

REVIEW VII.

1. *Observations on the Human Voice.* By MANUEL GARCIA, Esq. ('Proceedings of the Royal Society,' vol. vii. p. 399. 1854-1855.)
2. *On the Laryngoscope, and its Employment in Physiology and Medicine.* By Dr. J. N. CZERMAK, Professor of Physiology in the University of Pesth. Translated from the French Edition by G. D. GIBB, M.D. (The New Sydenham Society, 1861.) pp. 80.
3. *Praktische Anleitung un Laryngoskopie.* Von Dr. LUDWIG TÜRCK, k. k. Primararzte in Wiener Allgemeiner Krankenhause.—Wien, 1860. pp. 67.
Practical Introduction to Laryngoscopy. By Dr. L. TÜRCK, Senior Physician to the General Hospital at Vienna.
4. *Zur Anwendung des Kehlkopfspiegels.* Von Dr. C. GERHARDT. ('Würzburger Medicinische Zeitschrift,' 1860, p. 173.)
On the Employment of the Laryngeal Speculum. By Dr. GERHARDT.
5. *Nouvelles recherches sur la Phonation.* Mémoire présenté et lu à l'Académie des Sciences le 15 Avril, 1861. Par CH. BATAILLE, Ex-Interne des Hôpitaux, Ex-Prosecteur d'Anatomie à l'École de Médecine de Nantes, Professeur de Chant au Conservatoire Impérial de Musique et de Déclamation.—Paris, 1860. pp. 104.
New Researches on the Production of the Voice. By C. BATAILLE.
6. *Di Functionen des menschlichen Schlund und Kehlkopfes.* Dargestellt von Dr. C. L. MERKEL, Privatdocenten der Medicin an der Universität zu Leipzig. Mit einer Tafel Abbildungen.—Leipzig, 1862. pp. 156.
The Functions of the Human Pharynx and Larynx. By Dr. MERKEL.
7. *Remarks on Laryngoscopy.* By E. H. SIEVEKING, M.D., Physician to St. Mary's Hospital. ('Brit. Med. Journ.,' June 28, 1862.)

WHATEVER reproaches may be made to the science of medicine on the score of our limited knowledge of, and comparatively trifling advance in, the therapeutic branch of our profession, we may fairly rejoice in the steady progress that is being made in diagnosis. Nor would it be difficult or uninteresting in many points to rebut the charges against our remedial agents on the very ground of the undeniable achievements that have been made in the same field. To say nothing of preventive medicine as applied to small-pox, to typhus and typhoid diseases, to scurvy, we may with justifiable pride draw the attention of cavillers to the positive benefit to mankind derived from our improved methods of recognising diseases of the heart—idiopathic and symptomatic—in their early stages, and thereby controlling them; we may maintain, without fear of contradiction, that the diagnosis of incipient phthisis, the distinction of the various pulmonary disorders that have been classed together as asthma, the certainty with which

we establish the causation of renal, hepatic, or cardiac dropsies, have been positive gains, not only to the abstractions of medicine, but to the sick and suffering of our race. There may be doubts as to the best mode of treating acute rheumatism, and as to the *rationale* of the action of lemon-juice, nitrate of potash, or the alkaline carbonates, but there is none that the recognition of valvular disease enables us to adopt steps which shall prevent permanent organic change, or modify and arrest its destructive tendencies. Whether the tincture of the muriate of iron or gallic acid is curative of granular disease of the kidneys in certain stages, may be a matter of discussion, but not whether we may by an early recognition of chronic albuminuria adopt various means, hygienic or medicinal, which shall improve the patient's chance of life, mitigate his sufferings, and check his downward progress. Again, it can scarcely be denied by any one who has seen much of the incipient stages of phthisis, that whether we believe or not in cod-liver oil, in naphtha, in the hypophosphites, for the cure of the disease in its later forms, we are enabled by an early diagnosis to secure to our patients a position, regiminal and therapeutic, which shall place the morbid power in a state of abeyance which shall restore strength and prolong the span of life. Could we not say the same thing of the improved diagnosis of gastric disease? Has no advance been made in the arrest of disease of the nervous system by the galvanic test, by the test of sensibility, by the elimination of many disorders with nervous symptoms which are now positively referrible to the heart, the kidneys, or other organs?

Feeling strongly persuaded of the real advance made of late years in the practical applications of medical science, and knowing how much we owe to the patient labours of those who often, under great trials, have prosecuted researches in the first instance not apparently fraught with immediate benefit, we have much satisfaction in placing before our readers a few of the results obtained recently by the method of investigating the physiological and pathological conditions of that portion of the air-passages which has hitherto almost eluded our ken.

The stethoscope, valuable as it is in unravelling the web of thoracic disease, has done but little for the larynx; and yet when we consider how important this organ is; how frequently it is affected, idiopathically and secondarily; how important and unceasing its functions, both as the portal to the lungs and as the main agent for all human intercourse; how wide its nervous and vascular relations in the economy, we may well receive gratefully all aids that are offered to us for the investigation of its physiological and pathological conditions. Although it would appear that in England the first attempts were made to throw light upon the *cordæ vocales*—a term that, in the present instance, is both metaphorical and literal—it is in Germany that we find realized the first practical method of turning the physical exploration of the larynx to practical account. We should not be doing justice to the subject if we did not associate very prominently with the whole subject of laryngoscopy the name of Professor Czermak,*

* The *cz* are pronounced like *ch*, as in the word choose.

of Prague, who though not absolutely the first to inspect the interior of the larynx by an arrangement of mirrors, appears, from all we have been able to ascertain on the subject—and our reading has embraced most of the brochures and articles that have been published thereon—to deserve the credit of having made laryngoscopy an aid to the recognition and treatment of disease, and to have been the one to whom its introduction among the practical appliances of medicine is mainly due.

But while we desire to do all honour to M. Czermak for the indefatigable zeal and success with which he has prosecuted the scheme and realized the idea, we claim for our countryman, Mr. Avery, long since, unfortunately, consigned to a premature grave, the priority of the invention. He, too, feeling the importance of the subject, contrived a concave mirror, to be supported by a stem held between the teeth, which threw its concentrated light upon a second mirror introduced into the fauces at an angle capable of at once receiving the rays of the ocular mirror, and the reflection thus produced of the subjacent parts. Mr. Avery's contrivance, which may yet be seen at Messrs. Weiss', in the Strand, presents all the main features of the methods since introduced for the examination of the larynx by Garcia, Türck, Czermak, and others. Mr. Avery's apparatus embraced a lamp, which was carried with the concave mirror; but although a good "notion," it was impracticable on account of its bulk and weight. A similar objection may be raised against the mirror, which he introduced into the fauces, because, being at the end of a hollow cylinder, there is necessarily great difficulty in introducing it and obtaining that consentaneous action of all the parts of the apparatus which is necessary to success. Mr. Avery's invention had the merit of realizing a good idea, but in such a way as to render it unsuited for general adoption. Even before Mr. Avery contrived his laryngeal mirror, Mr. Liston, in 1840, suggested the employment of a dentist's mirror, bent at a suitable angle, for the investigation of the fauces; but the way in which he speaks* of the matter shows that it was merely one of those vague suggestions which many have made besides him, and not one deserving of the name of an invention or a place in the annals of medical progress. We should not have alluded to the part Liston took in the matter, but for the stress Czermak lays upon Liston's suggestion. It is different with M. Garcia. Though not an Englishman, he resides in England, and the publication of his researches in the 'Proceedings of the Royal Society' naturalizes his work; and we cannot but express a regret that what he has done received so little attention, and that

* Practical Surgery. By Robert Liston. London, 1840. Speaking of the inflammatory oedema of the upper part of the air-passages, Liston observes: "A view of the parts may sometimes be obtained by means of a speculum, such a glass as is used by dentists, on a long stalk, previously dipped in hot water, introduced with its reflecting surface downwards, and carried well into the fauces." (p. 417.) This is all he says on the subject. Those who have occupied themselves with laryngoscopy will best know how very little could have been seen by this method alone. Certainly the author himself would not have claimed for the suggestion the honours either of a discovery or an invention.

from his not being a medical man, he was unable to follow out the subject to its pathological and therapeutic conclusions.

M. Garcia's method of examination consists

"In placing a little mirror, fixed on a long handle suitably bent, in the throat of the person experimented on, against the soft palate and uvula. The party ought to turn himself towards the sun, so that the luminous rays falling on the little mirror may be reflected on the larynx. If the observer experiment on himself, he ought, by means of a second mirror, to receive the rays of the sun, and direct them on the mirror which is placed against the uvula."

All observers agree that no artificial illumination is equal to that obtained by the sun; but, unfortunately, the frequent obscuration of this source of light renders it impossible for the medical man to rely upon its aid, while under the most favourable circumstances no one could command a house in which at all times of the day the sun's rays would be available for laryngoscopic examination. While all credit is due to M. Garcia for having, with such difficulties, made the observations that he has, his results are necessarily imperfect, because he was unable to see more than a portion of the vocal cords. He states that he saw the arytenoid cartilages separate in inspiration, the glottis large and wide open; but, he says, "however dexterous we may be in disposing these organs, and even when we are most successful, at least the third part of the anterior of the glottis remains concealed by the epiglottis."

We shall see that this restriction no longer exists; a restriction which, in diagnosis, would be a most serious bar, as it necessarily is, to the attainment of positive physiological data. Mr. Avery's apparatus, which, we are informed by Mr. Yearsley,* was invented in 1846, but does not appear to have been brought before the profession by the lamented inventor, and could not therefore be known either to M. Garcia or to Professor Czermak and more recent laryngoscopists, was intended to meet this difficulty. By the kindness of Messrs. Weiss we have been enabled to examine one of Avery's larynx specula. It consisted of two distinct parts, the one comprising the illuminating lamp and mirror, both supported on a straight stem, which was to be held between the teeth; the other a cylindrical tube, with a small mirror placed at an angle of 45° at one end, so that light thrown upon this mirror would be reflected down upon the larynx, an image of which would therefore be formed in the glass. We have here all the elements required for laryngoscopy—in fact, the idea of combining the lamp with the reflector is peculiarly ingenious, but the objection to the contrivance is, that it is scarcely applicable in ordinary cases. Even assuming a medical man to be able to support between his teeth the very heavy apparatus combining a large mirror and a lamp weighing a good many ounces, few, if any, patients could bear the introduction of a straight cylinder into the mouth in the position and of the size necessary to obtain the required image. It would be impossible to avoid contact with the base of the tongue and the consequent excitement of

* The History of the Laryngoscope. By James Yearsley, Esq.: The Medical Circular, Nos. 520, 521, 522. 1862.

reflex action. Had Mr. Avery lived, he would doubtless have seen the difficulty, and have solved it; as it is, we can only point to him as an ingenious *avant-courier* of those who have made laryngoscopy practically available.

In Germany, the question as to the priority of the invention has been carried on with some acrimony. It appears to us that the rival claimants may safely trust to the medical world for a due recognition of their actual services to the cause of science and humanity. Great credit is due to Dr. Türk, of Vienna, for having very zealously worked at the subject, and contrived the instruments, which he employed at first exclusively on the dead body. We, however, as impartial journalists, cannot withhold a special meed of praise from Dr. Czermak for having by dint of great perseverance rendered laryngoscopy an aid to the diagnosis and treatment of disease by the medical practitioner.

The method which he employs, and which has been adopted by various well-known physicians and surgeons in London of late, consists in receiving the rays of a moderator or gas-lamp upon a concave mirror of about three inches and a half in diameter, the mirror being either supported by a band passing round the head or by the teeth, and having a small central uncovered spot, allowing the observer to see through. The lamp being placed near the head of the patient, who sits before the operator, the latter first places the mirror so that its focus falls on to the patient's fauces when the mouth is opened. This is the first stage, and one in which the beginner experiences his first difficulty; however, by very brief practice this is soon got over. The second thing to be done is to introduce the smaller square mirror, which is attached to a straight wire stem, over the root of the tongue, and rest it against the uvula, so as to throw the pencil of light conveyed to it from the larger concave mirror down into the larynx and trachea. The uvula in general bears the contact well, but any irritation of the base of the tongue is likely to interfere with the observation by the reflex action thereby excited. There is, however, no serious difficulty in this, and after a very few *séances*, few medical men fail to introduce the throat speculum without annoying the patient or disappointing themselves. When once the observer has acquired some confidence in himself and his instruments, all serious difficulty is overcome, and we cannot but regard the statements of some of the writers on the subject as to the difficulty of accustoming the patient to bear the speculum, and the training they require, as exaggerated, and calculated to debar medical men from the use of an instrument which all may become familiar with. The subject is not one to be made another specialty of. The unprofessional public need not believe that there is only one man who is capable of diagnosing diseases of the larynx or looking down the trachea. Probably no one in England has yet acquired the facility with which Professor Czermak introduces the mirror, but there is no real mystery about it, and as the Professor has imparted all that he could impart to a considerable number of gentlemen, we trust that soon there will be a sufficient number of trained laryngoscopists to prevent the occurrence of such a calamity.

Both in a physiological and a pathological point of view, much has been actually achieved on the Continent. Our French friends have been less active than the Germans, but an excellent monograph by Battaille, published in Paris in 1861, shows that the physiology of the larynx* has been very carefully and successfully studied in France by the aid of the speculum. M. Battaille has the advantage of being an old *interne* and prosector of anatomy, while, later in life, he has devoted himself entirely to singing as a profession, so that he is peculiarly well qualified for the task he has undertaken. We very strongly recommend his work to the attention of our readers.† The author is a careful anatomist and a cautious observer.

It is not our intention to go into the physiology of the human voice generally, as our desire is rather to speak of laryngoscopic studies in connexion with pathology and therapeutics. We cannot, however, forbear quoting the results of M. Battaille's direct and very careful observations of the phenomena accompanying the production of the chest and falsetto voice respectively. This, as our readers well know, has long been a moot point. He finds that the relative position of the vocal cords and their mode of action differ materially in the two cases. In the production of notes belonging to the chest register, he has observed the following phenomena. (pp. 36 and 68.) The arytenoid cartilages approach one another and are in contact by the posterior and inferior third of their inner surfaces; the apophyses (cartilages of Sartorini) scarcely touch, and vibrate with the vocal ligaments. These are stretched, and vibrate throughout‡ their entire extent, including the sub-glottic, ventricular, and marginal regions. In passing from the deep to the high notes, the glottis is sensibly shortened from behind forwards. At the same time the vocal ligaments are raised and gradually stretched in their three regions. The arytenoid cartilages, while they diminish the glottic opening pos-

* We have also the title of another French work on Laryngoscopy, by Moura-Bourouillou, 'Cours complet de Laryngoscopie,' Paris, 1861; but we have not yet seen the book itself, and are therefore unable to express any opinion as to its contents.

† We do this with a reservation; we cannot approve the title *Sur la Phonation*. Another writer coins the word *Anthropophonik*. Why is it necessary to be always encumbering science with clumsy, lumbering Greek and Latin terms, deprived of all their euphony?

‡ M. Battaille divides the vocal cords into three regions: the sub-glottic, the ventricular, and the free margins. The first he describes as being limited by the angle of the thyroid in front, posteriorly by a line which would continue downwards the anterior margin of the arytenoid cartilages, above by the margin of the glottic lips, below by a horizontal line stretching from the crico-arytenoid articulation to the angle of the thyroid. The ventricular region M. Battaille describes as being bounded behind by the arytenoid cavity, in front by a space a little larger than the thyro-arytenoid insertions, externally by an oblique line stretching between the external portion of the arytenoid cavity and a point of the thyroid placed on a level with, and a little external to, the thyro-arytenoid insertions, and within by the lips of the glottis. The third portion, the free margin, placed at the intersection of the preceding planes, extends from the arytenoid apophysis to the inner angle of the thyroid, and is formed by the lips of the glottis. The reader is recommended to examine for himself the anatomical relation of the muscular fibres to these parts in order more fully to enter into the *rationale* of their functions as delineated by M. Battaille.

teriorly, at the same time reduce the extent of vibrating surface. When the voice passes from high to low notes, the glottic vibrations become fuller and slower. For all chest notes the lips of the glottis remain parallel, and the superior thyro-arytenoid ligaments take no part in the production of sound; the ventricles of the larynx remain linear. In the production of the falsetto voice, the most remarkable phenomenon is the immediate conversion of the rectilinear orifice of the glottis, which prevails in the production of chest notes, into an ellipse, while the opening enlarges posteriorly; at the same time the vibrations cease in the lateral portions of the glottis, the longitudinal tension diminishes, and the ventricular region of the ligaments is, so to speak, drawn from within outwards by a lateral traction. The ventricular region and free borders vibrate sensibly, though less than in the chest register; the arytenoid cartilages are partially open at their bases, while their apices approach one another. The moment the falsetto is again changed into the chest voice the glottis becomes rectilinear, the antero-posterior tension increases, the ventricular tension diminishes, and all those phenomena reappear which are characteristic of this register.

M. Bataille's observations are exclusively physiological, and were made partly upon himself, partly upon his pupils or artist-friends. The majority of the profession in London have had repeated opportunities of witnessing the remarkable precision with which it is possible to conduct auto-laryngoscopy, as demonstrated by Professor Czermak. This is a procedure which may be recommended to all who are desirous of fully appreciating the value of this method of examination, while it allows of unlimited opportunities in the practical application of the mirror. In some persons auto-laryngoscopy is rendered difficult by an unusual narrowness of the fauces, otherwise the difficulties are not such as need deter any one from making the examinations on his own person. The only additional apparatus that is required is a plane mirror elevated in such a way that the image received on the faucial mirror may be thrown upon it and thus be rendered visible to the observer.

We may take another opportunity of dwelling upon the physiology of the larynx as demonstrated by the speculum; at present our object is rather to draw the attention of the profession to its practical application in the diagnosis and treatment of disease. Hitherto we can scarcely be said to have possessed any very definite means of making a positive diagnosis in laryngeal affections. The character of the cough, the presence or absence of tenderness or hoarseness, the concomitant general symptoms, with an examination into the history of this case, may enable us to form a shrewd guess as to the nature of the individual disease; but we are just as often wrong, as is best proved by the very vague manner in which counter-irritants, astringents, anti-phlogistic remedies, galvanism, and the various agents ordinarily employed, are had recourse to. It would be difficult to find a more pointed illustration of the truth of these remarks than a case published by Dr. Sieveking, in which a man affected with chronic cough, pain at the right infra-clavicular region, a marked systolic arterial

murmur at the same spot, feeble right radial pulse, and persistent hoarseness, was diagnosed to have an aneurysm, the diagnosis being in a measure confirmed by the aphonia, which was supposed to be due to pressure on the recurrent laryngeal nerve. On applying the laryngoscope, however, the discovery was made that there were two growths, one above the other, attached to the anterior portion of the true vocal cords, which, while they could not affect the physical signs noted at the right thorax, gave a new version to the hoarseness, and indicated a special line of treatment. We need but examine a limited number of cases presenting laryngeal symptoms, to satisfy ourselves that the pathological conditions we have to deal with are more varied than we should assume without the laryngoscope; and at all events that a precision is given to our knowledge of the affections of the vocal cords and the adjoining parts, which would have been impossible without such ocular inspection. The first case given by Professor Czermak, under the head of Pathological Observations, is one observed in 1858, and also characterized by the presence of tumours in the larynx. It is entitled, "Complete Obstruction of the Larynx by two Tumours springing from the Mucous Membrane beneath the free Border of the Vocal Cords, the result of scrofulous infiltration, and necessitating laryngotomy." As the case forms a sort of starting-point of practical laryngoscopy, and moreover illustrates a mode of using the speculum to which allusion has not yet been made, the following abstract may prove acceptable:

A girl, of eighteen years, of scrofulous habit, had been subject to repeated enlargements of various glands in different parts of the body. Her health improved after the establishment of the catamenia at sixteen, but a sudden enlargement of the submaxillary glands in the spring of 1858 was followed by swelling of the larynx. Its outline became more prominent, there was little tenderness on pressure, there was neither redness nor swelling of the pharynx, nor fever; the voice, habitually weak, fell to a whisper. In September of the same year dyspnoea set in, inspiration and expiration became sonorous, the larynx tender, and on the 4th of October a suffocative attack, threatening life, supervened, requiring the performance of laryngotomy. The symptoms showed that complete obstruction of the glottis had occurred. Professor Czermak, having been asked to examine the patient, after persevering attempts, rendered necessary by the irritability of the patient's fauces, succeeded in establishing that

"The false vocal cords were slightly swelled and injected, but moveable without any appreciable distress. It was possible to bring them rapidly into contact one against the other in the median line, and afterwards to separate them, so as to permit the ventricles and the inferior vocal cords to be distinctly perceived. These possessed almost their normal white colour, and to my great surprise showed a remarkable mobility. We observed, particularly during deep inspiration, or when the patient endeavoured to emit a sound, movements of the posterior portion, in which are placed the processes of the arytenoid cartilages. Nevertheless it was not possible to close the glottis by the approximation of the edges of the vocal cords; these were invariably separated between the processes. I perceived between the separated borders

of the glottis a superficial furrow formed by two cushions of mucous membrane, which were oblong and of a dark colour. The seat of the occlusion of the larynx was now recognised. It was found beneath the free edges of the true vocal cords, of which the superior lamella was normal; it was also the same in the other visible parts of the larynx, independently of slight swelling of the false vocal cords, and very considerable enlargement of the arytenoid tubercles."

As Professor Czermak was desirous of still further eliciting the nature of the obstruction, he adopted the method employed by Dr. Neudörfer in examining the larynx in dead bodies. Through a canula with a large opening at its inner and upper end, contrived so as not to impede respiration, he introduced a small mirror into the trachea by the orifice made by the surgeon to prevent asphyxia; he gave the mirror an obliquely upward and forward direction, and by concentrating the rays of a lamp by an ophthalmoscopic mirror upon the laryngoscope, the whole interior of the larynx was strongly illuminated. It was now apparent that the glottis was obstructed by two tumours of mucous membrane situated beneath the free border of the vocal cords, and that they arose from the side and back of the larynx. Drawings of the tumours, and an illustration of the mode of using the speculum laryngis just described, are given in Professor Czermak's book, to which we must refer the reader for many other illustrations explanatory of the previous and succeeding remarks on the laryngoscope.

We take this opportunity to state, that the works of Battaille, Türk, and Semeleder all have the advantage of lithographic, xylographic, or coloured illustrations, which materially assist in the explanation of the facts noted. The lithotints in Dr. Semeleder's book are so well executed as to deserve special praise on account of their elegance and faithfulness.

The second case given by Dr. Czermak is one again illustrating the vagueness of our prevailing laryngeal pathology. In a gentleman supposed for some years to have laboured under "nervous" hoarseness, the speculum readily demonstrated the true pathological condition, and therefore indicated the treatment. After a considerable effort of the voice, the aphonia had come on, and had always been aggravated by emotion. It was discovered that a round growth projected from the middle of the right vocal cord, and as it was of soft consistence, it probably changed in volume under the influence of variations of the circulation. In the third case a scrofulous affection of the soft and hard palate resulted in the following conditions revealed by the laryngoscope; the epiglottis was found to be enormously enlarged, very much injected and ulcerated. The entrance to the larynx was so constricted as to prevent the greater part of the vocal cords, which were inflamed, from being seen. In the progress of the case, a second ulcer was seen to have formed, so as with the first to have caused a division of the epiglottis into a three-lobed body. This ulceration, and the swelling of the vocal cords increasing, laryngotomy became necessary, and by examining the vocal cords from below, in the manner

previously described, further interesting facts were disclosed. A complete recovery was eventually obtained.

The character of the lesions inducing incurable aphonia was revealed by the speculum in the fourth case given by Czermak. Here, in a woman of sixty-eight, who suffered from aphonia supervening suddenly, as it was affirmed, upon drinking a cold beverage, there was loss of substance in the velum, with numerous pharyngeal cicatrices, regarded by the physicians as undoubtedly syphilitic.

"The epiglottis had disappeared, but there remained only a short stump, irregularly excavated, especially on the right side. Whatever the patient swallowed produced a choking sensation. The right superior vocal cord was considerably thickened, its surface irregular and rough. The surface of the left superior vocal cord was likewise rough, cicatrized, and had suffered besides a great loss of substance at its external border. Consequently on the left we could perceive a large portion of the inferior vocal cord relatively normal, whilst on the right the vocal cord was deeply excavated behind, and almost covered by the false vocal cord. The other parts of the mucous membrane, especially the right aryteno-epiglottic ligament, presented considerable loss of substance, and also numerous cicatrices."

It is easy to understand that such a condition of things was incompatible with a due formation of sound; in fact, it was seen, when the patient was desired to emit a sound, how the true and false vocal cords approached one another, only allowing the air to escape with a hissing noise.

In the fifth case we find retraction of the right vocal cord, with swelling of its fellow false vocal cord; the cause of aphonia is an old case of syphilis. A partial destruction of the epiglottis, with considerable swelling of the false vocal cords, was discovered to be the cause of hoarseness and aphonia in the following one. This was one in which the whole interior of the trachea was visible down to its very bifurcation.

In the seventh case there had been aphonia of eight months' duration, occurring in a gentleman of thirty-two, subsequent to severe hæmoptysis, which had been attributed to mental emotion and drinking cold water. The laryngoscope demonstrated constriction and insufficiency of the glottis; the constriction being due to swelling and infiltration of the mucous membrane covering the arytenoid cartilages, by which their mobility was impaired, while the insufficiency was due partly to the limited mobility of the parts, and partly to irregular notches on the edges of the vocal cords of a greyish-white colour. Besides other treatment, caustic was applied directly under the guidance of the laryngoscope, and it was remarkable to observe in this and other cases where the application was made to the vocal cords themselves, how little irritability they manifested.

In the following (eighth) case, hoarseness was shown to depend upon active congestion of the laryngeal mucous membrane, while in the ninth a syphilitic ulcer was plainly discerned on the superior vocal cord close to the arytenoid cartilage. We pass over the next two cases, which resemble the two last spoken of, and come to the twelfth, in which the negative evidence obtained by the laryngoscope is apparent. In a female, aged forty, who had been long suffering under

increasing dyspnoea, with stridulous breathing, attributed to an obstacle seated in the larynx, ocular inspection showed the larynx to be perfectly normal, the glottis widely open, and the trachea entirely free. The remaining eight cases given by Professor Czermak, with the exception of the last, describe growths of various kinds and sizes discovered by the laryngoscope on or in the vicinity of the vocal cords. In one of these the galvanic cautery was applied with success, but we do not understand from the description whether it was used for the removal of the growths occurring within the larynx, or only for those occupying the pharynx. Although Professor Czermak speaks of this method of treating intra-laryngeal growths more than once, he does not favour us with a description of the process adopted. The last case given by the same author is one of œdema of the glottis following typhoid in a male adult.

“The epiglottis, the aryteno-epiglottic ligaments, the superior and inferior vocal cords, were all considerably swollen by œdematous infiltration; all these parts were very pale, with the exception of the infected epiglottis, the right side of which was the seat of a vesicle filled with fluid. The glottis was reduced by the junction of the infiltrated and innominate inferior vocal cords, to a small roundish triangular space which existed between the arytenoid processes. The superior vocal cords, as well as the aryteno-epiglottic ligaments, although infiltrated and swollen, counted as nothing in the constriction of the space reserved for the passage of air.”

Laryngotomy was performed; the parts were thus allowed complete repose, and health was apparently restored.

We could readily multiply evidence of this new aid to practical medicine. What has been given will, we trust, convince any one who may hitherto have doubted the value of laryngoscopy that it is a real acquisition. Nor is it one entailing so many difficulties in regard to its application, that it need be confined to the specialist. On the contrary, with a few precautions, any person of ordinary dexterity may speedily acquire the tact necessary for the employment of the instrument. The beginner will do well to apply to some person already versed in the use of the instrument for those practical hints with regard to the introduction of the mirror, the position of the tongue, the relative position of the observer and the person operated upon, and similar minutiae, which can at once be learnt by demonstration, but which to some may present mechanical difficulties sufficient to debar them from a prosecution of this interesting mode of studying laryngeal affections, if they are left to their own resources. With such aid we do not doubt that they will confirm the favourable opinion we have expressed regarding the comparative facility of employing the laryngoscope.

To those who are desirous of becoming more fully acquainted with the subject, we strongly recommend the study of the work from which we have chiefly culled our extracts, as well as those other essays on the subject which head this article. In these the reader will find numerous illustrations which will render the subject still more intelligible, and which we regret it has not been in our power to reproduce for his greater convenience.