

SCIENTIFIC INTELLIGENCE FROM AMERICA *

THE statement, by Professor J. D. Whitney, of the present condition of the geological survey of California, lately presented to the Governor of the State, gives a gratifying picture of the activity and success in accomplishing the objects for which the exploration was authorised. The State Geologist remarks that less has been done than he had hoped, in consequence of the suspension of the appropriations by a preceding Legislature. Since the work was resumed, however, as the result of renewed appropriations by the Legislature of 1869, the survey has been carried on as rapidly as the nature of the service would allow. Among the points particularly engaging the attention of the State Geologist was the completion of the topographical map of California, it being readily understood that this must be a necessary preliminary to a geological map. The survey of Central California was considered especially interesting and important, embracing, as it does, that portion of the State from Owen's Lake on the south to Lassen's Peak on the north, or between 36° and 40° 30' north and south, and 117° 30' and 123° east and west, the whole area comprising about one-third of the State, with probably ninety-five per cent. of the population residing in it. Of the portion included within these limits, represented upon four maps, three are entirely drawn and partially engraved, while the fourth is two-thirds drawn, with the field-work of the remaining third yet to be done. A preliminary map, however, of the whole of California, on a scale of eighteen miles to an inch, has been drawn, in compliance with the wish of the community, and will soon be ready for distribution. Besides these, other works connected with the same subject are reported by the State Geologist, being the new editions of the Yosemite Guide-book, and the publication of the first volume of the "Ornithology of California," which is characterised as a work exquisitely illustrated and admirably printed. The remaining volumes of the series of reports are so far completed as only to wait the continuance of appropriations to place them in hand and secure their early appearance. Arrangements have also been made with Mr. Lesquereux to work up the fossil plants of California, and with Dr. Leidy and Prof. Meek in regard to the fossils. Prof. Brewer, of the Survey, is well advanced in the work on the Botany of California, which, when completed, will doubtless be used extensively as a text-book. It is much to be hoped that very liberal appropriations will be made for these important objects, since its chief and his assistants are known to be among the very best specialists in America, and their work has commanded the highest respect among naturalists at home and abroad. The reports themselves are models of perfection in regard to typography and general execution, and are not to be surpassed by the finest European works, whether published by governments or private parties. It may be stated as a well-known fact that much interest has been excited throughout the scientific circles of Europe by the character of the work done under the auspices of the State, and the utmost admiration expressed in regard to its liberality and enterprise; this example being commended to European governments as eminently worthy of their imitation.—A letter from Captain Buddington, the sailing-master of Captain Hall's vessel, the *Polaris*, dated at Upernavik, reports that the party were in good health and spirits; and that Mr. Chester, the first mate, had gone up the coast to bring down Hans Christian, Dr. Kane's Esquimaux hunter, who was to join the expedition.—Among the many works published by the United States government, or at its expense, there are few that exceed in intrinsic value, as well as in beauty, the volumes hitherto printed belonging to the series of reports made by Mr. Clarence King, at his geological and other explorations of the region along the fortieth parallel of latitude. This expedition is still occupied in carrying out the work assigned to it by the engineer department of the army, while reports are now being made of such portions of the work as have been completed. It is nearly a year since the volume upon the mining industry of the Sierra Nevada and other mineral regions of the West was published, as prepared mainly by Mr. J. D. Hague (one of Mr. King's assistants), but including articles by Mr. King himself, and other members of the corps. This was accompanied by a large atlas of plates, and contained full details of all the methods of metallurgical operations and manipulations, together with drawings of machinery, plans of mines, sketches of mining geology, &c. This book has been received with great favour everywhere, and

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has redounded greatly to the credit of the United States, first in authorising the research, and then in publishing the results in so superior a style. We now have to chronicle the appearance of another volume of the series—namely, the Botany, as prepared under the direction of Mr. Sereno Watson, the botanist of the expedition. This constitutes volume five of Mr. King's reports, and number eighteen of the professional papers of the engineer department of the army. The work embraces a report upon the geography, meteorology, and physics of the region explored as connected with the general botany of the country, catalogues of the known plants investigated, descriptions of new genera and species, and various appendices; these accompanied by forty plates of new or rare species. Another volume of the series is now in press, and will include the zoological portion, as furnished by Mr. Robert Ridgway. This will probably appear in the course of a few months.—The scientific tendency of the age, manifested in the continual springing up of new associations in different parts of the country, receives an additional illustration in the establishment of the Natural History Society of Marquette, Michigan, which was organised during the month of December, under the presidency of Dr. Hewitt.

ON THE CARPAL AND TARSAL BONES OF BIRDS*

THE author stated that he had followed with great interest the work of Huxley, Cope, Morse, and others, in tracing out the ornithic characters in the Dinosauria. While following these relations he had noticed a marked difference in the characters of the carpus and tarsus of the two classes. It seemed strange that a group of bones so persistent in the reptiles as well as in the mammalia should be so obscure or wanting in birds. Owen objects to the term tarso-metatarsus, as he believes the existence of a tarsus has not been demonstrated. W. K. Parker, in 1861, on the osteology of *Balæniceps*, questions if the lower articular portion of the tibia is not the homologue of the mammalian astragalus and not an epiphysis. Gegenbaur has now shown that in one stage of the young bird there is a proximal tarsal ossicle, and a distal tarsal ossicle, the first one anchylosing with the tibia, the distal one likewise anchylosing with the metatarsus. Thus, the term tarso-metatarsus is quite proper. While this was a great step toward a proper understanding of these parts, Mr. Morse believed that a nearer relation would be found in the discovery of another proximal tarsal bone. In those reptiles he had examined, whatever the number of tarsal bones, there were always in the proximal series one corresponding to the tibia, and another corresponding to the fibula. He had found this feature in birds. In studying the embryos of the eave swallow, bank swallow, king bird, sand piper, blackbird, cow blackbird, bluebird, chirping sparrow, yellow warbler, and Wilson's thrush, he had found three distinct tarsal bones, two in the proximal series answering to the tibia and fibula, and one in the distal series. The first two early anchylose, and present an hour-glass-shaped articular surface as Prof. Cope has described in the astragalus of *Lælops*. The final anchylosis of these conjoined ossicles with the tibia, formed the bicondylar trochlea so peculiar to the distal end of a bird's tibia. The distal tarsal ossicle became united with the proximal ends of the metatarsus, as has been shown. In the carpus he had found four perfectly distinct ossicles, the distal carpal bones becoming united to the base of the mid and outer metacarpals, the other two remaining free, though the ulnar carpal in some cases anchylosed with the ulna. In the king bird and yellow warbler, he had found a fifth carpal on the radial side.

SCIENTIFIC SERIALS

THE *Journal of Anatomy and Physiology*, Second series. No. ix., November 1871.—The first article in this number is by Prof. Humphry, "On the Anatomy of the Muscles and Nerves of *Cryptobranchus japonicus*," an animal which has been only rarely dissected. The muscular system presents no points of great peculiarity or interest, resembling very closely that of other *Urodela*. With respect to the nerves, no trace of the third, fourth, or sixth cranial could be found in either orbit, though the third and fourth, both of very small size, were found in the cranial cavity; previous dissectors had described the sixth as a

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