sidered; as, for example, how and where to cut to make out the anatomy of the special parts, and their relations to one another. The directions are clear and concise, and the student will have no trouble either in dissecting or identifying the various parts. We think the introduction of clear woodcuts an important and legitimate aid to the student, and a great improvement thereby over Huxley and Martin's 'Biology.'

The book, in short, is admirably adapted for laboratory work, and furnishes to the student who will take specimens in hand, and dissect with care, a sufficient guide in making out the essential points in vertebrate anatomy.

RECENT PHYSIOLOGICAL TEXT-BOOKS.

HUTCHISON'S physiology has been before the public for some time, and apparently has met with considerable success as a school text-book. The revised edition that is now offered has but few changes. The book as a whole is commendable as a collection of facts, physiological, anatomical, and hygienic, a knowledge of which will be useful to people of all callings in life. But it is questionable whether it is a book that a thoughtful physiologist would like to see generally introduced into schools as a text-book. No chemist at the present time would wish to have an elementary text-book of chemistry merely a collection of facts or receipts, however interesting and useful such facts might be. The demand is being made in that branch of science for text-books of a higher order, which shall make the facts presented, as far as possible, illustrations of the more important general laws of chemical action. Some such reform should be attempted in elementary text-books of physiology. Physiology is worthy of being taught, in part at least, as a branch of human knowledge, or for the sake of mental training, and not simply for the purpose of preserving health, or enabling a person to conduct himself properly in case of an accident.

The remarks upon personal hygiene in the book are in the main well chosen and to the point; but, in regard to the action of alcohol, the author's prejudices, or desire to do good, have evidently biassed his statement of facts. The book contains a number of errors which should be corrected; such as, "sugar changes to fat in the body," "the acidity of the gastric juice is due to lactic acid," and the rather incomprehensible statement that albumen gives 'smoothness and swift motion' to the plasma of the blood. Another error common to both books under review is, that the proteids of the blood are spoken of as albumen and fibrine. There is no such thing as fibrine in circulating blood; and, if it is necessary to mention at all the chemical constituents of the plasma, something a little more in accord with what is actually known might be given.

Tracy's book aims to be a more scientific presentation of the facts of physiology and hygiene than is usually met with in elementary text-books; but whether the result has fulfilled the author's expectations is one of the things that might be doubted. It is scarcely scientific, for instance, to speak of alcohol as a 'rank poison,' without any qualification whatever. While such language is expected from a temperance orator, it is somewhat out of place in an elementary book supposed to give generally accepted facts. Quite enough can be said truthfully against the use of alcohol without making statements which are not borne out by the facts of physiology.

The book has some serious defects, such as the failure to say any thing at all of the function or structure of the kidneys, except in a purely incidental way. It contains also numerous errors or badly emphasized statements; such as the origin of lymph (p. 88), the action of the sympathetic nerves (p. 175), the mechanism of the reflex secretion of saliva (p. 178), the statement that all bones are at one time cartilaginous, etc. Some of the chapters — that on respiration, for instance — are well written, in clear and accurate language; and the remarks on hygiene form, probably, the best part of the book. But, as far as its physiology is concerned, the book bears evidence of having been written by one not thoroughly conversant with the subject.

A treatise on physiology and hygiene. By JOSEPH C. HUTCHISON, M.D., LL.D. New York, *Clark & Maynard*, 1884. Illustr. 8°.

The essentials of anatomy, physiology, and hygiene. By ROGER S. TRACY, M.D. New York, *Appleton*, 1884. Illustr. 8°.

A TEXT-BOOK OF PHYSICAL GEOLOGY.

THE author of this small volume has made a step in the right direction, for the plan of his book involves the wise omission of historic geology and paleontology, — subjects into whose full meaning the beginner makes but little real progress. The book would have been further improved by the omission of much of the sec-

The student's handbook of physical geology. By A. J. JUKES-BROWNE. New York, *Scribner & Welford*, 1884. 12 + 514 p., illustr. 8°.