its internal over the tension of the vocal cords and the size of the glottis.

Articulation requires a modification of the sound produced in the larynx, the importance of which will be seen when one considers that the laryngeal voice is not essential to perfect articulation. Aspirated speech is adequate to the expression of ideas, and may be artificially produced by means of a current of air blown through the nostrils into the fauces, the glottis remaining closed (Carpenter's Physiology, p. 728). A gentleman of this city is now able to make long conversations, perfectly intelligible to those around him, by use of the muscular apparatus of articulation alone, the larynx being closed by disease, his breathing being entirely dependent upon a tube in the trachea.

Vowels are produced by certain changes in the oral cavity, the sound being uninterrupted, while consonants require various interferences with the vocal current. These changes are brought about by the combined action of the velum palati, cheeks, tongue, lips and teeth. The nerves on which these movements depend are distributed as follows: the spinal accessory to the pharynx, the hypo-glossal to the tongue, the facial to the cheeks and lips, and the motor branch of the trifacial to the levators of the lower jaw. The afferent nerves corresponding to these efferent, and analogous to the posterior roots of the spinal nerves, are, according to Carpenter, as follows: the motor branch of the fifth, to which should be added *all* the motor oculi nerves, constitutes with its sensory division the first pair of true intervertebral nerves. The facial and glosso-pharyngeal form the second pair, the spinal accessory and pneumogastric the third. The hypo-glossal may be regarded as the first of the spinal nerves.

The apparent origin of the nerves essential to perfect speech is in the medulla. The deep origin of their fibres is more difficult of demonstration. They may all be traced, by some fibres at least, to the floor of the fourth ventricle. Lockhart Clarke states that some fibres of the spinal accessory arise from the nuclei common to it and the pneumogastric, and others from the lateral grey matter and anterior cornu. The hypo-glossal has a like double origin, the upper roots arising from a special nucleus and the lower from the upper part of the anterior cornu. The nuclei of the spinal accessory and hypo-glossal are in communication by fine nervous filaments. The facial nerve forms a horizontal loop in the medulla with the sixth. The sensory division of the

fifth communicates with the pneumogastric and the glosso-pharyngeal in the gray tubercle, descending through the whole length of the medulla. (Phil. Trans., 1868, Part I.)

Van der Kolk, as well as Clarke, believes the olivary bodies to be coördinating centres for the cranial nerves and centres of reflex action also induced by sudden impressions on the nerves of special sense. He believes them to be concerned in the coördination of speech from their connection by transverse fibres with the nucleus of the hypo-glossal, and from the not infrequent occurrence of disease in them, accompanied by defective articulation.

[To be concluded.]

RESULTS OF THIRTEEN PASSAVANT'S OPERATIONS FOR BREAKING UP ATTACHMENTS OF THE IRIS TO THE CAPSULE OF THE LENS.

Read before the Suffolk District Medical Society, by B. JOY JEFFRIES, M.D., Boston.

DR. PASSAVANT published an account of his operation in the "Archiv für Ophthalmologie," 1869. This article I translated for the Boston Medical and Surgical Journal (Dec. 23, 1869), and would refer to it in explanation of the object, method and success of this operation as given by its originator.

Since March 1, 1870, I have performed Passavant's operation thirteen times all told, on four several eyes in three patients, as follows:—N. B., a woman æt. 22, has

FIG. 1.

FIG. 1.—Pupil of left eye dilated by atropine, showing the attachments of the iris to the capsule of the lens. The film in the pupil is not shown.

had severe specific iritis in the left eye, the sequelæ of which are, several strong posterior synechiæ, which atropine and the continued specific constitutional treatment have not broken up. (Fig. 1.) The pupil is also covered by a film of deposit, much reducing vision and obscuring an ophthalmoscopic examination. The Passavant operations were as follows:—

March 16, '70, upwards and outwards.
 March 22, '70, upwards and outwards on same synechia.
 March 25, '70, downwards and inwards.
 March 29, '70, downwards. Two were broken away.
 April 2, '70, upwards and inwards.
 April 7, '70, upwards.

April 15, '70, upwards and out, where the first two were done, as the iris seemed to be fastened down quite to its insertion, and the corneal opening was made far back, in order to be able to pull on the iris as near its periphery as possible. From this cut some blood flowed into the anterior chamber, obscuring a distinct view and thus preventing a second application of the forceps. In two days the blood was gone, and the pupil round under atropine. May 4, 1870, the patient was discharged from operative treatment, the pupil freely movable, but varying a little from a circle up and out, where three attempts had been made to

FIG. 2.

FIG. 2.—Shows the results of the operations. The pupil still drawn a little up and out.

entirely remove attachments. (Fig. 2.) This synechia was broken twice, so far as the iris could be pulled. Whether the iris does not here contract from exudation in its tissue, or is fastened down, I cannot decide. I judge, however, the latter, as the rest of it responds readily to light. The pupil now is much clearer and the fundus well seen with the ophthalmoscope. Vision, of course, correspondingly improved. No specific affection of the retina or choroid was noticed. The eye looks almost the same as the other, and is greatly improved in appearance. The three punctures of the cornea, so close together, have left a slight cicatrix, which will probably disappear, or if not, is of no consequence cosmetically. The spots of pigment now seen on the capsule show where the synechiæ were. There is no film over the pupil, and it is a question whether the breaking away of the synechiæ by removing the connection of the deposit on the capsule in the pupil from the iris, did not hasten or facilitate its absorption. My own feeling was, that such a number of synechiæ and amount of lymph in the pupil would have ruined the eye, as I should have looked to the pupillary membrane becoming further organized.

M. N. C., a woman æt. 38, has had severe specific iritis in both eyes, and, as sequelæ, a single synechia downward in the left eye, whilst in the right there are several, some broader, others quite delicate, close together. (Figs. 3 and 4.) Continued atropine and constitutional treatment have failed to break these attachments, which do not show themselves in the right eye except under atropine. I did five Passavant's

operations on the two eyes as follows:—March 25, 1870, on the left eye downwards, clearing the pupillary edge completely.

On the right eye, April 19, 1870, downwards, two were broken.

April 22, 1870, up and inwards.

April 26, 1870, down and outwards.

FIG. 3.

FIG. 3.—Right pupil dilated by atropine, showing the posterior synechia.

FIG. 4.

FIG. 4.—Left pupil dilated by atropine, showing posterior synechia.

Although I anticipated being obliged to perform at least four operations on this right eye, these three sufficed to free the iris completely, two synechiæ being broken away together by opening the forceps wide enough to embrace them at once. May 4, 1870, the effect of the atropine has disappeared. Both pupils are perfectly round and movable, responding to light and shade. The patient continues under constitutional treatment for other signs of syphilis. All the synechiæ in this case gave way readily and no blood entered the anterior chamber, as I did not have to pull the iris except at its pupillary edge, and so did not require my corneal cut to be where bloodvessels would be touched by the lance-shaped knife.

E. B., a woman æt. 25, has had severe specific iritis in the left eye, which, having run its course, has left a posterior synechia downward that atropine and constitutional treatment do not break. (Fig. 5.) May

FIG. 5.

FIG. 5.—Left pupil dilated by atropine, showing the posterior synechia.

18, 1870, I broke this by Passavant's operation, and the pupil became round and movable. The patient continues under constitutional treatment for syphilis.

It will thus be noticed that the operations cleared the iris from the lens completely, leaving a round and movable pupil, except the single attachment in the first case.

Ether was given in all these operations, so I cannot say how painful it would be

without.* Pain occurred subsequently in but one case, perhaps from the dragging of the iris or the presence of blood in the anterior chamber.

Outside of its very great necessity and importance to the ophthalmic surgeon, I think other physicians and surgeons will be interested to learn how the eye tolerates such operative interference. Seven operations on a single eye is a larger number than I at present know of having been done. My results certainly justified them. I need not dwell on the effect of attachments of the iris to the capsule; continued observation has shown that they are the fruitful source of recurrent iritis. We have always felt dissatisfied in seeing them left after iritis, now we have a safe and reliable means of breaking them away by grasping them with delicate forceps. I use a pair of moderately curved iris forceps, the teeth of which have been ground off and the points serrated. The more delicate their spring, the less liable are we to prick the iris too hard. Flowing off of the aqueous humor does not interfere, as the ends of the forceps are rounded, and can be pushed between the iris and cornea without danger. I have so far found this operation unexpectedly easy, and certainly most satisfactory in result. Iritis having just run its course, would naturally seem to contraindicate operative interference, but experience has so far shown differently. Other cases now under my care will, I trust, also prove this to be true.

Bibliographical Notices.

Modern Medicine; its Need and its Tendency. The Annual Discourse before the Massachusetts Medical Society, May 25th, 1870. By WILLIAM W. WELLINGTON, M.D., of Cambridgeport. Medical Communications of the Massachusetts Medical Society. Vol. XI. Art. IV. Pp. 133-172.

It is apparent from even a hasty examination of this discourse that, in this instance at least, the Society's vote of thanks was no formal or matter-of-course compliment. As this vote expressed it, it is an "able, instructive, and highly interesting Dis-

* Dr. Robert Amory, of Boston, reported to the "Society for the Promotion of Science in Medicine," the results of his experiments in reference to the use and purity of nitrous oxide gas. From his report I feel inclined to employ this as an anæsthetic in Passavant's operation whenever a favorable opportunity offers.

course." It is well written and scholarly. It neatly develops and fully sustains its theme throughout. Touching upon, or referring to, the latest advances in science and medicine, it may indeed instruct the most laborious and best informed; it will force many a suggestive thought upon all, even upon those who run while they read; and whoever begins its perusal will pursue it with unabating interest to the end.

The Discourse opens with an allusion to the various subjects and departments of knowledge which the spirit of inquiry, so searching in these days, has unsparingly invaded—to their establishment or discomfiture; and follows "this disposition to look *into* things instead of looking *at* them" in its influence on the science of medicine. Of medicine the speaker says: "It is probably, at the present day, passing through an ordeal more severe and searching than it has ever before experienced. The present period in its history, as Dr. Aitken has truly said, 'is one of *probation* as well as of *progress*.' While, on the one hand, it is enriched, as at no former time, by the contributions of scientific inquiry and observation, on the other, its theory and practice are subjected to a remorseless criticism, which must needs expose their deficiencies, and reveal their short-comings. Especially the action of drugs, and their influence on disease, are undergoing a scrutiny, which must eventuate in essential modifications of existing modes of treatment."

"It must be confessed," he continues, "that the manner in which the medical profession is regarded by the community at large is not such as in all respects to gratify our self-love; or to flatter our vanity."—(Pp. 135-136.)

This confession he illustrates by suitable quotations from eminent and influential authors, who nevertheless not unlikely, as particularly in the case of Mr. Prescott, the historian, were among those most indebted to the profession. Such ungracious statements, which might easily be multiplied, should put physicians on their guard not to give occasion for their utterance.

We may be justly surprised and sometimes inclined to resent such treatment from those who should, and undoubtedly do know better; let us then listen to the calmness and wisdom of the Discourse:

"It is well, however, in matters of this kind, to be governed by reason and not by feeling. It should be remembered that although the community, at times, seems disposed to undervalue our services, the medical profession proper has ever held,