

those from the caves of the Dordogne, including needles and the peculiar barbed harpoons, have been found in caverns in the north of Spain; but at present no remains of reindeer have been found associated with them. Notwithstanding this fact, the caves would appear to be of about the same age as those of La Madelaine.

The remains of Neolithic age found within the Iberian Peninsula form the subject of the next portion of M. Cartailhac's book. Foremost among these he places the shell-mounds, which in some parts of the valley of the Tagus attain to considerable dimensions. Those at Mugem were visited by many of the members of the Prehistoric Congress, and it is somewhat remarkable that the mollusks, of the shells of which the *Kjökken möddings* principally consist, no longer are occupants of the Tagus near the mounds, but are only to be found much lower down the river, where the waters are more salt.

The principal worked flints that occur in the mounds have much the appearance of having been chisel-shaped arrow-points. Curiously enough, the mound which was thrown up as a refuse-heap by the living has been also utilised as a cemetery for the dead—intramural interments having probably not been forbidden. Some of the caves have furnished remains of pottery covered with a raised reticulated pattern, as well as objects in stone, bone, and shell. Many of them have also been the site of Neolithic interments, and the Casa da Moura has furnished one of those remarkable skulls on which trepanation has been begun but not finished. Large flat lance or javelin points of flint were found in this cave, having both faces polished after the manner of some Irish specimens. Indeed, there is a considerable resemblance in the *facies* of the flint antiquities of Portugal with what prevails in Ireland, and this somewhat corroborates the view of there having been in ancient times Iberian settlers on the shores of Hibernia. The resemblance between some of the bronze implements of the two countries is also worthy of notice. A number of ornamented pendants of slate, some of peculiar plume-like form, have also been found in the caves, the devices upon them being formed of notched and plain triangles and zigzags of almost identical character with the ornaments upon some of the Irish bronze celts.

Some imitations of stone or possibly bronze celts mounted on handles, as adzes, are very remarkable. They are carved in marble or soft stone, so that they could hardly have been used as cutting tools, but they may have had some symbolical meaning. The most interesting of the burial-places are the *Antas* or dolmens, of which a considerable number exists, some of large dimensions. In their general character they much resemble the megalithic monuments of France and Britain. Chambered barrows and *allées couvertes* are also known. In them have been found arrow-heads not unlike some of the Danish forms, with very long curved barbs and no central stem, as well as others of more simple triangular forms. In the dolmens also some of the chisel-shaped tips like those from the shell-mounds have occurred.

Traces of the old copper-mining industry of Spain have been found in the shape of large mauls of stone, with a groove or channel around them destined to receive the withe which formed the handle. The bronze swords and daggers much resemble those of Southern France and

Italy, while the flat celts of bronze and of copper are like those of Ireland. The palstaves, however, or flanged hatchets, have frequently a loop on either side, instead of one only as is commonly the case in most European countries. The socketed celts have also frequently two loops, a peculiarity which is more common in parts of Russia than in other countries of Europe.

Coming down to what our author calls protohistoric times, various weapons and ornaments of the Early Iron period are figured, as well as some slabs of stone inscribed with what are apparently Phœnician letters. Of these, however, no interpretation is given. The concluding chapter is devoted to anthropological remarks, and full particulars are given of a series of skulls from some of the caves, together with photographic illustrations.

The preface to the work is from the pen of M. A. de Quatrefages, who, however, goes far in advance of M. Cartailhac in his acceptance of the discoveries of Tertiary man.

Those who are interested in the early history of mankind, and in comparative archæology in general, will do well to consult M. Cartailhac's book, in which they will find many other points of interest besides those which have been summarised in this brief and imperfect notice.

J. E.

#### OUR BOOK SHELF

*Educational Exhibits and Conventions at the World's Industrial and Cotton Centennial Exposition, New Orleans, 1884-85.* Special Report by the Bureau of Education. Part I. Catalogue of Exhibits. (Washington: Government Printing Office, 1886.)

THE extensive collection of everything connected with education which was to be made at the Exhibition held at New Orleans, and also the remarkable success of the United States Bureau in obtaining and dispersing educational information, have been referred to more than once in this journal. The Hon. John Eaton, Commissioner of Education, accepted the post of Superintendent, and the Government encouraged him to do everything in his power for the success of the undertaking; and this not unwisely, for the excellence or otherwise of the education exhibits of any locality is regarded as an attraction or warning by the most valued class of emigrants. Accordingly he made use of a visit to France, Belgium, and England to gain exhibitors, and in France he was very successful. At the Exposition he addressed large assemblies of teachers, and to himself as well as to the Bureau which he represented were awarded "Grand Diplomas of Honour" for valuable contributions. An illustrated catalogue of apparatus lent by the Bureau for experiments in the leading departments of physics is given in the Report. Among these the electrical instruments, as also a solar microscope, were particularly attractive at the Exhibition. Each State was urged to send specimens of the work, as also any objects which illustrated the growth and present condition, of its University; of its normal schools; of its schools of each grade; the work, on uniform paper, of children in every subject and standard; photographs and ground-plans of its best schools; school literature published in the State; technical work also, and both the methods and the performances of special schools, as for the blind, &c. Though not many States responded fully to this wide invitation, yet the fact that over nine thousand specimens (many of them *volumes* of school-work) were exhibited by Ohio alone, with regrets that a more complete set from all cities could not be got together, shows that a worthy response was made in some cases.

As much school *matériel* was exhibited as manufacturers could be induced by a circular from the Bureau to show gratis, and naturally the smaller articles were profusely sent in. Where specimens were deficient, as in the case of heavier furniture, heating and ventilating apparatus, &c., they were not unfrequently purchased and supplied by the Bureau, as was also a fully equipped laboratory arranged so as to economise space in schools.

Among the objects supplied by American exhibitors, were statistical charts of every educational subject. Manual training, a matter of special value in the Southern States, was carried on in the building, and the boys' products attracted particular interest. An effort was made that household industry, in its four departments of nursery, kindergarten, kitchen-garden, school of cookery, with sewing, &c., should be fully illustrated, but the first and fourth were not found practicable. A model kindergarten, in which sixteen children were being taught by means of choice objects in each important department of knowledge, instead of with books, and so furnished that it looked the brightest and pleasantest room in the building, was exhibited by the Commissioner; and kitchen-"garden" instruction, *i.e.* in domestic servants' work, was given on four afternoons a week during March and April.

Gymnastics and physical education with apparatus for exercises of various degrees of severity were shown, with lessons and illustrations several times a day. Library appliances, as well as every description of educational works, were largely exhibited in this land of the free library. Specimens of work from reformatory schools, boots, brushes, wood-work, and clothing made by boys had their place beside photographs, publications, kindergarten work, sewing and fancy work done by girls. Washington exhibited a collection of apparatus for showing the simpler scientific experiments, made by public school pupils, the illustrations of which, given in the Report, show how brain and fingers have worked together there. From the same city also was sent a miniature copy of a school recently erected there, set up as a "model" school in both senses of the word, but plans of it are not given in this Report.

One of the most important exhibitors was Prof. Ward, of Rochester, N.Y., of whose museum of natural history, though it comes under the head of commercial department, a full-page ground-plan is given. It consists of a well-balanced collection of specimens of recent stuffed and extinct restored animals; specimens of minerals found in the United States; and models of the most important geological features from all the best known parts of the globe.

An item worth notice in grammar-school, *i.e.* second-grade, education, is a collection of maps made by the boys under the master's instructions, showing countries in relief, with their natural productions denoted by little pieces of minerals, or grains of rice or corn.

*A Text-book of Pathological Anatomy and Pathogenesis.* By E. Ziegler. Translated and edited by Donald MacAlister, M.A., M.D. Part II. Special Pathological Anatomy, Sections IX.-XII. (London: Macmillan & Co., 1886.)

THIS, the third volume of the work, fully justifies the high opinion we expressed of its predecessors. In point of excellence of treatment, lucidity of description, general arrangement of the subject, fullness of detail, and abundance of excellent illustrations, it gives to the work as a whole a completeness and thoroughness which, we believe, have not been attained by any previous work, in English or foreign tongues. The pathology of the urinary organs is described in Section IX. (Chapters lxxiv.-lxxv.); Section X. (Chapters lxxvi.-xc.) treats of the diseases of the respiratory organs, the thyroid and thymus glands; Sections XI. and XII. (Chapters xci.-ciii.) of the pathology of the central and peripheral nervous system. If amongst

all that is good in the volume we had to choose what is best, we should name the chapters on the pathology of the lung and central nervous system. The classification and the detailed description of the morbid changes of these two organs are most excellent in every respect.

As in the previous volumes, so also in this, a carefully collected summary of the more recent references is given in connection with each subject. A useful index, both of the names of authors cited and of the subjects treated, concludes the volume. The illustrations are copious, representative, and well-chosen. Those illustrating the pathology of the kidney and respiratory organs are in point of printing far above the illustrations one is accustomed to see in English text-books.

As a text-book for students, and a book of reference to workers in pathological anatomy, it is unequalled.

E. KLEIN

*Hours with a Three-Inch Telescope.* By Capt. Wm. Noble, F.R.A.S., F.R.M.S. (London: Longmans, Green, and Co., 1886.)

THE present volume, which is to a great extent a reprint, is designed for the help and instruction of those who, possessing a small telescope, are at a loss as to how best to use it. On the whole, the book well fulfils its author's purpose. Clear, simple, straightforward, and practical, it gives just that elementary instruction in the use of a small instrument which so many require, and which has hitherto been provided for them nowhere else, and it will undoubtedly serve as a good introduction to more advanced books, such as Webb's "Celestial Objects." Occasionally a rash statement needing correction is met with—*e.g.* the footnote on p. 84—but for the most part the book has been carefully written. It is illustrated by a good map of the moon, and by over one hundred woodcuts. The latter are clear, but possess no special merit otherwise; indeed, the representations of Jupiter and Saturn are poor; but, despite a few such slight blemishes in detail, the volume cannot fail to be useful.

*Lunar Science.* By the Rev. Timothy Harley, F.R.A.S., Author of "Moon-Lore," &c. (London: Swan Sonnenschein, Lowrey, and Co., 1886.)

THIS little book contains a clear and interesting account of the essential facts known about the moon in ancient and modern times. Having referred, in the introduction, to some of the more general aspects of his subject, the author proceeds to discuss, in separate chapters, the moon's distance, its size, shape, substance, formation, condition, surface, and motions. In the chapter on the moon's motions, the writer has a good deal to say about the use which has been made of the moon as the measurer of time. "The etymology of the word," he says, "is full of meaning. 'Moon' and 'Month' are twins, whose parentage was Sanskrit." The truth, of course, is, not that "their parentage was Sanskrit," but that "Moon" and "Month" and the Sanskrit word "Mâs," the measurer, have the same root. As kindred words appear in several other Aryan languages, it may be assumed that the moon served as a chronometer to the Aryans before they dispersed. The Athenians began their year upon the first new moon after the summer solstice, and this year they divided into twelve months, containing alternately thirty and twenty-nine days. Each month, again, was divided into three decades. The Romans also divided their months into three parts, and, says Mr. Harley, "the first day was called *Calendæ*, from an old verb meaning 'to call out,' because a pontiff then made proclamation to the people that it was new moon. These *Calendæ* have given us our word 'calendar.'" Among the North American Indians, time is computed by moons or months, and they talk of the "beaver moon," the "buck moon," the "buffalo moon," and so on, exactly as the Greeks used to talk of the "planting moon," the "reaping moon," the "wine moon," and the like.