

**Bulbar lesions in Graves' Disease : a contribution to the morbid anatomy of exophthalmic goitre / by Sir Thomas Grainger Stewart and G. A. Gibson.**

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**Publication/Creation**

Edinburgh : Young J. Pentland, 1894.

**Persistent URL**

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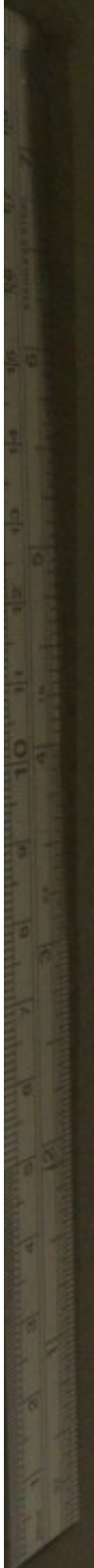
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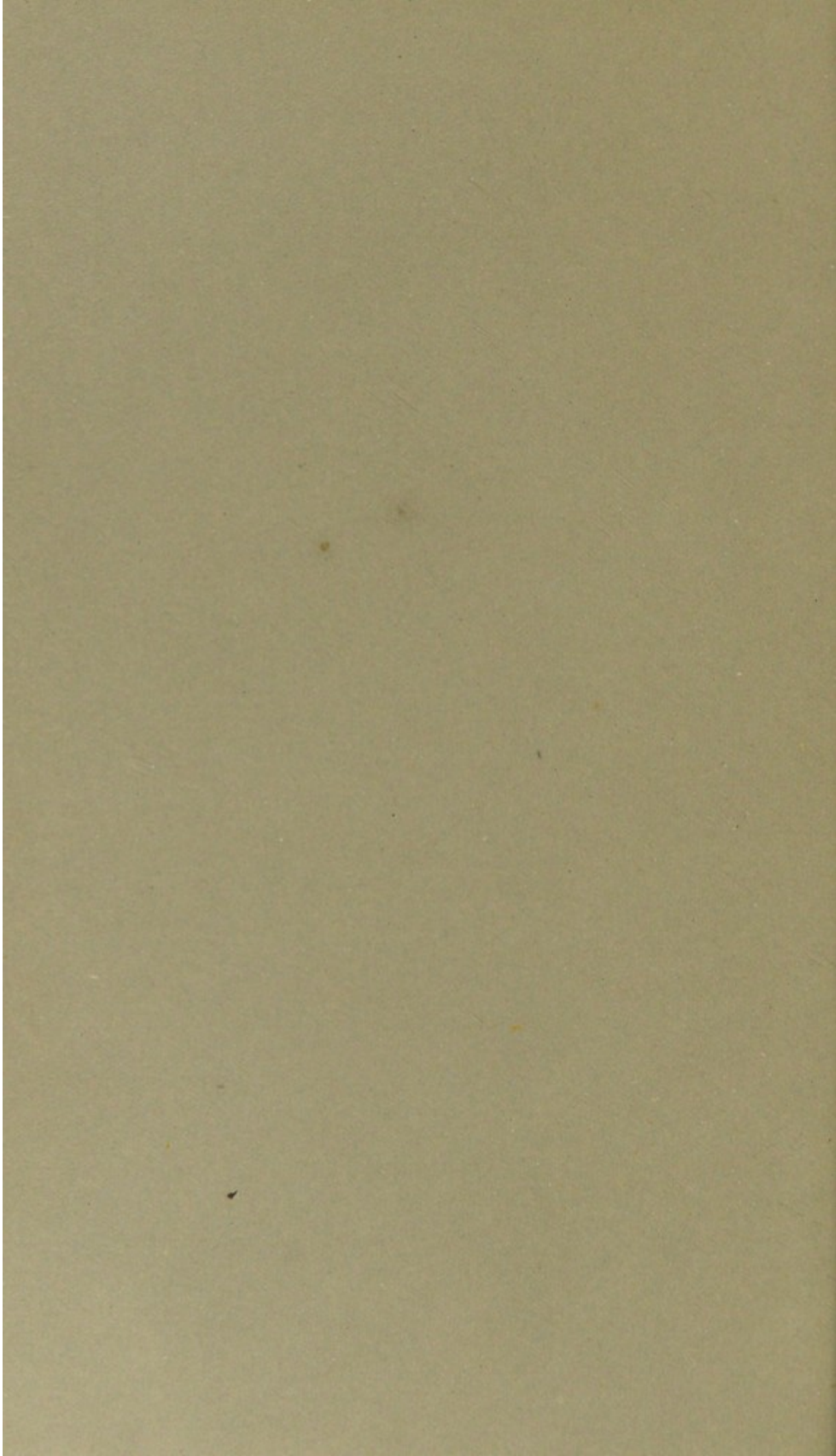
BULBAR LESIONS IN GRAVES' DISEASE: A  
CONTRIBUTION TO THE MORBID ANA-  
TOMY OF EXOPHTHALMIC GOITRE.

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*Reprinted from Volume Second of the Edinburgh Hospital Reports.  
Edinburgh and London, Young J. Pentland, 1894.*

R27765





Bulbar Lesions in Graves' Disease : A Contribution to  
the Morbid Anatomy of Exophthalmic Goitre.  
By Professor Sir Thomas Grainger Stewart, M.D.,  
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In the paper which we published on Graves' disease in the first volume of these *Reports*, we had occasion to refer to some changes discovered in the medulla oblongata of one of our patients. The microscopic examination of the central nervous system, however, was not quite completed when the paper was published, and we find it necessary, therefore, to return briefly to the subject, in order to supplement our description by the results of further investigation.

The association of Graves' disease with various nervous affections, attended by distinct structural lesions of the nerve centres, is in itself sufficient to raise a presumption that it may ultimately be proved to depend upon some as yet unknown alteration in the centres. Some instances of this kind have been described; Du Cazal, for example, has narrated a case in which Graves' disease was associated with progressive muscular atrophy, and other authors have recorded similar facts. These authors, as well as others who have described similar clinical and pathological observations, are inclined to the opinion that the various symptoms of Graves' disease are produced by lesions in a measure corresponding to those known as causing the other nervous troubles.

The often quoted experiments on the restiform bodies, by which Filehne showed that injuries of these structures induced phenomena very similar to those of Graves' disease, have in recent years been repeated by Durdufi and Bienfait with results closely resembling those which he described; and it is surely a fact of considerable significance, that in at least one case of bulbar apoplexy recorded by Mannheim in his recent exhaustive work on this subject, the patient had transitory symp-



toms of Graves' disease, which disappeared gradually as the effects of the lesion passed away. It appears to us that this positive observation is of greater value than any other which has been hitherto recorded.

Several instances of organic lesions of the nerve centres in this disease have been carefully described. Geigel found in one case obliteration of the central canal of the medulla, with hardness of the nerve substance around the canal, proliferation of the neuroglia, and turgescence of the vessels; there was also a tumour of the spheno-occipital synchondrosis. In a case recorded by Mackenzie, Lockhart Clarke found softening of the corpora quadrigemina and medulla oblongata especially on the posterior aspect. Cheadle described dilatation of vessels and hæmorrhage in the medulla oblongata and cervical part of the spinal cord, along with shrinking of the cells, and Hale White found hæmorrhages into the aqueduct of Sylvius and the posterior aspect of the bulb as far as the restiform bodies. Some of these observations are discussed in the well-known work of Long Fox, and others in the monograph by Mannheim, which has already been mentioned.

In two cases which have come under our immediate observation, definite lesions were discovered in the central nervous structures. Both were extremely well-marked examples of Graves' disease. In the first of these patients, in addition to all the usual clinical characteristics, there was hyperpyrexia, speedily followed by death. The second, full details of which were published by us in the paper referred to, died of cardiac failure, accompanied by severe anginous attacks.

The following is the description of the post-mortem examination of the first case, which was performed by Dr. Barrett:—

EXOPHTHALMIC GOITRE, CARDIAC DILATATION, AND FAILURE.  
—Ward 25. Louisa T., æt. 37; died 29th March 1891; post-mortem, 31st March 1891.

*External appearances.*—Height, 60 in.; circumference, 30 in. Œdema of feet, right hand, and left fingers. Rigor absent. Lividity marked on dorsum; scattered on neck and over thorax; arterial in colour. Icteric tinge of abdomen,



thorax, hands, and arms, but not conjunctival. Pupils: right normal, left much contracted. Cornea of right is slightly irregular. Neck broader and flatter than normal. Lateral lobes of thyroid are much enlarged. External jugular vein on right side is more distended than left.

*Cavities.*—Abdominal contains 60 oz. of slightly bile-and-blood-stained fluid. Thoracic muscles pale and atrophied. Left pleura, 2 oz. bile-stained fluid. Slight chronic adhesions at apex, at diaphragm, and externally to lower lobe. Right pleura obliterated by old fibrous adhesions.

Pericardial contains  $2\frac{1}{2}$  oz. of bile-stained fluid. Aorta not dilated below arch.

*Heart (in situ).*—Right auricle distended and dilated. Chronic thickening of epicardium over right auricle. Milk patch on right ventricle. Left auricle dilated slightly. Both ventricles firm. Coronary arteries tortuous, epicardium along base slightly œdematous, and epicardial fat slight in amount. Right auricle contained large post-mortem clot. Right appendix has some polypoid ante-mortem clots adherent to walls of auricle, which appear to have existed for some time. Left auricle has large post-mortem clot. Appendix small; no clot. Septa perfect. Pulmonary and aortic orifices competent. Cone diameters: pulmonary, .9; pulmonary artery has small post-mortem clot; aortic, .75; aortic cusps have slight thickenings extending from lunules. Mitral, 1 in. Mitral cusps have slight chronic thickening along free margin. Tricuspid, 1 in. Tricuspid cusps have very slight chronic thickening along free segment. Slight hæmorrhage into muscle of interventricular septum.

Cavities—Left Ventricle,  $3\frac{1}{8}$  long; Wall,  $\frac{9}{16}$  in. thick.

„ Right „  $3\frac{1}{4}$  „ „  $\frac{3}{8}$  „ „

Left ventricle, however, looks dilated in proportion to size. Right ventricle also. Myocardium is fairly normal; weight, 11 oz.

*Thyroid.*—Epiglottis congested. Vocal cords normal; cricoid much ossified. Lateral lobes—Left extends higher, and is more pyriform, with apex upwards. Right, squarer. Isthmus gives same feeling as lobes, and left portion is longer.



Well-marked median division. Tissue firm; no cysts. Large pigmented gland behind right lateral lobe.

*Lungs.*—Left, 1 lb. 12 oz. Emphysema. Bronchial glands enlarged and pigmented; some œdema; marked congestion and numerous fibroid nodules of small size, and slight interstitial pneumonia of lower lobe. Right, 1 lb. 2 oz. Chronic pleurisy at base, and condition same as left.

*Kidneys.*—Right, 5 oz.; left, 5¼ oz. Cortex pale; slight vascular engorgement at bases; slight thickening of vessels in boundary zone.

Slight interstitial change, scattered at some parts just at surface. Condition same in both kidneys.

*Spleen.*—6½ oz. Chronic venous engorgement. Malpighian bodies white. Firm glazed appearance.

*Liver.*—1 lb. 12 oz. Measures 7 in. across both lobes, and 5¼ in. vertical of each lobe. Numerous cicatrices, and surface in general irregular, like cirrhosis, with some perihepatitis close to left lateral ligament. Gall bladder small; semi-distended by dark orange-coloured bile. The wall thickened. No gall-stone or sand.

Liver on section.—Biliary injection of large and small bile duct. Very little evidence of fibrous increase in liver, but rather that of irregular atrophy. Cicatricial appearance of surface is more a superficial condensation of atrophied tissue, and does not appear to pass deeply.

*Intestines.*—Two patches of recent hæmorrhage into substance of mucous membrane of jejunum (one large, one small in size). Mucous membrane generally vascular, and gut feels thicker (venous congestion?). Suprarenals firmer than normal, left larger than right.

*Head.*—Skull-cap much thicker than normal,—chiefly frontal and inner table. Longitudinal veins contain dark post-mortem clot. Slight rusty staining of under surface of dura, chiefly basal. Pia congested over motor areas of right side and frontals. Convolutions complex. Slight attachment at the tips of temporo-sphenoidal lobes. Thickened veins. Weight, 2 lbs. 12 oz.

On section.—Hemispheres: the grey matter rather more yellow than normal, and white matter flushed by slight con-



gestion. Lateral ventricles slightly dilated. Choroid pale. At the base of the brain is a small mass, not connected with the dura, but involving pia, consisting partly of solid or semi-solid material, and partly of a cyst; the cyst contains a little clear, and some pus-like fluid. The mass, which is firmer, lies to right side of pons, and the cyst lies between pons and medulla about middle line. The harder part involves but does not seem to compress the seventh and fifth nerves. The third and fourth nerves not involved, but basilar artery slightly pressed on.

Floor of fourth ventricle appears to have a small blood cyst or dilated vessel, otherwise no alteration visible.

Marked dryness of tissues in orbit, increase of fat, which is very dry. Eyes very dry. Ocular muscles pale and atrophied.

In this case, on account of unavoidable delay in the performance of the autopsy, the nervous textures were not in a satisfactory condition for microscopic examination, and the results were of no value.

The second case, however, gave results of an extremely definite as well as interesting nature. The facts of the post-mortem examination, performed the day after death by Dr. Muir, were published by us last year, but, to present a complete picture of the morbid anatomy, it will be useful to insert them here, suppressing the description of the microscopic examination of the thyroid gland, which does not concern us on the present occasion.

EXOPHTHALMIC GOITRE, CARDIAC DILATATION.—Ward 25. Elizabeth A., æt. 36; died 1st November 1892; post-mortem, 2nd November 1892.

*External appearances.*—Height, 68 in.; circumference, 32 in. Body fairly well nourished. Marked dropsy of lower limbs. Lividity present posteriorly. Rigidity well marked. Thyroid can be felt distinctly enlarged. Almost no hair in axilla or on pubes.

*Thorax.*—The serous cavities contain no fluid, and there are no adhesions.

*Heart.*—Heart *in situ*, is seen to be greatly enlarged. The right auricle is much distended, and projects two inches from



right border of sternum. Left ventricle also much enlarged, and its apex somewhat rounded. There are patches of thickening of the epicardium, especially on the left ventricle. Length (greatest) of the heart, 7 in.

The right ventricle contains a small quantity of mixed clot. The left ventricle distended with dark clot. The aortic and pulmonary valves are competent.

Cone diameter.—Aortic, .9 in.; pulmonary, 1 in.; mitral, 1.3 in.; tricuspid, 1.5 in. Aortic and pulmonary segments are healthy. The mitral segments are a little thickened, and the chordæ tendineæ a little shortened. Tricuspid is normal.

Left ventricle.—Length,  $4\frac{1}{4}$  in.; thickness,  $\frac{1}{4}$  to  $\frac{3}{8}$  in. It is proportionally wide. Right ventricle slightly dilated and hypertrophied in its thickness, in some places slightly exceeding  $\frac{1}{8}$  in. Weight of heart, 15 oz.

*Lungs*.—Left, 1 lb. 2 oz. Marked congestion and œdema, some parts being almost airless. Also some chronic venous congestion present. Bronchi contain an abundant yellow frothy serum. Right also shows chronic venous congestion and marked œdema. Weight, 1 lb. 6 oz.

*Liver*.—3 lbs. 10 oz. It is slightly irregular on the surface, and the capsule is irregularly thickened. Hepatic veins are distended with dark-coloured blood. It shows on section a typical nutmeg appearance, well marked and irregularly distributed.

*Spleen*.—6 oz. Irregular thickening of capsule. Organ firm, but section shows a pinkish-red colour, and the Malpighian bodies are slightly swollen. Condition: chronic venous congestion with some more acute congestion.

*Kidneys*.—Right,  $7\frac{1}{2}$  in. There are very slight adhesions between the capsule and the surface. Cortex of normal size and regular. Colour is normal. Slight congestion of medulla. There is probably slight interstitial change. Left, 7 oz. In a similar condition, but rather more congested.

*Thyroid*.—It is considerably enlarged, measuring about 3 in. across, and enlarged upwards and downwards proportionately. The two sides are symmetrical. The surface is fairly smooth, and of a pinkish-red colour, the superficial veins being somewhat distended with blood. On section, the



organ is fairly firm and of a slight pinkish colour, mottled yellow; the appearance being very like the section of a salivary gland or the pancreas. It is not very vascular tissue, and there are no cysts. Stroma not very abundant.

*Brain.*—On removing the dura, the brain substance was seen to be of a pale waxy-like colour, and the sulci contained a colourless fluid in considerable quantity. Nothing abnormal was found, and the brain was kept to be injected. Weight, 3 lbs. 3 oz. The posterior part of the orbit was removed, but the tissue presented no abnormal appearance, there being chiefly an increase in the amount of fat.

After hardening, the nervous structures were subjected to a careful examination, in which we had the advantage of receiving assistance not only from Dr. Muir, but also from Dr. Bruce and Dr. Miles. In only one part of the nervous system was there any change,—in the floor of the fourth ventricle. All the other parts of the central nervous system were perfectly normal, and the cervical sympathetic nerves and ganglia showed no alteration. In the floor of the fourth ventricle a small hæmorrhage of recent date was found, which had in part destroyed the pia mater, and which probably had caused compression of the nervous structures underneath. In these underlying nervous tissues a large number of colloid bodies was observed, caused no doubt by the pressure produced by the hæmorrhage, in the manner described by Miles in his admirable paper on the "Microscopic Pathology of Cerebral Traumatism," the results of which support the view of Bevan Lewis, that these bodies have their origin in a segmentation of the myelin ensheathing the axis cylinder,—an opinion which was maintained by one of us in pathological lectures twenty-five years ago.

The appearances may be seen in the accompanying drawing (Plate X.), which shows the extravasated blood lying on the torn pia mater, in which a small blood vessel lies—perhaps the source of the hæmorrhage—and the presence of the colloid bodies in the tissues of the medulla.

It cannot be held that this hæmorrhage into the fourth ventricle was the cause of the various symptoms of Graves' disease, as the patient had suffered from the disease for



about ten months, while the hæmorrhage was obviously of recent date. It is, however, possible that there may have been some structural change in the vessels, connected with the disease, and predisposing to the hæmorrhage.

In both of these cases, vascular changes in the floor of the fourth ventricle were observed, and they, therefore, are to be regarded as corroborating those previously recorded by Cheadle and Hale White. The presence of colloid bodies, however, has not hitherto been described.

#### DESCRIPTION OF PLATE X.

The section ( $\times 300$ ) shows—

- a. Substance of medulla oblongata.
- b. Pia mater.
- c. Vessel in pia mater.
- d. Extravasated blood.
- e. Colloid bodies.

#### REFERENCES.

- GRAINGER STEWART { *Edinburgh Hospital Reports*, 1893, vol. i. p.  
AND GIBSON, . . . { 216.
- DU CAZAL, . . . *Gazette hebdomadaire de médecine et de chirurgie*, 1885, II. Série, Tome xxii. p. 345.
- FILEHNE, . . . *Sitzungsberichte der physikalisch-medicinischen Societät zu Erlangen*, Bd. xii. s. 177, 1879.
- DURDUFI, . . . *Deutsche medicinische Wochenschrift*, XIII. Jahrgang, s. 448, 1887.
- BIENFAIT, . . . *Bulletin de l'Académie royale de médecine de Belgique*, IV. Série, Tome iv. p. 470, 1890.
- MANNHEIM, . . . *Der Morbus Gravesii*, s. 96, 1894.
- GEIGEL, . . . *Würzburger medicinische Zeitschrift*, Bd. vii. s. 70, 1876.
- MACKENZIE, . . . *Transactions of the Clinical Society of London*, vol. i. p. 15, 1868.
- CHEADLE, . . . *St. George's Hospital Reports*, vol. ix. p. 803, 1878.
- HALE WHITE, . . . *British Medical Journal*, vol. i. p. 699, 1889.
- LONG FOX, . . . *The Influence of the Sympathetic on Disease*, p. 183, 1885.
- MILES, . . . *Journal of Pathology and Bacteriology*, vol. i. p. 98, 1893.
- BEVAN LEWIS, . . . *Brain*, vol. ii. p. 364, 1880.

