

the late Sir Julius von Haast, the bones of numerous species of birds besides moas were found. Their occurrence in the situations where they were discovered, and the way in which they were lying — entire bodies with their sterna covering crop-stones *in situ* — have been explained by the supposition that the moas were overtaken by a fierce and sudden storm, and their entire carcasses piled by wind and flood into vast heaps, an explanation against which the presence here also of the same powerful buzzard and other flying birds rises as an objection. Yet there is nothing either in the situation or the disposition of the bones to make it impossible; still I cannot help feeling that that cannot be the true explanation which satisfies only one instance out of so many assemblages of dead birds of nearly always the same species in situations almost similar. I hope, however, that when I have made a thorough examination of all the localities where, and the conditions under which, moa remains have been found, in the light of the personal experience gained in the exhumation of the present deposit, and when I have completed the identification (on which I am now engaged) of the smaller bird bones associated in them with the moa bones, some light may have been gained on this at present mysterious episode in the history of the ancient Avians of New Zealand.

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#### LETTERS TO THE EDITOR.

**\*\*.** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

#### Need of Physiology and Anatomy in Psychological Training.

In a recent article in *Science*, by Dr. E. W. Scripture of Clark University, some valuable and practical ideas are advanced concerning "the need of psychological training," in which the necessity of a practical knowledge of physics is made clear. But no less necessary is a like knowledge of physiology and anatomy.

Physiological psychology is no misnomer for modern psychology, because it is as much if not more physiological than psychological. That, consequently, a somewhat extensive knowledge of physiology is a *sine qua non* for the thoroughly trained modern psychologist goes without saying; and this is as true whether there be sympathy or not with the modern view, for, in the latter case, the psychologist can hardly avoid discussing some of the results of physiology; and such discussions, to be trustworthy and valuable, must be based upon knowledge. And here is not meant mere book knowledge, but experimental knowledge gained in the physiological laboratory, otherwise when one speaks of sensations, reflex action, afferent and efferent nerves, etc., it is difficult to understand how he can have any adequate insight into the objective reality of these phenomena. It is not intended that any large amount of time be required for purely physiological laboratory work. A term's course, say of six hours a week, might be the minimum; in this case it is assumed that the student has a general knowledge of human and comparative physiology.

If the above requirements are necessary for one who proposes to study physio-psychological questions, it may be inquired further as to anatomical knowledge. That a proper conception of physiology is not possible without anatomy is so obvious as to be commonplace, and yet there are some who are serious students of physiological psychology who have no practical knowledge of anatomy. A general dissection of the body and special dissection of the sense-organs and brain, while it would require more time than the physiological course, would be well worth the extra

trouble, since it is preliminary foundation-work, and is also necessary for the investigation of pathological clinical cases, some of which are of the highest importance for the physiological psychologist. For this and other reasons an elementary course in practical histology is necessary. Thus it is not clear how any student without practical knowledge of coarser and finer anatomy can study and discuss intelligently questions concerning cerebral localization, cranial and spinal nerves, spinal column, medulla oblongata, etc.

It may be objected that many of the facts learned in such a course of study would not be of direct utility, but this could be urged against almost any course of study. The value of such negative knowledge consists in serving as a sort of ballast in aiding the student in avoiding mistakes.

It may be said that if practical courses in anatomy and histology are requisites, why not also similar courses in pathology and psychiatry. It is true that these would be valuable; but there must be a limit; perhaps the student could take up individual pathological cases as they came in the course of his work, provided he has the physiological and anatomical knowledge of normal man before mentioned. It is assumed that the specialist in physiological psychology will read the writings of specialists in physiology, anatomy, and pathology when they treat of topics that bear directly on his own studies. To read such literature, appreciate the points of discussion, and make decisions as to weight of evidence, requires at least a practical elementary knowledge of the subjects.

But it may be objected that, with accurate book learning and good diagrams, one can gain sufficient insight without going to the trouble of taking the practical courses. This objection is more real practically than rationally, for many do not care for vivisection, and much less dissection. It is a well-known difficulty, common to medical schools, to obtain faithfulness in dissection. There seems to be a natural disinclination, not of the nature of dread or disgust that may appear on first entering the dissecting room, but quite another feeling, that is easier experienced than described. The physiological psychologist who has had no medical training is very liable to have a strong disinclination to practical work in anatomy, even if he believes in its utility and necessity. Then there is sometimes the feeling that it is so much easier and saves time to sit quietly in one's own room and study the books and diagrams.

It may be said that some good workers in physiological psychology have never had this preliminary training, but this is rather in spite of such training. As is well-known, many students of philosophy, having become dissatisfied with its methods and results, have turned their attention to experimental psychology, and have neither time nor opportunity to return to preliminary work, which they could have done had they known beforehand the subsequent direction of their studies.

The fact that the majority of leaders in the department of physiological psychology were previously physicians or students of medicine indicates the direction which the training in physiological psychology should take.

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#### Anthropology.

THE science of anthropology has so far progressed that it is desirable to keep a satisfactory account not only of its operations but of its resources. Under this head should be included: 1. Encyclopædic works, general treatises, annual addresses, courses of lectures, dictionaries, general discussions, and classifications of the science as a whole. 2. Societies, their organization, scope, history, enterprises, and publications, as well as annual assemblies, caucuses, congresses, national and international. 3. Periodicals, devoted as a whole or in part to anthropology. 4. Museums and laboratories, public and private, expositions and loan exhibitions. 5. Libraries, galleries, portfolios, etc., including instructions to collectors.

At this time it is desirable to know what is doing in each State along the line of anthropology. We all know pretty well the work doing in Massachusetts; but where should we look for the