deals with telescopic and balloon photography. We do not believe that the latter will be of great service to the surveyor, except in cases of war for the military engineer, and it may be useful for showing the culture of extensive tracts of land without commanding points in resurveying.

Beginner's Anatomy, Physiology, and Hygiene. By JOHN C. CUTTER. Philadelphia, Lippincott. 16°. 30 cents.

FROM the title of this book, and from the preface, we gather that it is intended for young pupils, for beginners, and we are therefore gratified to find that the writer proposes to employ such language as is simple and direct, and that technical and long words are, as far as possible, avoided. Throughout the text this rule has been fairly well adhered to, though when our eyes fell upon the frontispiece, we began to fear that the author had forgotten to carry out the plan which he had promised. This frontispiece represents the muscular system of the human body, and the scientific names of these muscles are given as they would be in the most advanced work on anatomy. Orbicularis palpebrarum, occipito-frontalis, sterno-cleido-mastoid, extensor carpi-radialis, and others too numerous to mention, stand out prominently in the illustration. This same criticism applies to other figures in the book, although perhaps to a less degree.

While it may be well to describe the effects of alcohol and tobacco in such a work as this (and of course, to meet the demand for which this and so many other books of this kind have been recently written, this must be done), we question whether it is wise to speak of the effects of chloral. The writer says of it, that, "when used for some time, it may cause heart-trouble. It lessens the heart's power. It makes its action irregular. It sometimes, in a small dose, causes death by suddenly stopping the heart's action." In another portion of the book he says that in proper doses it induces rest and sleep. This kind of talk should, in our judgment, be omitted from a book written especially for beginners. The phraseology of some parts of the book is open to unfavorable criticism. In speaking of deformities of bones of children and youth, the author says that corsets and snug-fitting shoes ought not to be worn by the young, the inference from which statement would seem to be that these articles may be worn by the adult; and yet in another place he says, "Do not wear close-fitting chest and waist garments. Corsets and tight vests compress the lower ribs. They press the digestive organs out of place. They hinder deep and proper breathing."

Another inconsistency we observe in the following statements: "Cheese is a rich and hearty food, suitable for hard workers." "A food which disagrees with a person ought to be avoided. As a rule, pastry, cheese, fresh white bread, and 'made dishes,' most often cause discomfort." Dr. Cutter is opposed to candies for children. He says that common pure candies contain not only cane-sugar, but materials which are difficult to digest. Candies "should be denied children." We think the doctor goes a little too far in thus absolutely prohibiting the use of candies. There is no doubt that they are abused, and that it would be far better not to use them at all than to continue their excessive use; but at proper times, and in proper quantities, we do not think that good candies are so pernicious as he would have us believe.

The author incorporates in his book what he calls "simple directions for the management of a few common emergent cases," which, from the references already made, we infer are intended as a guide to the young pupil, the beginner. Under the heading 'Management of a Poison Case,' he says, "If it is an irritant poison (like verdigris, corrosive sublimate, etc.), give rapidly-beaten-up eggs. If it is an opium compound, give strong coffee, and keep the patient awake. If it is a vegetable narcotic (henbane, belladonna), keep him quiet. Always summon the ablest doctor to manage the case." It would, we imagine, be a sufficiently difficult task, especially for a young pupil, to determine whether the poison taken was an irritant, an opium compound, or a vegetable narcotic; but to decide who is the 'ablest' doctor, *hic labor, hoc opus est.*

While there is much in this book to criticise, there are also many things to commend. The general arrangement is good, and the figures are fairly illustrative of the text. There is one feature which is especially noteworthy, and should be reproduced by writers of other text-books of this kind. We refer to the instructions to teachers for the demonstration to classes of the principles of physiology; as, for instance, the demonstration of the movements of the blood in a frog under the microscope, and the changes which take place in the size of the human chest during inspiration and expiration; and the impoverishment of the air during respiration. This method has been admirably worked out by Professor Martin of Johns Hopkins University, in his text-books; and we are glad to see that Dr. Cutter has embodied the same plan in his book.

Taken as a whole, 'The Beginner's Anatomy, Physiology, and Hygiene,' is neither better nor worse than many other books of the same class, scores of which have lately issued from the press in response to the demand for physiologies which should teach the effects of alcohol and narcotics.

A Treatise on Algebra. By CHARLES SMITH, M.A. New York, Macmillan. 8°. $1.90.

THIS work is the latest put forth by the English press, which is just now very prolific in algebras.

The present work is intended for students who already have some knowledge of elementary algebra. For this reason the opening chapters, while complete, are nevertheless brief.

These chapters differ but little from those of the text-books in common use. Stress is laid, however, on the idea that algebra is simply the science of numbers; and the commutative, associative, distributive, and index laws are well illustrated.

Some theorems are introduced much earlier than usual. Thus, detached co-efficients are introduced in the chapter on multiplication, and the theorems on the divisibility of rational integral expressions in the chapter on factoring. In this last chapter, also, the quadratic expression ax^2+bx+c is resolved into its linear factors; and this method of resolving into factors is adopted for the solution of all quadratic equations.

Chapter IX. treats of equations with one unknown, — simple, quadratic, binomial, and reciprocal, — and contains so much, that it is decidedly confused, and the weakest chapter of the book. Here, also, the author fails to explain the terms 'infinite' and 'infinity' in a satisfactory manner.

Chapter XII. is on symbolic algebra, and contains seventy excellent examples.

Imaginaries are treated by modern methods. In the definition of 'arithmetical progression,' the customary *lapsus calami* is made. Choice should be illustrated with more examples. Series are fully and clearly treated. The binomial theorem is proved by a modification of Euler's proof, based on the introduction of Vandermonde's theorem. Euler's own proof is also given. Logarithms are considered without any thing being said about the proof of the index law for incommensurable exponents, the almost universal omission.

The definition of 'probability' is the usual faulty one given by Todhunter and others. This chapter is not clear, and is too short.

The chapter on determinants is based on the well-known works of Muir and Dostor, and is by far the best short treatment of determinants with which we are acquainted in any language. This chapter contains all the essential parts of the subject, and we recommend it to every one who desires a brief but comprehensive knowledge of these famous expressions.

On the whole, the book much resembles that of Mr. Todhunter. In form Mr. Smith has improved on the latter's work; but in fundamental ideas, — ideas which go down to the root of mathematical reasoning, — and in definitions, Mr. Smith's work is but little, if any, superior to Mr. Todhunter's. The book is simply an excellent text-book of high grade, its most distinctive feature being the chapter on determinants.

Eighteenth Annual Report of the Massachusetts Bureau of Statistics of Labor. Boston, State. 8°.

CARROLL D. WRIGHT'S Massachusetts report for 1887 deals very exhaustively with a single subject, — the unemployed. The figures taken are those of the State census of 1885, and show a wide distribution of the unemployed as a whole, because the industries of the State were in a more or less depressed condition. The investigation comprehended "all remunerative occupations, of whatever