"discovered this should be enlarged. It should also be perforated when "the suppuration of the middle ear involves the mastoid cells or antrum "to such an extent that thorough drainage cannot be secured through "the membrana tympani or external auditory canal."

He strongly deprecates opening the mastoid process if general septicæmia or pyæmia has set in. No reference is made to such operations as the ligature of the internal jugular and irrigation of the sinus. He quotes cases of recovery from septicæmia which would seem, on the other hand, to encourage perseverance in local as well as general treatment. Intra-cranial complications are enumerated, and the variability of their symptoms is illustrated by a list of cases. Little attempt has been made to construct formulæ for the diagnosis between them, and in this respect tradition has possibly been sacrificed for the sake of clinical truth. The student may derive more intellectual satisfaction from the study of Barker's masterly analysis of the subject in his Hunterian Lectures, but he will read them with greater benefit after an examination of the separately recorded cases given in Roosa's tables.

No doubt since the manuscript of this work left the writer's hands many communications of value have been placed before the profession, of which we would gladly have Dr. Roosa's opinion. It is obvious, however, that Dr. Roosa's opinions are not hastily formed. His opinions may, therefore, be recommended to the learner as affording safe guides for action, and to the learned as deserving of that respect which well-weighed and honest arguments will always command.

There are here and there a few errors in the correction of the proofs. As a rule they are unimportant, but the substitution of "grains" for "grams," on page 119, line 28, would probably be desirable. Again, in the description of Fig. 73, "petro-staphylinus" should surely have been "spheno-staphylinus" in the interest of the zealous anatomist.

The book has great literary charm. It is absolutely free from the dryness which is so characteristic of works on otology, large as well as small. The quaint verbal illustrations catch the attention and relieve the unavoidable coldness of the matter, and the crispness of the higher class trans-Atlantic diction makes the study of the book refreshing as well as profitable.

Dundas Grant.

Correspondence.

VOICE TRAINING.

To the Editors of THE JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOLOGY.

SIRS,—Reserving further and more detailed consideration of the conclusions of Dr. Joal upon the mechanism of respiration in singers for another occasion, I would ask permission to say a few words on the review of his papers which appears in the current number of the Journal,

more especially since, as President of the British Laryngological Association, I took a leading part "in the discussion upon the same subject," which has admittedly a share in the inspiration of the article.

I desire to protest against the statement that "there are three generally recognised types of breathing for those who use the voice," *of which the superior costal or clavicular is one*; for I am not aware of any author or of any teacher who advocates this method, which, to quote Morell Mackenzie, "is seldom brought into play except in the dire struggle for breath when suffocation is impending."

I also venture to deprecate the division of abdominal and of costal respiration into two separate types. The diaphragm is acknowledged by all physiologists to be the most powerful muscle of respiration, and must be the first employed for expanding the chest; but, as stated by me in the discussion referred to,[1] *the descent of the diaphragm must of necessity be followed up by costal extension.* This has always been taught in the writings associated with my name,[2] and enforced so frequently that I have even felt it necessary to apologize for its constant reiteration, which, however, does not appear to have had the effect of preventing misapprehension.

It is true that the middle type of breathing, which also brings into play the intercostal muscles, can be employed without descent of the diaphragm; but, as I pointed out in the discussion, while in the method of breathing commenced by depression of the diaphragm and extended to rib breathing the fault of elevation of the clavicle is barely suggested, breathing commenced by costal extension is very apt to lead, and almost always does lead, to elevation of the clavicle.

I have, therefore, always advocated the *full use* of the ordinary breathing muscles, viz., the diaphragm and the intercostals, and have opposed the calling into play of the extraordinary breathing muscles required for *forced* respiration, viz., those which are instrumental in the elevation of the clavicle; and "my withers are unwrung" by any insinuation that I preach "the pernicious doctrine of exaggerated descent of the diaphragm."

With regard to Mandl, against whose teaching Dr. Joal avowedly argues, I fear it must be admitted that he advocated diaphragmatic breathing exclusively, notwithstanding that it is physiologically impossible to use the diaphragm uncombined with rib expansion. But that even he had his doubts on this subject may be seen from the following remarks on page 11 of the second edition of his "Hygiene de la Voix" (Paris, 1879): "Ces divers types respiratoires peuvent se combiner ou plutôt se "succéder les uns aux autres. Ceci s'observe bien dans la respiration "latérale, qui se combine soit avec l'abdominale, soit avec la claviculaire. "En effet, toute inspiration diaphragmatique profonde peut finir par une "inspiration latérale, de même que l'inspiration latérale exaggerée se "termine le plus souvent par une inspiration claviculaire."

[1] Journal of Laryngology, May, 1892, page 226.

[2] "The combined forms of midriff and of rib breathing constitute the right way, and collar "bone breathing is totally wrong and vicious, and should not, in a state of health, be made use "of under any circumstances."—*Voice, Song and Speech*, Thirteenth Edition, page 138. London, 1892.

But supposing that this qualification of Mandl is regarded as insufficient, and that he is conclusively proved to have been in the wrong, it would only show that the "eminent teachers" referred to in the Journal who advocate diaphragmatic breathing are not by any means doing so "in blind advocacy of Mandl's doctrines"; for, so far as I am informed, everyone who in the present day teaches it insists that in abdominal breathing descent of the diaphragm should be followed by full lateral extension of the ribs. And so, after all, the "fashionable" method of even the "lay teachers" of nowadays is not only not "pernicious," but is more in accordance with physiology and common sense than that of those presumably possessed of "knowledge of anatomy and physiology," who would separate the act of inspiration for the purposes of singing into "types" not observed by nature for the ordinary purposes of life.

Yours, &c.,

Mansfield Street, London, LENNOX BROWNE.
June 23rd, 1892.

[Mr. Browne's protest against the statement that there are three generally recognised types of breathing for those who use the voice, and his concluding remarks on those who may be "possessed of knowledge of anatomy and physiology," who separate the act of inspiration into types, are a little beside the mark.

If there had not been a method of inflating the chest in its upper regions so distinctive as to represent a "type," why did Mandl so seriously—and others since him, including Mr. Browne—inveigh against this method or "type"? Mandl's doctrine of diaphragmatic breathing is sufficiently distinctive to be a "type." There is nothing unscientific in the use of the term "type," indeed it is just the opposite. That he is unaware of any author or teacher who advocates this method is unfortunate. Will he be interested to know that there are teachers still who favour this method (Batiste, Bonheur, Cheval, Dally, Laget, Hamonie, &c.), and singers who employ it? Also that there are teachers who talk of nothing but descent of the diaphragm? Why even his own literary colleague—Mr. Behnke—in the discussion he refers to, spoke only of the diaphragm, and the control to be obtained over this organ; and Mr. Browne himself speaks of the descent of the diaphragm being of necessity *followed up by* costal extension, and in his book on "Voice, Song, and Speech," to which he refers, he states that the *criterion of correct inspiration is an increase of size of the abdomen* and *of the lower part of the chest.* We should be sorry to do Mr. Browne an injustice, but cannot help thinking that his remarks bear the interpretation that he places much more stress on the descent of the diaphragm than upon the use of the lower ribs, and we willingly admit that he recognises the importance of expansion of the lower ribs, and is thus on sounder physiological ground than the advocates of abdominal breathing, pure and simple. Advice to the pupil to first contract his diaphragm is more likely to lead to exaggerated use of that structure than advice to expand the lower ribs is to lead to clavicular elevation. Mr. Browne would be well advised in future editions of his work to state clearly whether he wishes to teach full descent of the diaphragm and moderate expansion of the lower ribs, or full expansion of the lower ribs and the moderate descent of the diaphragm—*i.e.*, whether abdominal breathing or costal breathing is to be the chief element of the combined act, which he recommends as the correct method of inspiration. Mr. Browne is also quite mistaken in thinking that every teacher of the present day insists that

"in abdominal breathing descent of the diaphragm should be followed by full "lateral extension of the ribs." There are some teachers who leave the pupil to breathe as he likes, others who speak of nothing but the diaphragm, and there was until lately one well-known teacher in London who insisted on the full expansion of the upper regions of the chest (superior costal breathing).—*Eds.* JOURNAL OF LARYNGOLOGY.]

NOTES.

Dr. EDWARD LAW, Dr. NORRIS WOLFENDEN and Mr. COALL have resigned all connection with the British Laryngological and Rhinological Association.

Dr. LUBET-BARBON (of Paris) and Dr. LICHTWITZ (of Bordeaux) have become collaborators of this Journal.

A MEETING of the British Laryngological and Rhinological Association is to take place on Friday, July 1st.

IN the June number of this Journal there appeared a review of Dr. Albert Bing's "Lectures on Otology." Through some unfortunate oversight the name of the publisher was omitted, and we desire to state now that this interesting book is published by the well-known firm of W. Braumueller, of Vienna.

Witherby & Co., Printers, 326, High Holborn, London, W.C.