

The observatory of the Urania will be furnished with a number of small instruments; but, in addition to these, it will have the most powerful telescope of Berlin. The lens of the great refractor will be twelve inches in diameter, while the length of the telescope is to be five metres. The dome is eight metres in diameter.

The establishment of this grand institute marks a new departure in the methods of popularizing the natural sciences, and its influence cannot fail to be wholesome. It will educate the masses to an intelligent observation of natural phenomena.

SCIENTIFIC NEWS IN WASHINGTON.

Irrigation in California. — The Nucleus of a "Zoo." — Mounds of Ohio. — Triple Births in the Human Race. — The Talking-Machine in Use. — Where Will It Go Next?

Irrigation in California.

MR. WILLIAM HAMMOND HALL, State engineer of California, addressed the National Geographic Society on Friday evening last, on irrigation, particularly irrigation operations in California. It appears that the first work of this kind within the State, subsequent to that of the early mission fathers, was undertaken by a band of Mormons in the San Bernardino valley, in 1852.

Of the total area of California perhaps one-third is susceptible of sufficient cultivation to sustain a moderately dense population without the aid of irrigation, while one-third will not sustain a sparse population without the aid of irrigation. The principal regions of irrigation in the State are the great interior valley, the southern valley, and the coast plain of the south. By a comparison of the relative amount of rainfall in the older countries of Europe with that of California, and from the peculiar character of the soil, Mr. Hall showed that the relative necessity for the artificial application of water is far greater in California than in these countries, the annual rainfall being much less, and the character of the soil and rate of evaporation quite as unfavorable.

There are in California about 750,000 to 800,000 acres actually irrigated each year, representing what would ordinarily be called an irrigation area of 1,200,000 acres, and there are reasonably within reach of existing canals 2,500,000 acres. The methods of applying water differ very widely with the differing conditions in the various irrigable areas. Much has been done by individual effort in regions where the problem of diverting water from the streams is comparatively easy; but there remain a large number of streams presenting difficult problems, the waters of which can only be utilized by the expenditure of immense capital and the operation of extensive works. Land values in the valley have increased from \$1.25 per acre, prior to the introduction of irrigation, up to \$250 and even higher values, merely by having water rights attached. Much is expected from the investigations on this subject which Congress has recently authorized to be prosecuted.

The Nucleus of a "Zoo."

The Department of Living Animals at the National Museum attracts greater crowds of visitors than can find comfortable standing-room in the animal building, and furnishes one of the strongest arguments that could be made on the necessity of a great national zoological garden. Gifts and deposits have been coming in in such number, that the museum authorities have found it necessary to decline a number of valuable objects, such as a lioness, aoudad, black leopard, camel, and ostrich, because the institution is positively unable to provide for their accommodation. The total number of live animals, birds, and reptiles received up to date is 281. One of the latest arrivals is a great rarity, a Rocky Mountain sheep from north-western Montana, the gift of Mr. George Bird Grinnell, editor of *Forest and Stream*. It has attracted thousands of visitors, and is at present in fine condition. So far as known, it is the only specimen of the species now alive in captivity.

Mounds of Ohio.

At the instance of Dr. Cyrus Thomas, Mr. Reynolds of the Bureau of Ethnology has recently conducted an exploration of one of the most interesting mounds in Ohio; namely, the truncated pyramid associated with the system of enclosures opposite Bourne-

ville, in the Point Creek valley. These enclosures belong to the type comprising true circles and equilateral squares. It proved to be a burial-mound in which two series of circular upright palings, thirty-six feet in diameter, constituted a pre-eminent feature. These indicated successive erection and use, as the mound was from time to time enlarged. The skeletons found were all interred systematically within these wooden palings upon the different sand-seams at different depths. The burials were evidently successive or periodical. None of them could have been intrusive, since the stratification above them was not disturbed. Many interesting specimens, comprising pottery, stone pipes, shell beads, and grooved bone implements, were found deposited with the various skeletons. These and other features that were observed, will, it is said, prove eminently helpful in the solution of the questions relative to the age and builders of these interesting works.

Triple Births in the Human Race.

Some interesting data respecting the frequency of triplets in the human race are being collected and elaborated by Dr. B. Ornstein, late surgeon-general of the Greek army. While on an inspection tour through western Greece, he discovered the fact that triplets are more frequently found there than in any other portion of that kingdom. Great difficulty is experienced, however, respecting information as to the age reached by either or all of the children.

It is desirable therefore, for the purpose of careful study of this subject, to gather information based upon the following: viz., (1) all well-authenticated instances of triple births, and in how many of them the three children reached the age of two (or more) years; (2) the number of cases in which two of the triplets survive one year, or longer, or in which one of them reached the age of one year or more.

Any information pertaining to this subject will be gratefully received by Dr. Ornstein, Athens, Greece; or communications will be forwarded if sent to Dr. W. J. Hoffman, Bureau of Ethnology, Washington, D.C.

The Talking-Machine in Use.

The Geological Survey is the first of the government offices to adopt the graphophone for service. Major Powell is supplied with one of these wonderful little listening and talking machines, and he takes it home with him, and talks to it as the necessity arises or an idea strikes him. In his absence an intelligent boy or girl can evoke a repetition of his monologue, and commit it to paper.

Where Will It Go Next?

The apparatus of the Life-Saving Service which has attracted such deep interest in the Cincinnati Exposition is home again, and safely under shelter. Mr. S. I. Kimball, in charge of the bureau, does not wish to return it to the bare and distant loft of the Treasury Department, where for many years it has been an object of curiosity to visitors, but will await the assignment to it of convenient quarters, where the property can be properly protected.

BOOK-REVIEWS.

The Teachers' Psychology. By A. S. WELCH. New York, E. L. Kellogg & Co. 12°. \$1.25.

THIS work consists of two distinct parts, the first being a treatise on the intellectual faculties, and the second an essay on the proper method of educating them. The author begins with a general view of the mind as a whole, with its three functions of thought, feeling, and action, but afterwards confines himself to the operations of the intellect. This psychological part of the book cannot be pronounced very successful. Mr. Welch's philosophical standpoint seems to be that of the Scottish school; but he cannot be compared with the standard authors of that school in his method of treatment. He takes a surface view of his subject, and, besides, is often lacking in accuracy. Thus, the term "concept," which has always been used to denote a general idea, is employed in this work for both general and particular ideas. Mr. Welch's view of memory is also peculiar, for he includes in it the act of acquiring knowledge as well as the acts of retaining and recalling it. The second part of the work is of a better character, and lays down