

Many writers say that digitalis will not modify the heart's action. Alone probably not, and yet I have had very good results from digitalis. Strophanthus seems to do better, although physiologically one might not expect it. Spartein sulfate may be even better yet. Many different kinds of vascular tonics are useful in this disorder, and it cannot always be predicated which will do best. The one drug that has served me best of all, and to which I look with great confidence in modifying the discomforts and dangers of this disorder, is hyoscin hydrobromate. This serves to tranquillize the overwrought emotions, puts the economy into a reposeful state, dries the surface over-secretions, oftentimes without causing uncomfortable drying of the throat, relieves the feeling of chilliness by checking surface-moisture, exercises a beneficial effect upon the renal vaso-constrictors, and in many ways may be regarded as a most useful ally. In one case here reported this was the chief agent employed in subduing a headache that had existed for half a lifetime and for which much medication had been endured; to be sure, galvanization of the thyroid was also used, and some general measures directed to the patient's nutrition and relief from laborious occupations enforced. In the case of this poor woman, who was compelled to do a large amount of daily work, to

¹ New York Medical Journal, January 25, 1891.

² Western Medical and Surgical Reporter, September, 1891.

prepare her own food and her husband's, and to sustain and carry on many responsibilities, prompt recovery took place from a condition that had persisted for many long and weary years. I will not say too much about the value of hyoscin hydrobromate, because the notes of my cases show this well enough. Dr. S. Solis-Cohen gets excellent results from picrotoxin.¹

Certain ones, as Kimmell,² have removed the thyroid in cases of exophthalmic goiter, leaving part of the left lobe, with favorable results. It does not seem to me that all of the good attributed to this operation lies in the removal of the thyroid, much of it possibly being the enforced rest and regulation of living. Nevertheless, I should welcome any specific agency, such as the surgical removal of an offending part, or the use of thyroid juices internally, if we could by this means radically negate the effects of errant thyroid activities.

Chevalier³ maintains that the tachycardia is due to an affection of the nucleus of the vagus, the struma and exophthalmos being dependent upon the tachycardia, and declares the cause of the disease to be

¹ Extract from letter of Dr. S. Solis-Cohen: "Concerning my use of picrotoxin in cases of Graves' disease and other forms of vasomotor ataxia, I would remind you that I learned the practice from Prof. Bartholow, having seen the good results in a case of exophthalmic goiter, attended with purpura, treated at the Jefferson Medical College Hospital during my service as Chief Clinical Assistant. I give from one-eightieth grain to one-twentieth grain thrice daily, the indications being found principally in the vascular phenomena of the cutaneous and mucous surfaces and glands; that is to say, sweating, profuse discharge of saliva, coryza, and tendency to heat and redness of the skin, suggest the use of this drug. In cases showing constriction rather than relaxation of vessels, it is less applicable. I have sometimes found the combination of ergot and picrotoxin better than picrotoxin alone; in other cases barium chlorid (one-eighth grain) has been combined with it. . . . At the same time I have considerable confidence in picrotoxin as a tonic to the toxic power, or center, in these cases of vasomotor disorder."

² Deutsche med. Wochenschr., May 15, 1891.

³ Neurolog. Centralbl., September, 1892.

an intoxication of the nervous system through by-products of the thyroid. Many tonics might be considered in this connection. Iron is frequently indicated, especially the more digestible forms, as the carbonate, Flint's chalybeate pill, the vegetable salts, the malate, and the old-fashioned and reliable lactate. However, it is needless to go over a list of tonics suited to varying conditions and cases. Nutrient tonics are the best; good diet, very carefully adjusted to the needs of the patient. This at first may, with advantage, consist largely of milk, then enlarged by graduated increments, as the case demands, with aids to digestion, and then malt and cod-liver oil. The mechanical tonics, massage and faradic electricity, are of great value. The entire environment of the individual should be carefully reviewed, emotional disturbances rigidly excluded, and, when possible, physical and mental strains removed. The isolations of a complete rest-treatment probably offer the very best opportunities of all; and finally, graduated activities in the form of Swedish exercises, systematized outings, and restful life in a dull country-place. The correction of refractive errors of the eye is always of the greatest value.

A review of the cases is herewith appended: ¹

CASE I.—Graves' disease; enlarged thyroid; marked circulatory disturbance; no exophthalmos; dyspnea; convulsions, originally perhaps epileptiform, but later hysterical.

The cause was found to reside in a neurotic tendency, conjoined with repeated exposure to cold, and sitting in wet shoes during work, at the age of nineteen, culminating in a profound attack of exhaustion, nervous chill, rapid heart-beat, and overwhelming sense of suffocation. From this time on the heart was markedly disordered. There were present, together with several hysterical manifestations, repeated hemoptysis,

¹ Journal of the American Medical Association, April 14, 1888.

cough, and progressive emaciation. An alarming attack of blood-spitting sent her to a hospital for four weeks, where she was treated for pulmonary tuberculosis. Soon afterward the urine was suppressed for three days, without pain; then a dark, offensive fluid passed, and gradual recovery followed. Finally, another profound over-exertion, five years ago, brought her under my care. The examination then showed a pale, thin, unmarried woman, aged twenty-three; the respiration from 24 to 30; the pulse fairly regular, from 130 to 135; constant cough, throbbing carotids; pupils widely dilated. There was complete mydriasis, but no lesion of the fundus. The heart was laboring; a loud, musical murmur was heard over the base; the apex-beat was displaced downward and outward; *bruit de diable* was heard. The thyroid gland was enlarged, especially the right, and conveyed a thrill to the hand; the neck measured $14\frac{3}{4}$ inches in circumference; the skin was pale and oily-looking; sweating occurred readily, and chilliness caused distress; the legs were edematous; menstruation had been absent for three years; the bowels were constantly loose; the urine was small in amount, bright-red with blood, and had a specific gravity of 1009; no casts; the knee-jerks were excessive.

Treatment was as systematic as the circumstances would permit: carefully regulated feeding and rest; simple, diluent drinks; iron in the form of Basham's mixture and digitalis; hot hip-baths; belladonna-plasters over the excited heart; later, cod-liver oil and bromids with digitalis. In a week the pupils became responsive to light, the cough greatly moderated, the urine was only smoky, and the heart-sounds better defined. Her circumstances at home were exceedingly unfortunate; dominated by a fierce virago of a stepmother, and perpetually under distressing domestic environment. However, in six months the girl seemed practically well. Twice since treatment the pupils have been widely dilated on catching a slight cold, and once only the urine showed albumin again. The menstruation has appeared twice; the pulse has been reduced to 85 or 90 in the erect posture.

The subsequent history of this case I followed

throughout three or four years at varying intervals. Electricity was used for a time, but she would not continue it. General measures directed toward improving her health and relieving her troubles, domestic and physical, were satisfactorily pursued, and when the girl passed out of sight, I think by moving to a distant part of the country, she considered herself perfectly well of the original difficulty. The skin-activity returned until nothing was left to mark the original seat here but a slight tendency to leakiness. The pulse maintained a fair equilibrium, the thyroid enlargement had entirely disappeared, and I regard the case as cured, in spite of the very unfavorable attendant circumstances. The woman made a very unfortunate marriage with a man who drank and who abused her. She lived with him for six or eight months, then finally abandoned him, and took up several different kinds of laborious work, maintaining herself comfortably. At last accounts, in the year 1891, she was going to live with relatives in a distant place.

CASE II.—Mrs. H., aged twenty-eight, gave no neurotic history. She had two living children; there was marked exophthalmos, with the presence of Von Graefe's sign; irregular, excitable circulation; steady loss of vigor; slight, though well defined, thyroid enlargement. She had been under my observation since 1881. The difficulties for which I originally treated her had to do with menstrual derangements and great dyspnea; the pulse varied constantly with the smallest emotional changes, and slight exertion caused it to run up to nearly 200 and produce distressing trouble with the breath. This lady was in comfortable circumstances, but, nevertheless, her responsibilities as a mother could not be entirely ignored—certainly she would not obey directions as I would have liked—nevertheless, I enforced as much of systematic feeding, rest, and other measures as possible. The medicinal measures consisted chiefly of digitalis and ergot, together with iron and other tonics, and in six or eight months there remained only the dusky, oily skin, the eye-symptoms and the lid-symptoms, and a somewhat irregular heart. Relapses occurred now and then, but in the main steady improvement took place,

and was greatly increased, I am inclined to think, by carefully adjusted glasses, immediately after which the exophthalmos materially lessened.

It is interesting to mention that although a distinguished obstetrician, whom I had in consultation with this lady, pronounced it impossible for her to bear a living, healthy child again, yet I subsequently delivered her at term of three fine children, each of which she suckled for a full year, and at the time of the report then given there was no heart-trouble and no goiter. This lady has been under my observation ever since. She has grown stronger year by year, and is to-day a more vigorous person than when first married.

CASE III.—Well-marked Graves' disease; extreme nervousness; cardiac distress; exophthalmos; thyroid enlargement.

Mrs. R., aged thirty-six years, married, with one child, at the age of thirty-four seemed in perfect health. She weighed 130 pounds, and was surrounded by every luxury and care. She had sustained no shock or fright and had suffered no exhausting disease. While sitting in perfect health in a theater she suddenly had, from no known cause, a nervous chill, and from that time her disorder rapidly grew. The chills recurred frequently, changing to what she described as waves of feeling up and down the body. On the slightest exertion a sense of constriction in the chest and sweating of the skin would occur. The bowels were loose; the sleep broken, the woman lying awake for hours with a feeling of deadly fear. She had fallen to 110 pounds in weight, and presented a frightened, restless expression. The eyes were slightly prominent; Von Graefe's sign was present in slight degree; the cornea was injected. The voice and hands were tremulous on movement, and there was a general restlessness of manner. The carotids throbbed and the pulse was from 125 to 135 in the recumbent posture. An irregular, loud, musical murmur was heard in the precordia. The skin was bronzed and glistening, the hands and feet chilly. The enlargement of

the thyroid was symmetrical, conveying a thrill to the hand. Some improvement followed rest and tonics. After passing from under my observation she fell into the hands of a gynecic surgeon, and, under a slight operation, suddenly sank and died. No autopsy was allowed.

This case is interesting from the sudden, unexplainable onset, there being literally nothing upon which to place the finger, except the sudden chill, as stated, and the progression of the disease. The nature of the disturbance was not recognized or treated, and my recollection of the case is quite vivid. The family physician had urged "gentle exercise, simple food, and change of scene." I had an opportunity of seeing the woman for only a very short time, while she was under the care of Dr. Weir Mitchell, who endeavored to do what could be done, but for some reason or other she passed over into the hands of the surgeon, as stated. Persistent careful treatment in the right direction would probably have saved this woman for many years of useful, comfortable life.

CASE IV.—Graves' disease; slight exophthalmos; slight thyroid enlargement; irregular cardiac action; delusions; rapid loss of flesh; began a year previously to lose flesh rapidly during a severe dysentery; aged thirty-nine; had had ten children in rapid succession.

The symptoms present were slight delusions; vertigo; prominent eyes; injected corneal vessels; restlessness of expression; tremor of voice and hands; clammy and glistening skin; dyspnea; thyroid enlargement; noisy musical cardiac murmur; no valvular defect; very emotional; albumin and muco-pus in urine. The case was sent to me as convalescent by Dr. Mitchell.

General treatment was pursued, with systematized rest and tonics. The woman gained forty pounds in three months and seemed to be in perfect health, barring a readily disturbed emotional balance and a not yet very vigorous heart. The subsequent

history, of which I knew something for many months, was to the effect that this gain was maintained and no relapse occurred to my knowledge, and had it done so, I should almost certainly have known it.

CASE V.—Graves' disease; slight exophthalmos; thyroid enlargement, the neck being fully an inch and a half fuller at the base than normal; slight cardiac disturbance; tremulous voice; recovery; still under observation, and perfectly well.

Miss R., aged twenty-five, presented no neurotic history. One sister has some valvular defect of the heart, but seems now to be fairly well. This patient at ten years of age had enteric fever; at eleven severe dysentery, after which she was long in regaining her health. She had had much headache until the age of nineteen years, when an illness occurred, accompanied by neuralgia in the face and profound prostration. Then she noticed rapid breathing on slight exertion. The eyes were soon remarked as being "curious-looking." She tried to gain strength by exercises in the open air. In March, 1882, she consulted Dr. Seguin, who pronounced the affection Graves' disease and gave an unfavorable prognosis. At that time there was edema of the legs. Digitalis and quiet were ordered. In the following November the woman grew better, after having been partly in bed for several months. In December, 1883, she saw Dr. Gray, of Utica, who also pronounced unfavorably, and relieved an increasing diarrhea. From May, 1881, to May, 1884, the woman menstruated only twice; thereafter irregularly until 1887; since then she has been fairly regular. Her weight was about 135 pounds; the skin was leaky; the lip and voice tremulous; Von Graefe's sign was present in both eyes; the pupils were normal; the corneal vessels were much injected; the woman flushed readily—a rather unusual feature; she was rarely pale; the heart was tumultuous; there was no valvular defect; the pulse intermitted one beat in three or seven; the thyroid enlargement was symmetric; there was well-marked thrill; a loud bruit could be heard in the right neck; there was subjective buzzing in the back of the head, and frequently a throbbing in the back.

The patient was placed upon systematic treatment

with regulated living, digitalis, belladonna, tonics—iron, etc.—and attention to the skin, and for periods of from three to six weeks, two or three times applications of galvanism were made to the thyroid and the heart. The urine was found loaded with uric acid, and simple measures directed to this difficulty always produced marked relief. My report of 1888 goes on to say that the improvement was very marked at that time. The eyes had been examined by Dr. de Schweinitz, who found a slight hypermetropic astigmatism, but no lesion of the fundus.

The subsequent history of this case, which is still under my observation, is, I think, interesting, and consists briefly in a pursuance more or less regularly, of the various measures already described, including galvanism two or three times a year, for periods of from a month to six weeks, and until the last year or two. Instead of the belladonna, I found that hyoscin hydrobromate was a much more useful remedy, and as the strength grew I systematized the use of exercise, both for the eyes, the mind, and the body, and the improvement has been uniform and more rapid of late, and now this lady declares herself to be perfectly well, and nearly as strong as most people. The intermittent action of the heart has almost entirely ceased, although the organ is still irritable. I recently listened to her heart, and there was a beat or two omitted in about 250 or 300 beats. Slight exertion did not seem to increase this, although starting her heart into a more rapid activity than perhaps a normal heart would show. This lady can walk up and down hill for five or six miles without distress—indeed, with comfort. She lives an ordinarily useful life of a single woman of comfortable means. The exophthalmos has entirely disappeared. There is still an excessive injection of the corneal vessels, and the skin has almost regained its tone. A very recent letter describes her condition to be that of a perfectly well and thoroughly happy woman.

CASE VI.—A girl of twenty-four, with a decidedly neurotic family history, and whose mother was queer, presented well-marked Graves' disease. The cause seemed to me to be an attack of dysentery three

years previously. This was followed by alarming heart-symptoms, vertigo in sitting or walking, profound weakness, dyspnea, extreme nervousness, poor sleep, sweating skin. There was also much intolerable itching, roaring noises in the head, and edema of the legs. In March, 1886, the thyroid enlargement was observed; in May the exophthalmos; then developed the full picture of injected sclerotic, puffed lids, bloated face, livid, greasy skin; thyroid enlargement in three directions, mostly on the right. The heart-sounds were clear, with a heaving impulse, and a systolic murmur. The pulse was regular but frequent; the bowels were loose; the voice was tremulous. The eyes, carefully refracted by Dr. Hansell, showed some accommodative defects, but no lesion of the fundus. The urine was albuminous. The patient had pronounced delusions. No improvement has taken place up to date.

This young woman would submit to no regular treatment. She was practically insane when seen, and grew exceedingly religious, and tried to become a nun, but the Sisters rejected her. She fell into a condition that I should judge was one of religious melancholia, although I saw little of the case, except from time to time, learning of it chiefly through her sister. The girl is now in an insane asylum.

CASE VII.—A girl of sixteen, and a sister of Case VI, presented thyroid enlargement, with a very irregular heart, no exophthalmos, a leaky skin, chilly extremities, roaring in the ears. The heart-sounds were quick and feeble; a muffled bruit was heard over the right clavicle and through the thyroid, also a marked thrill. The carotids pulsated visibly. The girl's appearance was pale and cadaverous.

This girl was treated as well as the circumstances would allow, her necessities requiring that she should labor daily for her maintenance. She refused to submit to much treatment, which she pursued irregularly, with steady improvement however. I learn that she is now pretty well. The greatest relief was had from hyoscin hydrobromate, which controlled the nervousness and vascular irregularities.

CASE VIII.—Mrs. S., aged forty-six, presented

marked exophthalmos, with pronounced thyroid enlargement, and Von Graefe's sign distinctly. Her trouble began five years previously, after a financial shock and an attack of typhoid fever. The latter was followed by an abscess of the abdomen, and this was opened in two places.

The woman was mentally depressed, had diarrhea, roaring in the ears, irregular menstruation, which soon after the beginning of her trouble ceased altogether. She was strongly built; her skin was muddy and dusky; the left eye was exceedingly prominent, the right less so; Von Græfe's sign was present in both eyes; the carotids throbbed; the heart-sounds were clear, and a distinct slight bruit could be heard; the pulse was irregular and frequent. After eight or nine months of treatment, consisting in the administration of digitalis and iron, and large doses of belladonna, the woman was greatly improved. She is still under my observation. I used so much of systematized measures as her circumstances will allow, but this was not much. The vascular disturbances are best controlled by hyoscin hydrobromate, strychnin and other tonics being occasionally used. The chief feature in her case is mental depression, slight melancholia readily setting in after any unfavorable news or distressing circumstances, to which, unfortunately, she is frequently subjected. There was, in addition to the trouble described, a considerable catarrhal disorder of the upper air-passages, which received careful treatment. I have seen this patient within a few days, after her return from a trip to Florida, undertaken for her health, and she now seems in all respects a perfectly vigorous, active woman.

CASE IX.—Mrs. J. S., thirty nine years old; married sixteen years, with no children; a good family history, and of stationary weight; had had headaches of varying intensity all of her life; she has had no serious illness. Menstruation was regular. She suffered with flatulent dyspepsia and irregular bowels, with loose, frequent, slimy stools. Sleep was only fair, being disturbed by bad dreams. The headaches, which had persisted since childhood, were usually relieved by sleeping, and in the morning were localized to the back of the head. This pain was greatly in-

creased on leaning forward, and if this attitude were persisted in, vomiting would often result. The eyes were never comfortable. The woman could not sew or read at night without greatly increased pain. There was also slight lateral nystagmus. The skin was characteristically flabby; frequent flushes were felt; the countenance was anxious; the tongue tremulous and marked by the teeth; there was a vibratile tremor of the voice; the neck was markedly enlarged on the left side; the heart-sounds were feeble and a musical bruit could be heard. The pulse was from 140 to 150 in the sitting posture; its action was irregular. There was great dyspnea on exertion or excitement.

The treatment consisted in the administration of hyoscin hydrobromate, in small dose, every two or three hours, till the skin became drier. Galvanism was applied to the neck, the mode of living regulated, and more rest enjoined. In a week the headache was less than for many years; in two weeks it was entirely gone. Iron was then given with strychnin. In two months the woman was able to resume her labors, and in six months she was scarcely recognizable.

CASE X.—Mrs. S., twenty-four years; married one year, with no children; as an infant was rather weakly. She had scarlatina at ten years of age, and thereafter had a slight swelling of the neck. Her general health then remained good, and at the age of seventeen she weighed one hundred and twenty-eight pounds, and was so circumstanced as to be compelled to do a large amount of hard work on a farm. This necessitated general and prolonged physical exertion, competent observers estimating it as the work ample for three individuals. This was kept up for two years and the woman then began to run steadily down. To the influence of this excessive labor I think may safely be ascribed the development of the malady. For four years this excessive work was kept up and soon afterward she was married. In December, 1889, she had a sharp attack of influenza, with cerebral and laryngeal symptoms. Subsequently marked dyspnea appeared and persisted. Headaches had been a life-long trouble, but six months before coming under ob-

ervation she had been properly refracted. The headaches thereafter almost, but not entirely, disappeared. Menstruation was usually regular.

The woman was tall and spare. There was very slight prominence of the eyeball. The skin had a characteristic pasty, leaky look; the hands and feet sweat readily. The heart was rather irregular in action, and a loud systolic murmur was audible over the aorta and the right clavicle; the pulse was 100 and more in the sitting posture. The tongue was clean; the appetite was capricious. Both lobes of the thyroid gland were enlarged.

Galvanic electricity was employed for a fortnight only. Then hyoscin hydrobromate, $\frac{1}{400}$ gr., was given thrice daily. Rest in bed was enjoined, together with a careful diet. Rapid improvement followed.

At the present writing the woman is in the fifth month of pregnancy, and quite stout and vigorous. The pulse is 85 in the sitting posture. The thyroid enlargement is probably greater than before. Therapeutically, the patient is taking a dry extract of thyroid gland.

CASE XI.—Mrs. N. K. S., thirty-three years old. Her parents are living; her mother suffers with rheumatism, and presents chalky deposits. The family history is otherwise good. The patient is the first child; the labor was normal; she was carefully fed; she had whooping-cough and chicken-pox in infancy, and measles, diphtheria, and pneumonia later. An attack of pink-eye three years ago seems to have injured her myopic eyes. The patient was never robust, convalescing slowly from illnesses. She was always nervous. Two years ago she had a mild attack of chorea. As a schoolgirl she was excitable and easily worried. She menstruated at fifteen, and quite regularly until a year ago; the flow is now rather scanty; six years ago there was amenorrhœa, probably from anemia, with swelling of the lymphatic glands on the posterior aspect of the neck. The woman took up teaching seven years ago, and kept it up for five and a half years. Two years ago she had a sharp attack of influenza, which left her in a very nervous condition. She continued teaching, however, for six

months, and then was married, about eighteen months ago. She seemed very well then until the spring of 1892, when nervousness set in again, partly as a result of the strain in nursing her ill mother. This caused evil dreams at night, and fear of thunderstorms, etc.; she has been getting gradually more nervous and hysterical; she has never been pregnant.

The patient is a rather small, dark-complexioned woman, the hair streaked with gray, the expression anxious, the eyes prominent, and the pupils responding well to light and in accommodation. She is highly myopic; vision O. D. = 20/cc; O. S. = 20/c. The ophthalmoscopic appearances are not unusual; there is a slight posterior staphyloma. The chest is shallow, the respiratory sounds feeble, the heart irritable. A rapid clanging is audible, but no murmur. A venous hum is heard in the neck, and propagated down the sternum. The thyroid not very large but pulsates visibly; it presents no thrill. The pulse is 100; the skin is very leaky, especially upon the hands, and this condition is aggravated by excitement. The station is good; the gait is irregular. The knee-jerks are exaggerated; there is no clonus. The voice exhibits the characteristic vibratile quality. The treatment consisted in rest in bed; massage; hyoscin hydrobromate, gr. $\frac{1}{100}$, four times daily, and increased as needed.

Two weeks later the headache had almost entirely disappeared; the nausea was much more tranquil; the digestion was good; and she was sleeping quietly. She was then taking $\frac{1}{200}$ hyoscin hydrobromate t. i. d. In the third week the hyoscin was withheld, and a tonic given in the form of elixir of iron, quinin, and strychnin. In the fourth week the woman regarded herself as well; her temperature was normal; she began gradually to sit up. She remained at the hospital forty-three days, and was discharged as cured. She had greatly increased in weight, vigor, and equipoise. The temperature followed the characteristic curve. At the present writing the patient continues well.

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