

LABYRINTHINE TESTS.

MR. TWEEDIE has drawn our attention to the fact that in our otherwise excellent abstract of the Proceedings of the Oto-Laryngological Section of the British Medical Association, the report of his paper entitled, "Some Observations on the Results of the Application of Bárány's Tests to 'Deaf-Mutes'," failed to convey to the readers the points which he meant especially to accentuate. He says: "My paper was a description of the results to Bárány's tests which I carried out on deaf-mutes with the view of establishing or confuting the fact that 'vestibular' nystagmus was dependent on experimental stimulation or pathological lesions of the eighth nerve, and not in any way to prove that children in a 'deaf-mute' school were not all totally deaf, which, of course, is known well to all, etc., etc." We regret this defect in the report, and have much pleasure in producing in full, by permission of the Editors of the *British Medical Journal*, his paper as read at the meeting. In addition we gladly append to that paper the tabulated statement of the tests as carried out by him. We are sure that the details of this objective investigation will be highly appreciated by our readers.

DR. PIKE'S valuable contribution on the labyrinthine tests as applied to subjects who were not necessarily deaf-mutes, in our present number, will be found most instructive in regard to the use of the caloric, rotatory, and other tests introduced by Bárány, and the tabulated details which will be given in our issue for December will complete a valuable record.

RECENT METHODS OF EXAMINATION OF THE NOSE AND THROAT.

A CROWDED audience, numbering over a hundred and fifty members of the profession, attended to hear the address by Dr. John Macintyre, F.R.S.E., on the occasion of the opening of the winter course of lectures at the Central London Throat and Ear Hospital.

Dr. Macintyre chose for his subject "The Recent Methods of Examination of the Nose and Throat," and explained that he had done so because of the great advances which had been recorded in history of this special branch of surgery since the year 1895. We hope to publish in full detail, with illustrations, Dr. Macintyre's account of many of the methods which are described cursorily in the present report.

By way of comparison he first of all referred to the difficulties which men had experienced in the examination of some parts of the respiratory tract before the ever-memorable discovery of Garcia, and pointed out the tremendous influence which the work of the latter had upon the history of surgery when taken up by Turck and Czermak.

Looking back upon the fact it seems a strange thing now that the simple arrangement of a reflecting mirror placed at a suitable angle to the stem should so long have remained undiscovered. Much as the laryngoscope had done, however, it had its limitations, and it had now been found that it was only by direct inspection of the passages that we were able to make a complete examination of the nose, throat, windpipe, bronchial tubes and gullet.

The advance here indicated could not have taken place had Reichert long ago not pointed out that it was possible to clear away the apparent obstruction of the epiglottis and base of the tongue. When this was realised operators like Kirstein showed that the larynx and part of the trachea could be seen, thus paving the way for the work of Killian, who, by means of straight tubes, was able to explore a large portion of the lower respiratory tract. The same difficulty was not experienced in connection with the œsophagus, but on much the same principle Mikulicz, v. Hacker and others had made the way clear for the thorough inspection of the gullet.

Dr. Macintyre showed a series of instruments and stated the various stages in developments of these methods, and also showed a number devised by Chevalier Jackson, Brünings, and himself whereby the matter could be simplified. The question might be asked, how did it take us until the end of the last century before this work became thoroughly practical? Dr. Macintyre ascribed the delay to several facts. In the first place, dextrous as special surgeons had become in the use of the laryngoscope, it required time, patience, and perseverance in the development of the instruments and also their use by the surgeon. In the second place, the introduction of local anæsthesia had made things much easier for the laryngologist and greater progress was made possible. Even now we had to remember that in the most serious work general anæsthetics had sometimes to be employed. Last of all, science had to await the developments in physical science which gave us the electric light in a practical form. For this special work stationary sources of illumination were useless, and nothing had contributed more to the success of the methods of direct

inspection of these passages than well-constructed incandescent surgical lamps.

Dr. Macintyre showed a number of pictures of electric laryngoscopes and rhinoscopes which he himself had devised, the first instruments of the kind ever made in this country, and which were published in January, 1886, but owing to the heating and short life their use in general practice was impossible. It took ten years after the date mentioned before the present useful lamps were taken seriously up by instrument makers and brought to a stage of perfection.

The lecturer also referred to the influence in diagnosis of the accessory cavities of the head and larynx by the methods of transillumination, and referred to the recent advance made in this department.

Dr. Macintyre pointed out the second great agent which had been employed of late in these regions, namely, X-rays. Here there had been no process of gradual evolution, but in the year 1895 Professor Röntgen's great discovery came as something entirely new and placed a new agent at the disposal of the surgeons and physicians, because while it was the first employed in surgery its development in medicine was only a question of time.

By this new agent, either by a photographic process or by the indirect method of the fluorescent screen which enables us actually to see the shadows of the organs, or by means of the orthodiagraph, an apparatus for recording diagrammatically what the screen shows us, results can now be obtained of immense value to the physician as well as to the surgeon. In some directions, especially in the earlier stages of the discoveries, examination of the respiratory tract and the œsophagus by direct vision, and the investigation of the same regions by means of the X-rays, were thought to be two methods which to an extent rivalled each other. That is not the case, however. They are in the strictest sense complementary the one to the other, because while by the direct methods of observation we can only see the surfaces of the mucous membranes or what is lying in the cavity, by the application of the other, the radiograph, or the fluorescent screen, we judge of conditions in the tissues themselves or in the large cavities of the body. It need hardly be said that the examination of the chest, the neck, the pharynx, nose, and accessory sinuses must be of the greatest importance to any one engaged in our special department.

Dr. Macintyre traced the development of the application of X rays in our special department, and showed a large number of photographs of his own work taken as early as 1896. These included the first photographs taken of the larynx, foreign bodies in the cavities, the nose, throat and its accessory cavities, and gullet. He next traced the steps in improvement by means of which he was able to take instantaneous photographs of the chest and other parts of the body, and a large number of photographs were shown on the screen and otherwise, simple and stereoscopic, of inter-thoracic conditions. Thanks to Mr. Schall he showed them the most recent improved apparatus taking X-ray photographs, as suggested by Dr. Groedel and Mr. Horne.

In conclusion Dr. Macintyre said: Briefly stated, therefore, what is meant more particularly by recent methods of diagnosis includes for the most part what has taken place from 1895 as contrasted with what took place after the introduction of the laryngoscope and before that year. It might be summed up by saying we mean the methods of direct inspection of the cavities and passages with which we have dealt; to a certain extent also with transillumination, and lastly, the X rays, whether by means of the radiogram or fluorescent screen.

With regard to the first mentioned, namely, direct inspection of the passages, at first it was thought that its great use would be found in the detection of foreign bodies, but recent work has shown that not only will this be the case, but it is certain to reveal much hitherto unknown about the morbid conditions present in inflammatory affections, neoplasms, simple and malignant, tubercle, specific disease and their sequelæ. No one who has perused what will become a classical work, namely that of Dr. Hermann von Schrötter, of Vienna, can fail to subscribe to this statement, and the same may be said of the work of many of those whose names have been already mentioned in this address.

Speaking of transillumination, Dr. Macintyre was convinced that in the nasal cavities at least, and in conjunction with the X-rays, it will play a more important part in our studies than we have hitherto suspected.

With regard to the X-rays it is not too much to say that their importance has not yet been fully realised. That they have done much and will do more in the study of normal anatomy no one can doubt, whether we regard the subject from the embryological or mature structure; and the study of diseased condition of the bones and injuries has already reached a level not hitherto attained.

Further, during life, the exploration of the cavities by means of dense fluids, such as bismuth or metallic sounds, will yield great important results in the study of the nose, trachea, and œsophagus.

Not only has anatomy gained much, and may gain more, but much will be done to facilitate the study of physiology, as shown by the work of Merkel and Brücke in the study of the movements of the parts in speaking; also by the work of Zwaardemaker, Scheier, Mandelschon, Gutmann, and others in the function of deglutition. The study of the movements by means of the fluorescent screen of the diaphragm, the heart in normal conditions as well as in morbid, also in pleurisy, emphysema, empyema, aneurysm, and new growths, by comparison has already helped much in the study of physiology.

In detecting the formation of pus in cavities, the photographs shown to-day will prove that in the regions of the frontal sinus, antrum and thoracic cavities much valuable information can be obtained. With regard to the chest, it need only be said that ever since Buchert, in 1896, published the results of his study of tuberculosis in the lungs physicians and surgeons have been much indebted to numerous experimenters, and the early diagnosis of tubercle is often made by this method when it would be almost impossible to do so without its aid. Again, pleurisy, emphysema, empyema, enlarged heart, aneurysm, malignant disease in the mediastinal and thoracic conditions are now detected and recorded with a facility and success which few could have expected a few years ago.

When we come to the question of foreign bodies no one has the slightest doubt that direct inspection of the passages and the complementary method of investigation by means of the X rays have yielded results hitherto quite unattainable. The work of many workers in every clinical centre in the world proves this. Within the last twenty months over 150 cases of foreign bodies have been sent to the Glasgow Royal Infirmary.

Dr. Macintyre said it had been his good fortune and privilege for a number of years to have much assistance from the late Lord Kelvin, who, in conversation with him one day, said nothing gave him greater pleasure than to reflect upon the efficient condition of medical training in the present day, because no sooner was a discovery made in the physical or any other laboratory than it became evident that in every school of medicine we had a number of workers ably educated and capable of applying it at the bedside. Indeed, in many instances, he added, it appeared as if the

medical men took the discovery out of the hands of the physicist and applied it to the relief of human suffering before the discoverer himself had time to appreciate its importance or to investigate its nature. Dr. Macintyre repeated that in our special department so great has been the change that many of the chapters in our text-books would have to be re-written, and when these were read it was to be hoped that the judgment of the surgeons of the future would justify the claim that in the regions of the respiratory tract and upper alimentary canal, those engaged in these special departments have shown that they were desirous, at least, of taking advantage of any and every scientific advance which the collateral sciences placed at their disposal.

SOME OBSERVATIONS ON THE RESULTS OF THE APPLICATION OF BÁRÁNY'S TESTS TO "DEAF-MUTES."¹

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SINCE there is considerable uncertainty as to the relation of the results of these tests to both the pathological and physiological conditions of the semi-circular canals, it seems desirable to investigate as many known existing lesions of the eighth nerve as possible. With this object in view I examined the thirty-three children attending the Nottingham Board of Education Deaf-Mute Centre, for which opportunity I must acknowledge my indebtedness to Dr. Gray, the aural surgeon in charge, and to Mr. Green, the schoolmaster, who rendered me every possible assistance.

My idea was that if positive "normal" results to these tests were dependent on a functional labyrinth, no response would be elicited in those cases in which hearing was completely lost or undeveloped. The tests adopted were: *Thermic*: syringing the ear with cold water; that is at the temperature at which it came from the tap; *Electric*: application of the anode and cathode immediately in front of the tragus of each ear with a continuous current of from 20 to 30 volts, and 1 to 2 milli-ampères *viâ* a resistance from the main; and *Rotatory*: rotation of a patient on a stool in both directions with the head erect and eyes closed.

As many of these so-called "deaf-mutes" have some power of

¹ Read in the Section of Laryngology and Otology of the British Medical Association, Sheffield, July, 1908, by kind permission of the editors.