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STRUMA EXOPHTHALMICA

(VASCULAR BRONCHOCELE AND EXOPHTHALMOS).

By PROFESSOR VIRCHOW.

TRANSLATED, WITH NOTES AND OBSERVATIONS,

By J. WARBURTON BEGBIE, M.D.

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STRUMA EXOPHTHALMICA.¹

[IN a recently published part of the important work of Virchow on "Tumours" (*Die Krankhaften Geschwulste*),² there occur some statements and reflections in regard to a peculiar form of disease which, both in this country and on the Continent, has of late years attracted very considerable attention. The opinion, as to the nature of so complex a disorder as "Vascular Bronchocele and Exophthalmos," entertained by the eminent professor of Berlin cannot fail to prove of interest to the members of the profession in general. I have therefore thought it worth while to offer a translation of the author's observations, and to this have added some remarks suggested by their perusal. The latter, for the sake of clearness, and in order to avoid all risk of confusing the reader, are thrown entirely by themselves at the close of the translation. The foot-notes and references are those of the author unless otherwise distinguished.]

Finally, that is an exceedingly remarkable connexion of goitre with affection of the heart (*Herzreizung*, literally heart irritation), and large staring eyes (*Glotzaugen*). So far as is yet known, Flajani³ was the first to notice the coincidence of goitre with lasting palpitation of the heart. He mentions three cases of this nature, all of which occurred in men, two of the three being youths. In all of these cases, chiefly by means of external treatment of the bronchocele, a cure was obtained. Of the condition of the eyes he says nothing, but visible enlargement and varicosity of the veins over the thyroid gland were noticed. Parry⁴ appears to have been the earliest to observe the third symptom—prominence of the eyes. Next to him, I find two descriptions with post-mortem examinations of accurately investigated cases by Adelman,⁵ in which considerable goitres appeared with enlargement of the heart. During life there existed continued violent palpitation in the region of the

¹ The word "Struma," as used by Virchow in the text, and employed by various German writers, means simply Bronchocele or Goitre—the enlargement of the thyroid gland from whatever cause—and has no relation to that morbid condition or cachexia known as the strumous, or Scrofula.—(*Translator*.)

² *Zweiundzwanzigste Vorlesung*, iii. band, i. halfte, s. 73.

³ Guiseppe Flajani, *Collezione d'osservazioni e riflessioni di Chirurgia*, Roma, 1802, t. iii. p. 270.

⁴ Caleb Hillier Parry, *Collections from the unpublished Medical Writings*, London, 1825, vol. ii. p. 3, quoted by Stokes. "*Die Krankheiten des Herzens u der Aorta.*" Uebers, Von Lindwurm, Würzb. 1855, s. 232.

⁵ Adelman, *Jahrbücher der philosophisch. medicinischen Gesellschaft zu Würzburg*, 1828, bd. i. ii., s. 104–108.

heart, great dyspnœa, pain in the abdomen; and in one of the cases it is mentioned that, in addition to these symptoms, "the staring look of the large eyes caused a very remarkable aspect." These facts, notwithstanding, remained nearly unknown till the new experience of Pauli,¹ Von Basedow,² and Graves,³ was published. Although the first communication of Graves appeared in 1835,⁴ that of Von Basedow has, notwithstanding, the advantage; the history of the disease having been, in the first place, completely given by him, and, through his knowledge, much information regarding it supplied. By Von Basedow was originated the designations of exophthalmos, of the staring eye (Glotzauges) as the most striking feature, and of the cachexia exophthalmica, large staring eye cachexia (Glotzaugenkachexie), which has more recently become so universally known; and it is from this circumstance that, according to the proposal of G. Hirsch,⁵ it has been customary to style the whole assemblage of complex symptoms "Morbus Basedowii." Trousseau,⁶ on the other hand, maintains that the disease should be termed "Graves' disease." I hold that this is not correct; for Graves regarded both the palpitation of the heart and the goitre as essentially symptoms of hysteria, while the condition of the eyes is only incidentally mentioned by him; moreover, he is not the first who observed the complex symptoms. By recent writers, prominence has been assigned at one time to one, at another time to another of three principal symptoms; and, according to it, the choice of a designation for the disease has been made. Of late, the name "Struma exophthalmica" (goitre exophthalmique) has become very generally disseminated; but Lebert,⁷ having reference to the affection of the heart, suggests for the disease the appellation of "Tachycardia Strumosa."⁸

The condition of the Thyroid gland is, during life, subject to variety. As a general rule, the swelling is not so great as that of the ordinary goitre, still a very marked enlargement is discovered. The most conspicuous feature of the swelling is an increased development of the vessels, with which, not unfrequently, a diastolic beat and "souffle" (ein diastoliches Klopfen und Rauschen) are perceived, so as to be directly styled "Struma aneurysmatica,"⁹ or

¹ Pauli, Heidelberger Medic. Annalen, 1837, s. 218.

² Von Basedow, Casper's Wochenschrift, 1840, No. 13, s. 198.

³ Robert James Graves, Klinische Beobachtungen, Deutsch von Bressler, Leipz., 1843, s. 409.

⁴ Stokes, a. a. O. S. 234.

⁵ G. Hirsch, Klinische Fragmente, Königsberg, 1858, heft ii. s. 224.

⁶ Trousseau, Gazette Hebdomadaire de Médecine, 1862, No. 30, p. 472.

⁷ Lebert, Die Krankheiten der Schilddrüse, s. 307.

⁸ "Tachycardia" (Ταχυς, quick, Καρδιά, the heart), in reference to the rapid and excited action of the organ. The exact term suggested by Lebert is "tachycardia exophthalmica strumosa." See his "Grundzüge der Artzlichen Praxis," 1867, s. 230.—(Translator.)

⁹ Henoch, Casper's Wochenschrift, 1848, No. 40, s. 629. Romberg und Henoch, Klinische Wahrnehmungen und Beobachtungen, Berlin, 1851, s. 191. (Of this interesting paper, an abridged rendering by the translator will be

"Bronchocele vasculosa."¹ Sudden appearance of swelling, and its rapid subsidence, have been associated. The results of anatomical inquiries are not agreed upon.²

In the only case investigated by me, and of which Traube and Von Recklinghausen have given an account, the gland moderately increased in size, exhibited simply excessive plastic without any gelatinous, nodular, or cystic formation. The lobes of the thyroid reached very distinctly forwards, the interstitial structure was abundant, and the veins only were generally enlarged. Very similar was its condition in the case given by Reith, also in one by Trousseau, which Peter has described, except that, in the last, there is no mention made of the enlargement of the veins. Smith found a very considerable augmentation, especially of the right lobe of the gland, while the arteries were much enlarged and strangely tortuous. Markham remarked the gland as being large and firm, at the same time (in a woman of 26 years of age) he found an enlarged and persistent thymus gland. In an instance recorded by Hirsch, the thyroid gland was big, hard, and externally covered by enlarged vessels. Heusinger describes the thyroid as double the natural size and uniformly hypertrophied, but without the presence of any abnormal formation. Very similar was its condition, according to the observation of James Begbie. In the case of Schleich, related by Laqueur, Runge found a large gelatinous goitre. Naumann describes the thyroid as very large, its structure uniformly red, and presenting hæmorrhagic spots, the arteries greatly developed. Von Basedow discovered the gland enormously enlarged with hydatid and varicose degenerations, and Marsh (Sir Henry) saw the thyroid irregularly lobed, containing cysts, which were occupied by a clear fluid, and the jugular veins very greatly distended. Analagous to this was the case recorded by Banks. Lastly, Präel found a ponderous goitre which stretched downwards into the cavity of the chest, its right lobe embracing

found in the "Edinburgh Medical and Surgical Journal," April, 1854.) Bullar, *Medico-Chirurgical Transactions*, 1861, vol. xlv. p. 37.

¹ Laycock, *Edinburgh Medical Journal*, 1863, p. 1. J. Warburton Begbie, ditto, September 1863, p. 211.

² Marsh, *Dublin Journal of Medical Science*, 1842, vol. xx. p. 471. Von Basedow, *Casper's Wochenschrift*, 1848, No. 49, s. 775. Heusinger (in Braunschweig), *Casper's Wochenschrift*, 1851, No. 4, s. 53. Naumann, *Deutsche Klinik*, 1853, No. 24. s. 269. Smith, *bei Stokes, a. a. O.*, s. 239. Banks, *Dublin Hospital Gazette*, 1855 (quoted by W. Moore, *Dublin Quarterly Journal*, 1865, November, p. 347). James Begbie, *Edinburgh Medical and Surgical Journal*, 1855. Case-book, p. 33. F. Präel, sen., *Archiv f. Ophthalmologie*, 1857, bd. iii. 2, s. 199. Markham, *Transactions of the Pathological Society of London*, 1858, vol. ix. p. 163. Hirsch, *a. a. O.*, s. 224. L. Laqueur, *De Morbo Basedowii nonnulla, adjecta singulari observatione, Dissertatio inauguralis*, Berol., 1860, p. 12. Traube und Von Recklinghausen, *Deutsche Klinik*, 1863, No. 29, s. 286. Trousseau et Peter, *Gaz. Hebdom.*, 1864, No. 12, p. 181. Archibald Reith, *Medical Times and Gazette*, November 1865, p. 521.

the trachea, and having passed into a state of cartilaginous degeneration.¹

It appears from the foregoing comparison of observations, that it is not a determinate variety of goitre, or a fixed enlargement of the same, or definite course, which settles the appearances. Indeed, in many cases the alteration of tissue is so trifling, that we may ask, as Graves did, whether it is in reality a bronchocele, or merely a swelling (intumescencia) of the gland which exists. From this consideration, there arises a direct refutation of the opinion entertained by some, that the cause of the exophthalmos is the pressure of the thyroïdal tumour on the vessels of the neck.² Further, it shows, that at first a simple swelling of the gland exists from which a true bronchocele is formed, and that the goitre runs its usual course from a very moderate, chiefly plastic formation, or advances to a fibrous induration of nodular form. The same series of changes, however, occurs with sufficient frequency in the ordinary goitre, without the appearance of the other symptoms, and accordingly the alteration of the thyroid gland is to be regarded as a secondary phenomenon. That the persistent enlargement of the vessels, and especially of the veins, plays a decided part, may already be conjectured from clinical details. It seems to depend less upon the condition of the arteries; at least in all cases in which these were remarkably changed, there existed also considerable disease in other parts of the vascular system.

In nearly all the cases the Heart is greatly enlarged, for the most part dilated, even where the valves are healthy; the left ventricle being chiefly affected. The aorta and great vessels were, in most instances, but by no means in all, atheromatous. Clinical investigation demonstrates that the hypertrophy of the heart belongs to an advanced stage of the disease; accelerated motion (100 beats and upwards in the minute) is the ordinary phenomenon.

The earliest entertained notion in regard to the Eyes was that a hydrophthalmos existed; this is now on all sides abandoned. Naumann alone has found a trifling enlargement of the eyeball. The essential change lies in the fatty tissue of the orbit, which is sometimes hypertrophied, but is for the most part expanded by a hyperæmic swelling, capable of being overcome during life by pressure, and readily disappearing after death.³ Reith alone, besides greatly distended veins, found a small quantity of partially coagulated

¹ Besides the names already mentioned in the text, that of "Cardiagnus strumosus" (Καρδιωγμός, a Hippocratic term, synonymous with Cardialgia) has been applied to this disease by Hirsch.—(*Translator*.)

² Piorry, *Gazette Hebdomadaire*, 1862, No. 30, p. 477. A. Cros, *Gazette Hebdom.*, No. 35, p. 548. Nunneley, *Medico-Chirurgical Transactions*, vol. xlviii. p. 32.

³ Dechambre (*Gazette Hebdomadaire*, 1862, p. 482) quotes an interesting parallel observation by Decès (*Thèse inaugurale sur l'Aneurysme cirsoïde*, 1857), where a transitory exophthalmos appeared in a woman who suffered from alternating arterial dilatations in different parts of the body.

blood effused over the eyeball.¹ If to this be added a fatty degeneration of the muscles of the eye, as Von Recklinghausen detected, we are enabled to understand how so considerable a prominence of the eyeballs occurs, that in fact the eyelids can no longer be closed,² and that in the uncovered portion of the eye inflammation may be induced, which, in turn, may lead to a complete destruction of the cornea and wasting of the eyeball.³ As a rule, the prominence of the eyes is on both sides and also symmetrical; still it does happen that the protrusion is either earliest seen, or, at all events, is more marked in one eye than the other.⁴

For the present it must be left undecided, whether the majority of observers have found Enlargement of the Spleen to be an essential or merely an accidental result. At all events, we cannot on *à priori* grounds lightly estimate the disturbance of the digestive function, more particularly the vomiting and tendency to diarrhoea, which are often observed. There always remain the three intimate symptoms or triad: affection of the Heart, the Thyroid gland and Eyes (Orbital-polsters, orbit cushions), as the regular, although, in relation to each other, not constant phenomena, and it may be asked what the explanation of this combination is. That the lesion of the thyroid gland is not to be considered as the centre or mainspring of this complex disorder, I have already made apparent. Individual observers indicate that the bronchocele may be altogether absent.⁵ Still less can we regard the affection of the fatty tissue in the orbit as of principal importance, particularly as the protrusion of the eyes is sometimes wanting, or else it only becomes apparent at a later stage.⁶ Neither can it be held that the hypertrophy of the heart is itself to be looked upon as the point of departure. On the one hand, hypertrophy is not always present; and on the other, considerable hypertrophy of the heart often exists without the staring eyes and without the goitre. The anatomical changes of all these elements cannot then be regarded as diagnostic.

We come therefore to the question of the functional disturbances. Here I must specially call attention to the fact, that there exists a peculiar combination of affections of the thyroid gland and heart. This combination, which was formerly mentioned (vol. i. p. 114), is the so-called Iodism, or the goitre cachexia (Kropfcachexie). Here we observe, with the disappearance of the goitre as the consequence of a slight iodism, a most remarkable acceleration of the pulse, not

¹ A. Reith, l. c., p. 521.

² Graves, a. a. O., s. 411. Stokes, a. a. O., s. 231.

³ Casper's Wochenschrift, 1840, No. 14, s. 221. Von Gräfe, Archiv f. Ophthalmologie, 1857, bd. iii. 2, s. 282. Teissier, Gazette Méd. de Lyon, 1863, No. 1, 2.

⁴ Von Basedow, a. a. O., 1848, No. 49, s. 772. Henoch und Romberg, Klinische Wahrnehmungen, s. 182. Reith, l. c., p. 521. Präel, a. a. O., s. 206, 207.

⁵ Präel, a. a. O., s. 209.

⁶ Henoch und Romberg, Klinische Wahrnehmungen, s. 179, 180.

unfrequently the production of annoying palpitation. Only the exophthalmos is wanting; instead of it there is another prominent symptom rarely present in the "struma exophthalmica,"¹ to wit, the association of rapid and great emaciation with voracious appetite [mit Bulimie].² The point now mentioned, at all times worthy of notice, is so much the more so, from the circumstance that in a case of Oliffe's,³ the moderate exhibition of iodine in "struma exophthalmica" produced the worst effects. Trousseau⁴ himself has made similar observations, and on this account has not hesitated, in the discussion on iodism in the French Academy of Medicine, to regard as cases of "struma exophthalmica" instances which, by Rilliet, had been described under the name of iodism. Rilliet⁵ has, on the contrary, in the most decided manner claimed as examples of iodism recorded cases which had been described under the name of "struma exophthalmica." Extended observations are required in order to clear up this dispute. Neither bronchocele nor iodine produce the phenomena of the "cachexia exophthalmica," or of the "cachexia iodica;" in both cases there must, in addition, be the presence of something peculiar. In reference to this, we must go back to an original predisposition; and I may mention that Bednar⁶ has repeatedly found in newly born children the co-existence of an enlargement of the thyroid gland and hypertrophy of the heart. Yet these facts, supposing them to possess a general importance, which is unlikely, do not exclude from the inquiry the existence of a further cause.

In the acceptance of the humoral pathology, it is concluded that there is always a blood derangement when several organs are together affected, without there appearing to be a simple dependence of the disease on one or other of these. Von Basedow⁷ has forthwith extended this view to the establishment of an independent dyscrasia, which he has expressed as a hidden scrofula. At a later period, he has pointed out this dyscrasia as being similar to the chlorotic.⁸ This opinion has been subsequently embraced by many other observers,⁹ and Anæmia has become the theoretical foundation of the complex symptoms, while Mackenzie has gone so far as to indicate the condition of the eyes as being neither more nor less than "exophthalmia anæmica." In favour of this view, there is not merely the frequent occurrence of pulsations, palpitations, and

¹ Trousseau, *Union Méd.*, 1860, tome 8, p. 437-456.

² Emaciation and bulimia do sometimes co-exist in cases of "struma exophthalmica."—(*Translator.*)

³ Trousseau, *Union Méd.*, 1860, tome 8, p. 513.

⁴ Trousseau, *Gazette Hebdom.*, 1860, Avril, p. 219-267.

⁵ Rilliet, *Mémoire sur l'Iodisme constitutionnel*, Paris, 1860, p. 83.

⁶ Bednar, *a. a. O.*, s. 79.

⁷ Von Basedow, *a. a. O.* 1840, s. 225.

⁸ Von Basedow, in the same place, 1848, s. 772.

⁹ L. Gros, *Gaz. Méd.*, 1857, p. 232. Hervieux, *Union Méd.*, 1857, No. 117, p. 477. Beau, *Gaz. Hebdom.*, 1862, No. 34, p. 539. Fischer, *Arch. Génér.*, 1859, Dec., p. 671. Begbie, *Edin. Med. Jour.*, 1863, Sept., p. 201. Präel, *a. a. O.*, s. 210.

murmurs in the vascular system, as in chlorotic patients,—not merely the circumstance that the majority of cases of staring eyes with goitre (Glotzaugen-Kropf) are observed in women,¹ and that on several occasions pregnancy and child-bearing have exerted a remarkably favourable influence on the removal of the malady,² but also very specially the experience which we possess in relation to the satisfactory operation of an invigorating treatment.

It is, however, undoubted that the Anæmia, granting its existence, cannot directly produce such an effect. At the very least, we must assume that, through the disordered blood, an injurious influence on the nerves takes place. In returning, however, to the nerves, the question arises, whether anæmia is required in order to produce such a condition of the nervous system. Different observers³ have been content to look upon it as a feeble state of the nervous system (einen Schwächezustand des Nervensystems). Graves and Brück⁴ considered it hysterical. Stokes⁵ limited himself to pointing out that the essence of the disease consisted in a functional disturbance of the heart, upon which organic change is apt to follow. More recently a further advance has been made, and attention has been directed to the nerves of the heart, and especially to the Sympathetic,⁶ with perhaps also participation of the spinal cord.⁷ Köben, the first to offer this conjecture, supposed that the sympathetic was compressed and irritated by the bronchocele; since then the bronchocele has justly been regarded as pertaining to the Neurosis. In support of this view, some not unimportant facts in pathological anatomy have been advanced. Peter⁸ found the lowest cervical ganglion enlarged and greatly reddened, its interstitial tissue increased, the nerve fibres diminished. Somewhat similar is the account given by Moore⁹ of the inquiry conducted by Cruise and M'Donnel. Reith describes the middle and lower cervical ganglion on both sides, especially the left, as enlarged, hard, and firm; and, when viewed under the microscope, filled with a granular material resembling a lymph gland in the first stage of tuberculosis. The trunk of the sympathetic itself, as well as its branches proceeding to the "arteria thyroidea inferior" and "arteria vertebralis," were enlarged. He held these changes to be tubercular. Directly op-

¹ Trousseau, *Union Médicale*, 1860, t. viii. s. 437. Charcot, *Gaz. Med.*, 1856, Sept., p. 584. *Gaz. Hebdom.*, 1862, Sept., p. 564. Corlieu, *Gaz. des Hôpitaux*, 1863, p. 125.

² Von Basedow (*Casper's Wochenschrift*, 1848, s. 774) mentions the following remarkable facts—that the mammae of a man were found greatly enlarged, the left being hard, congested, and painful, yielding colostrum.

³ Handfield Jones, *Med. Times and Gazette*, Dec. 1860, p. 541. Fletcher, *British Med. Journal*, 1863, May. (Hyperneurie.)

⁴ Graves, a. a. O., s. 410. A. Th. Brück, *Casper's Wochenschrift*, 1840, No. 28 (Buphthalmus hystericus), 1848, No. 18, p. 275. ⁵ Stokes, a. a. O., s. 244.

⁶ Köben, *De Exophthalmo ac Struma cum Cordis affectione*; Diss. inaug., Berol., 1855. Von Gräfe, a. a. O., s. 280. Trousseau, *Union Méd.*, 1860, t. viii. p. 487. Arau, *Gaz. Hebdom.*, No. 49, p. 796. Reith, l. c., p. 522.

⁷ Laycock, *Edin. Med. Jour.*, 1863, Feb., p. 681; July, p. 1.

⁸ Peter, l. c. p. 182. ⁹ Moore, *Dublin Quar. Jour.*, 1865, Nov., p. 348.

posed is the observation of Von Recklinghausen, in so far as the cord and ganglia of the sympathetic were small, as if atrophied, but without histological changes. All now stated was undoubtedly insufficient to explain the real nature of this interesting affection, especially as the appearances of the "struma exophthalmica"—if we appeal to the familiar physiological experiments of Cl. Bernard—correspond in part to the paralysis, in part merely to the irritation of the sympathetic; while, again, there appears to be no true connexion, as some of these constant phenomena in the pupil have not been noticed.¹ Only in isolated cases has enlargement of the pupil been observed. Stromeyer² compares the "exophthalmia strumosa" with the temporary incomplete prominence of the globe, which he had noticed in connexion with habitual spasm of the head (*Krampfe des Kopfnickers*). When this cramp occurs either from maintaining the erect posture, or from mental emotion, he seeks the foundation of the staring eyes in spasm of the oblique muscles of the eye, and the levator muscles of the eyelids. Demme³ has also frequently observed with the ordinary goitre partial changes in the pupils, especially "Mydriasis," and a notable elevation of the upper lids. He gives as an anatomical condition at the same time (besides serous swelling and interstitial connective tissue in the recurrent nerve) marked reddening and serous swelling of the sympathetic. These statements, however, suffice just as little as the older descriptions of different changes in the vagus connected with the goitrous condition. Certainly the direction of the inquiry turns, even as in the question of the connexion between disease of the supra-renal capsules, bronze-skin,⁴ and other cases, more and more to the nerves themselves; while there still exists too little material for enabling us to arrive at a decision.⁵ After all, the question resolves itself not so much into an examination of the cases in their later stages, which can be cleared up by autopsies, but into an investigation of the earliest determining cause.

At least, there can no longer be any hesitation in acknowledging the intimate nervous dependence of the complex symptoms as the

¹ Hensch und Romberg, *Klin. Wahrnehmungen*, s. 182. Reith, l. c., p. 251.

² Stromeyer, *Handbuch der Chirurgie*, ii. 2, s. 389.

³ H. Demme, *Würzb. Med. Zeitschrift*, bd. iii., s. 269, 273, 297.

⁴ *Bronzing of the skin* occurs in connexion with "struma exophthalmica." It exists in a marked degree on the face of a patient (a man) of Dr Begbie's presently under observation.—(*Translator*.)

⁵ Only very recently there died, in my division, a man who had long suffered from very violent palpitation of the heart, with great dyspnoea. His eyes, without being precisely exophthalmic, had an unusual glare (*glanz*), and gave the impression of being increased in size. A few months previously, Herr Von Gräfe, on account of a commencing glaucoma, had performed iridectomy. Near the close he was affected by dropsy, with very diminished secretion of urine, which was albuminous and rich in uric acid; also with obstinate and violent pain, associated with bloody diarrhoea, great restlessness and fever, with other symptoms. On post-mortem examination I found hypertrophy of the heart, with very extensive myocarditis, a goitre, and very considerable enlargement and interstitial thickening of the sympathetic in the neck, especially of the uppermost and lowest ganglion.

only probable view. With justice has reference been made to the existence of great derangement of the general nervous system, to the loss of sleep, the often noticed epigastric pulsation, the sensation of heat,¹ and, lastly, to a macular eruption occurring on the head after a slight mechanical irritation.² In what particular portion of the nervous system the original seat of the disturbance, and what the disturbance itself is, that must first be more accurately established; and the inquiry must be made also, whence, from what source (whether from the blood) the disturbance has been developed. At all events, it is a step in advance to become acquainted with these complex symptoms, and the jeers of M. Piorry are unable to deter us from acknowledging the entity of the disease.³ In the history of goitre, it forms an episode as remarkable as it is important; for although this variety of bronchocele seems of itself to have little importance, yet it constitutes a part of a grave malady, and one not unfrequently fatal, although, in other circumstances, readily curable.

As to the ætiology, there remains little more to be said. According to the observations hitherto advanced, it is by no means in goitre-districts of country that this variety has frequently occurred. Still more does the "*struma exophthalmica*" plainly constitute one of the most important species of sporadic goitre. Females in a greatly preponderating degree suffer,⁴ more so in the early period of life, especially about puberty, and in childbed. Uterine derangements act by no means always as exciting causes; and while serious diseases, such as typhus, and colds particularly affecting the throat, exert an influence, chlorosis is chiefly to blame. Since the latter disease, according to my understanding, is one of early life—is even a disease of development⁵—we are led to assume the existence of an original predisposition. Romberg and Juncken⁶ observed the disease in two sisters.⁷ We are still further removed from understanding the cause of the disease in men. Exhausting labour, great and long continued depression of the mind, and weakening diseases, have at times preceded it. According to the comparison instituted by Von Gräfe,⁸ the disease appears at a later period, on the

¹ Von Basedow, Casper's Wochenschrift, 1840, No. 13, s. 202; No. 14, s. 220. Teissier, Gaz. Méd. de Lyon, 1862, No. 29; 1863, Nos. 1, 2. Trousseau, Gaz. Méd., 1864, No. 12, p. 180. Warburton Begbie, Edin. Med. Jour., 1863, Sept., p. 216.

² Trousseau, Gaz. Méd., 1864, No. 12, p. 180.

³ Piorry, Gaz. Hebdom., 1862, p. 477.

⁴ It is not without interest that Rorie (Edin. Med. Jour., 1863, Feb., p. 696) frequently found prominence of the eyeballs in persons of weak intellect, and this particularly in women (35 per cent.); inequality of the pupils, also, he noticed not unfrequently. Foderé remarks, concerning Cretins:—"Aux uns les yeux sont enfoncés dans la tête, aux autres ils sont très en dehors. En général leur regard est fixe et égaré, et il y a toujours un air d'étonnement."

⁵ Virchow, Cellular pathologie (3d edition), s. 211.

⁶ Henoeh, Casper's Wochenschrift, 1848, No. 40, s. 627.

⁷ Dr Begbie informs me that, quite recently, he has observed the disease in two sisters, both married. In both the malady had assumed its unequivocal characters.—(Translator.)

⁸ Von Gräfe, a. a. O., s. 292.

average, in men, but, at the same time, is more serious. It is worthy of remark that, not unfrequently, the commencement of the malady has been noticed to be quite sudden, for example, after a fright or hard labour.

Death results with an increase of the appearances, sometimes very quickly, accompanied by great uneasiness and disturbance of the brain, mostly in a gradual manner, with decay of nutrition and strength, which is hastened by urgent diarrhœa, sometimes dysenteric in character, and mucous catarrh of the lungs. At another time, on the other hand, chiefly in recent cases, a complete cure results; the goitre, however, it is true, not always entirely disappearing. Sometimes the preparations of iron have effected this, sometimes digitalis,—it is seldom that iodine is useful. The best consequences have succeeded the employment of cold-water treatment, sea-bathing, and an invigorating diet.¹

Observations by Translator.—It is necessary, in the first place, to correct an error into which Virchow has fallen when offering the interesting historical summary regarding “Struma Exophthalmica,” with which his observations commence. Parry, he remarks, appears to have been the earliest to observe the prominence of the eyes. The fact is, however, that Parry noticed the enlargement of the thyroid gland in connexion with disease of the heart, but in the whole course of his statement regarding that connexion there is only a single, and that evidently casual, reference to the condition of the eyes. Unquestionably the earliest observer in our own country of the peculiar affection of the eyes, believed by him, at the time, to be a real enlargement, was Dr Stokes, and next in order to him was the late Sir Henry Marsh, of Dublin. Antecedent to 1835, the date of his first publication on the subject, Dr Graves had incidentally had his attention directed to the coincidence of cardiac disease and enlargement of the thyroid gland. In 1839, Dr Begbie had evidently, in a manner altogether independent, noted the association of the three peculiar symptoms. During the succeeding ten years other instances of the kind occurred to him in practice, and, in 1849, he published an account of them. In doing so, Dr Begbie was the earliest in this country to assert the entity of the disorder, to advance a theory of its cause, namely, its dependence on anæmia, to indicate its amenability to treatment, and capability of perfect cure, and, lastly, to suggest a plan of treatment, the success of which has, happily in many instances since

¹ I may take the opportunity of directing attention to a brief but very interesting account of the disease by a physician of Heidelberg, Dr Theodor Von Dusch, in his recently published volume, entitled “Lehrbuch der Herzkrankheiten,” Leipzig, 1868.

Dr Von Dusch's observations on the “Basedow'sche Krankheit” are illustrated by a woodcut representing an example of double exophthalmos, but without goitre, in a man of thirty-two years. The portrait, in the first instance, was photographed from nature.—(*Translator.*)

that time, been most satisfactorily proved. Five years subsequently to the incidental observation by Dr Graves, of enlargement of the thyroid gland with disease of the heart, a German physician, Von Basedow, published a paper, in which terms now sufficiently familiar in connexion with the disease, were for the first time employed. For example, "Exophthalmos," "Cachexia exophthalmica," and, in the German, "Glotzaugen" (staring eyes), "Glotzaugenkachexie" (staring-eye or goggle-eye cachexia). In these phrases it will be noticed that no particular reference is made to the condition of the thyroid gland, which, in connexion with heart enlargement, had already attracted the attention of Parry and others; but Von Basedow was familiar with the bronchocele as well, and accordingly, in consideration of the correctness of his observation so far, there can be no objection, as has been proposed by Hirsch, and followed by German physicians generally—although scarcely receiving the sanction of Virchow's high authority—to designate the disease "Basedow's disease" ("Basedow'sche Krankheit," "Morbus Basedowii"). The late distinguished and lamented physician of the "Hôtel Dieu," whose unbounded admiration for the character and writings of Dr Graves is as well known as it is highly appreciated by all readers of the "Clinical Lectures," has styled the disease, "Graves' disease" ("Maladie de Graves"), and whether rightly or wrongly so—Virchow, as we have seen, thinks wrongly—there can be no doubt that under this name, as originally employed by Trousseau, it will long be familiarly known and described. Were it not that I entirely agree with the late Dr Todd, of London, in regarding it as no compliment to the great names of our profession "to attach them to any of the numerous ills which flesh is heir to,"¹ I should feel disposed to suggest the appellation of "Stokes' disease." Such, too, is a sufficient reason for not encouraging the use of that name which my filial respect had otherwise most cordially approved, to wit, "Begbie's disease," as already proposed by more than one writer. There is little to be said in favour of the other nomenclature adverted to in the translation, the "Tachycardia strumosa," or "Tachycardia exophthalmica strumosa," of Lebert, and the "Cardiagnus strumosus" of Hirsch and Von Dusch; and it must be confessed that a really good and serviceable title for the disease is still a desideratum.

Like other observers, it is worthy of note, that Virchow indicates no special form of disease as incident to the thyroid gland in this complex disorder. The most marked or characteristic feature is its increased vascularity, and the peculiar pulsation, or pulsatory thrill, which is, at all events, distinguishable over it. Hence the application to this variety of goitre of the terms "vascular bronchocele" and "struma aneurysmatica." While increase of gland

¹ In referring to facial palsy as "Bell's paralysis," in Clinical Lectures on Diseases of the Nervous System, Lecture 4.

structure, and various kinds of degeneration, as, for example, the fibrous and cystic, have been detected in such goitres, there is no doubt whatever that the augmented activity and chronic enlargement of the vessels, particularly the veins in them, is of chief importance.

The central organ of the circulation invariably and, in point of time primarily, suffers. At first, however, and usually for a lengthened period, the heart is only functionally disturbed. Of this disturbance its greatly accelerated action is the prime, as it is the unmistakable indication. After a time, structural change ensues, and that is, for the most part, of the nature of dilatation, or hypertrophy with dilatation. The left ventricle is the chamber chiefly affected. Valvular disease of the heart is certainly rare; when it exists, the imperfection is secondary, never primary. In other words, the increased size of the mitral and tricuspid orifices, discovered on the post-mortem examination of some cases of the disease, bore an intimate relationship to the greatly augmented capacity of both ventricles. This, the earlier result, was evidently the cause on which the insufficiency of the auriculo-ventricular valves depended.¹

In the great majority of cases, a disturbed action of the heart, generally spoken of as palpitation, is the *first* symptom to attract attention. If, however, a very careful inquiry into the previous history of such patients be made, it will be found that for some time before the distressing action of the heart was noticed—possibly at a considerable period antecedent to the acknowledged existence of any departure from health—there had occurred a diarrhoea or lientery, a menorrhagia or leucorrhoea, an epistaxis, rather a frequently recurring loss of blood from the nose, or a hæmorrhage from piles; and although, in many cases, none of these may have been sufficient to produce the more manifest indications of anæmia, it will, I firmly believe, be further found that impoverishment of blood—readily enough recognisable—exists.

Virchow, like all recent observers of this disease, rejects the notion of the prominence of the eyes being due to “hydrophthalmos.” He looks upon a change in the fatty tissue of the orbit—a view originally maintained by Heusinger—as being the essential morbid condition upon which the very strange aspect of the eyes depends. An hypertrophy of the fatty tissue, or its congestion, are the states more particularly indicated. Enlargement of the spleen is referred to by Virchow as having been noticed by some observers, but he truly remarks that the degree of importance to be attached to its occurrence has not been as yet accurately determined.

There are then, it may be stated, *four* essential symptoms in this most interesting malady—namely, 1. Disturbance of the Heart’s action, prone to terminate in structural change; 2. Enlargement—vascular in its nature—of the Thyroid gland; 3. Prominence, with

¹ See, for example, the case of J. K., as recorded by Dr Begbie, in “Contributions to Practical Medicine,” pages 143, 148.

peculiar expression, of the Eyes ; and, 4. Remarkable visible pulsation and vibratory thrill throughout the whole Arterial system. Of this "tetrad" of symptoms, the first and fourth are always present ; the second and third may each be absent. Without cardiac and vascular derangement, the disease has no existence. An exquisite illustration of the malady, however, presumes the presence of all the features now mentioned.

In discussing the essential pathology of "struma exophthalmica," Virchow has justly observed that anæmia, granting its existence, cannot directly produce the results which are witnessed. While the "primum mobile" is, however, seated in the blood, it is abundantly evident that an injurious influence is largely exerted on the nerves. A decided advance in our knowledge on this point has recently been made, for Peter, Reith, and Von Recklinghausen have each discovered a distinct lesion of the sympathetic nerve and its ganglia, while Virchow himself so far confirms their interesting and probably important observations as to have found in a case not exactly of the "struma exophthalmica," but bearing a certain resemblance to it, a lesion of the same nervous trunk.

Further observations are, however, required in order to determine, with any amount of accuracy, what value is to be attached to these morbid appearances in relation to the intimate pathology of that strange disease with which they have been found connected.¹

It cannot be too distinctly stated, nor too carefully borne in remembrance, that, in this disease, *iodine* is an unsuitable remedy—its administration, so valuable in ordinary goitre, is in the "struma exophthalmica" not only useless, but injurious. From *iron*, *digitalis*, and *belladonna*² discriminately employed, and from the steady perseverance with an invigorating plan of treatment, the best effects have been found to follow.

¹ I have observed a decided feebleness in the lower extremities, almost amounting to paraplegia, in two or three aggravated cases of the disease. This also points to the implication of the nervous system. In two of these instances, the patients walked with considerable difficulty, and had acquired a peculiar rotatory movement in progression.

² On Vascular Bronchocele and Exophthalmos, by the translator; Edinburgh Medical Journal, 1863, page 217.

