work may be regarded as a briefer presentation of the doctrines taught by Mill, and hence this digest will serve to a certain extent as a summary of Mill's work also.

What Shall we Talk About? New York, T. Nelson & Sons. 16°. $1.

THIS is one of the old-style educational books, in which some parents or grand-parents entertain a party of children with wise and instructive stories and adventures. The present volume treats in this style a great variety of subjects referring to natural science. Descriptions of animal life, and anecdotes, come in for a large share of the space; but, besides, astronomical and physical phenomena are explained. We fear that some of the subjects treated, as well as the style of the book, are quite beyond the grasp of children as young as those for whom it is intended. The treatise on the physical properties of air on p. 139, to point out one instance, cannot be understood by children. The author neglects throughout the book to stimulate the power of observation, and gives theories instead. Besides, the cursory way in which phenomena having no connection whatever are treated without order and regularity must be rejected from an educational standpoint, as it promotes superficialness.

A Text-Book of Algebra. By W. S. ALDIS. Oxford, Clarendon Pr. 12°. $1.90.

THE present work is in its general plan similar to that of Professor Chrystol, published in 1886. While containing many of the new methods and conceptions which render the latter work so valuable, Aldis's work is less exhaustive than Chrystols', and does not depart so far from the ordinary text-books in general use as Chrystols' does. On this account it is better suited to teachers and students familiar with the rudiments of algebra. Indeed, the book is one which should be in the hands of every mathematical teacher in a high school, academy, or college in the country. It is only by the help of such works as the present one that mathematical education can be raised to a higher standard than it at present possesses.

The peculiar excellences of the book are found in the two opening chapters, which together occupy fifty-one pages. The book begins with a thorough discussion of arithmetical ideas. The process of counting leads to the idea of positive integers; thence addition, and its inverse operation subtraction, arise; next come multiplication, and its inverse division. By division we are led to the idea of fractions.

Chapter II. is devoted to algebraic notation. By subtraction we are led to the idea of negative numbers. The laws governing such numbers are fully discussed and carefully illustrated.

At the end of the second chapter is introduced a brief treatment of vector quantities: this is introduced simply to show the student that "algebra is something very much wider in its scope than a mere substitution of letters for numbers to aid in the solution of general arithmetical problems." These words are the author's own.

The remainder of the book differs little from the well-known text-book of Todhunter. The last chapter, on choice, might have been extended with advantage.

The book is marred by clumsy and faulty language. Many of the definitions lack precision, and many terms are introduced without definition. Some words are made to have two inconsistent meanings.

NOTES AND NEWS.

THE first number of the *Internationales Archiv für Ethnographie* has just been issued. The new journal is edited by J. D. E. Schmeltz, curator of the National Ethnographical Museum at Leyden. It is novel in plan, being exclusively devoted to the discussion of the ethnographic specimens collected among the various tribes and races. The journal will make accessible by illustrations the collections deposited in the various museums of the world. The text will contain papers in French, English, German, and Dutch, according to the choice of the author. The subjects of the papers will be the ethnographical results of expeditions, descriptions of newly discovered ethnographical objects, and studies of collections. Objects the origin of which is doubtful will be figured and discussed. The plan of the journal includes also the study of prehistoric remains. As the material for ethnographical studies is so widely scattered in private and public collections, the establishment of such a journal must be welcomed by all students of the science of man. In order to make it the centre of such studies, a number of co-editors in various countries contribute to the journal. The first number shows that the journal will be of the greatest value. Three beautiful chromolithographic plates and a number of cuts illustrate the text. The plates show a large collection of New Guinea arrows, to illustrate a paper by Dr. L. Serrurier, in which the various forms of arrows of this large island are ably discussed, and the principal object of which is to show that only a large collection will enable us to determine the typical forms of ethnographical objects, and to draw reliable conclusions. The third plate is devoted to the mandaus, the sword of the Dayak, the manufacture and ornaments of which are described in detail by S. W. Tromp. This paper is illustrated by a series of cuts showing the ornaments and various forms of handles. The rest of the paper is taken up by notes on recent additions to collections, a bibliographical review, and a discussion of objects of doubtful origin. The periodical is to appear bimonthly, and each number will contain about twenty-four pages text in quarto, and three chromolithographs. The journal is published by O. W. M. Trap, Leyden.

— The most interesting feature of the twenty-first report of the trustees of the Peabody Museum is Professor Putnam's report on the purchase of the Serpent Mound in Adams County, O., for which a number of ladies of Boston subscribed a sum of nearly six thousand dollars, and on the steps taken to secure the preservation of the interesting monument. Eight weeks were given to the careful restoration of the great earthwork, erecting a fence about it, so that only persons on foot can enter the enclosure. The land was cleared of brush and briers, and the mound was sown with blue-grass-seed. A road half a mile long was made, extending to a grove of maples in the south-eastern corner of the grounds, in which are two springs. This grove has also been enclosed by a fence. A substantial spring-house of stone has been built, and trees are now being planted along the road. A gravel path has been laid out from the spring to the serpent, and various other improvements have been made. It is highly gratifying that Professor Putnam has succeeded in preserving this remarkable monument, and the liberal action of the subscribers will undoubtedly be a material help to future endeavors to preserve ancient monuments in the United States. Several changes have taken place in the board of trustees of the museum: Col. Theodore Lyman resigned his trusteeship, and Mr. Samuel H. Scudder was elected his successor. George F. Hoar, who resigned the presidency of the American Antiquarian Society, was succeeded by Stephen Salisbury. Professor Putnam became trustee as president of the Boston Society of Natural History. Professor Gray was succeeded by Professor Lovering, president of the American Academy of Arts and Sciences.

— A new thermometer for measuring the temperature of the air has been constructed by R. Assmann. In order to protect it from the influences of radiation and other sources of heat, he inserts the bulb of the thermometer in a metal tube which is open at its lower end. An aspirator is fastened to the tube near the bulb, and a continuous current of air of about seven feet velocity passes the latter. Thus it assumes the true temperature of the air. The tube is made of highly polished nickel-plated brass in order to protect it from radiation. Experiments show that this thermometer gives entire satisfaction. Two instruments, one of which was exposed to the sun in July while the other was shadowed, showed the same temperature. A dry and a wet thermometer being inserted in the tube, it serves as hygrometer in the same way as the ordinary thermometer. Undoubtedly the device is superior to the arrangement of thermometer now in general use.

— Prof. David S. Martin is about to publish the large-scale geological map of the environs of New York City, which he exhibited at the recent meeting of the American Association for the Advancement of Science. The object is to furnish a map in which all those important geological features which were not before brought together in one representation, can be clearly seen by an audience or

a class. The coloring will be the same as in Hitchcock's geological map of the United States.

— The *Journal of the Royal Society of New South Wales* for 1886 contains a very interesting sketch of the history of the floods in Lake George, by H. C. Russell. The lake has no outlet, and since its discovery in 1820 it has been dry twice. According to reports of the natives, the basin contained no water for some time previous to 1820. In 1823 it reached its highest level, attaining a maximum depth of twenty-four feet. Then it commenced to dry up, and in 1838 and 1839 it contained no water. In 1840 four feet of water were found in the basin, which, however, from 1845 to 1849, was again completely dry. During the ensuing ten years the lake began to fill, but in 1859 it was dry for the third time. Since that time it steadily increased in size until 1874, when it reached the same height as in 1823. This record is of great interest, as it shows the alternating periods of humidity and dryness. It is particularly important in connection with Seibt's and Brückner's studies of similar changes in the levels of lakes in the northern hemisphere, which were noticed in No. 232 of *Science*. Brückner arrived at the conclusion that the whole of the northern hemisphere passed through a dry period between 1830 and 1840. This was followed by a period of increased humidity about 1850. A new dry period developed between 1860 and 1865, while after 1875 the precipitation increased. The periodical changes of Lake George agree with these results. From these and several other facts, Brückner infers, in reviewing Russell's paper, that the whole earth takes part in these periodical changes.

— Domingos Soares Ferreira Penna, the Brazilian naturalist, died at Pará, Brazil, on the 8th of January. During the last twenty-five or thirty years not a naturalist has done any work in the Amazon region who is not more or less indebted to Snr. Penna in one way or another. Agassiz and Hartt and the members of the late geological survey of Brazil were greatly aided by his valuable personal knowledge of the region, and by his useful suggestions. He was at one time secretary of the province of Pará, and at the time of his death was director of the Provincial Museum at Pará.

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.*

Twenty copies of the number containing his communication will be furnished free to any correspondent on request.

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

Ratio between Men and Women.

PROF. W. K. BROOKS of Baltimore has discovered that a favorable environment tends to produce an excess of females among animals and plants, and an unfavorable environment an excess of males. If this be true, a race or species which is on the point of extinction should have an excess of males.

The population of Australia consists of a small and decreasing number of aborigines, and a prosperous and increasing population of foreign settlers and their descendants, amounting, in all, to nearly three millions of persons. As the native population is rapidly disappearing, we should expect to find the males more numerous among them, as compared with the females, than among the inhabitants of foreign origin, provided other conditions are equal. For each 100 females there were in Victoria, of native-born Australians, $100\frac{8}{10}$ males; and of foreigners, exclusive of Chinese, $129\frac{1}{10}$ males. The ratio of males to females in the population of foreign origin is therefore very much greater than it would be if it depended upon the birth-rate alone; and, as this modifying influence does not affect the aborigines, an excess of males among them no greater or even a little less than that found among the inhabitants of foreign origin would indicate that the excess of male births is much greater among them than among the people of foreign origin. Computation shows that the excess of males among the aborigines is, notwithstanding these neutralizing influences, very much greater than it is among the foreign population.

For all Australia there are 143.72 aboriginal males to each 100 females; there are only 118.64 males of foreign descent to each 100 females, notwithstanding the fact that 129 males settle in these colonies to each 100 females.

To those who wish to follow this subject further, it may be interesting to know that an enormous collection of statistics relative to the Indian tribes of the United States was made under the direction of Maj. J. W. Powell. The results of this census have not been published, but the material is still available, and would furnish a much better basis of comparison than the one chosen by Professor Brooks. O. T. MASON.

Washington, D.C., Feb. 27.

Classification of Diphtheria.

THERE is a very striking resemblance between the membrane of diphtheria and the fungi that produce dry rot, or more especially those forms that grow in living trees. A white or yellow leathery substance is produced, sometimes known as 'punk,'—the *Merulius lachrymalis* in dead wood, and some species of *Polyporus* in the living. The hyphæ, or roots, penetrate the cells of the wood in every direction, producing disintegration and decay.

Diphtheria is called an exudation, and classed as a bacterial disease, a *Schizomycetes*, when in fact it is a fungus of a higher order, a *Hyphomycetes*. It grows on the surface, and spreads by fibulations, and its roots penetrate deeply into the tissue, producing changes and decomposition, which becomes the soil for bacteria, generating poisons that are absorbed and powerfully affect the whole system. In this view its life-history has not been studied or found out. It is known that the membrane can be transplanted, and that the surface abrasions on which it grows are of a painful, smarting kind. How it is propagated by spores is unknown. There is evidently some peculiar condition required, as in the *Merulius*, which will not grow unless an alkali is present. It may be that an alkaline condition of the system is required, which is the reason of the capriciousness of its infection.

The treatment of the disease in this light assumes a new aspect, and gives purpose to thorough local antiseptic applications; i.e., thorough eradication of the fungi before it can have time to poison the system. P. J. FARNSWORTH.

Clinton, Io., Feb. 22.

Sex and Consumption.

I WAS delighted at seeing the main tendency of the article on sex and consumption, that appeared in *Science* of Feb. 3. The views that I have since 1882 been trying in vain to get investigated here, appear to be receiving serious attention in your great country. That this progress in a question of nothing less than the life or death of a large multitude of the civilized world may not be checked by the presence of one or two erroneous inferences in that article, I shall be glad if you will permit me to point them out.

Although for the present time it is true that the total male mortality exceeds that of the female, yet that neither applies to all periods of life, nor is the difference so great as to justify the term 'protected' to the female in any sense. From the age of five to fifteen, the female mortality from consumption is much greater than that of the male, and it is in the later periods of life that the latter preponderates. Further, in the strictly rural districts the female mortality exceeds that of the male; and it is only within a comparatively recent period that the total male mortality has exceeded that of the female, and that has been brought about by men who had been brought up and engaged in country pursuits, rushing into town employments. One word more. An organ that is subject to hyperæmia does not gradually waste away, and hence we must look elsewhere for an explanation of the mode in which those conditions of our civilization that tend to reduce the capacity of the chest produce consumption. G. W. HAMBLETON.

London, Feb. 16.

A Worm in a Hen's Egg.

THE nematoid worm sometimes found in the white of the hen's egg is not *Ascaris lumbricoides*, as your correspondent of last week supposes, but a *Heterakis*, generally *H. inflexa*, the normal habitat of which is the fowl's intestine, but which occasionally wanders into the oviduct. R. RAMSAY WRIGHT.

Toronto, Ont., Feb. 28.