the scattered fossils thus secured by representatives of many institutions, there were five fixed parties in the field. The three representing the Field Columbian Museum, the University of Wyoming, and the University of Kansas had their quarries in the Freeze Out Mountains. A few miles to the east was the Carnegie Museum party under the direction of Dr. Wortman; they found a very promising locality in which a large portion of a skeleton of Diplodocus was secured. To the southeast was the American Museum party, which continued the excavation of the 'Bone Cabin Quarry' with good results, and four miles west of this point secured a considerable part of a Brontosaur skeleton. In the quarry itself the greater portion of a Mososaur skeleton was found in a very much crushed condition. Altogether the general work of the season will greatly advance our knowledge of the Dinosaurs. At the same time the beds in the Como region have been so thoroughly explored that it is becoming very difficult to find these animals, and when found it is very difficult to take them out.

Ear bones of Marsupials.—According to Richard Weil,* the ossicula auditus of the opossum are not at all parallel in their development with those of the pig, considered as a representative of the Placental mammals. This tends further to confirm the conclusion, arrived at from many other grounds, that Marsupials are entirely to be regarded as forms parallel to the Placentals rather than as ancestral forms. As regards the origin of the malleus, Weil's investigation confirms the prevailing opinion that it is derived from Meckel's cartilage or the mandibular arch. The incus also arises from the mandibular arch and has no relation to the hyoidean arch. Mr. Weil believes that Kingsley has placed too much dependence upon the relation of the nerves to these elements. Weil's results directly contradict the theory of Reichert, Huxley and others, that the quadrate of the Sauropsida is represented in the auditory chain of Mammals, for according to his observations the quadrate belongs not to the mandibular arch from which the Mammals derive their ear bones but to the palatoquadrate bar.

The Fins of Ichthyosaurus.—Professor Fraas, of Stuttgart, describes the most perfect specimen of an Ichthyosaur which has yet been found in the famous quarry in Holzmaden. It exhibits in a remarkable manner the structure of the fins, having been worked out with the utmost care by Herr Bernhard Hauff for the Royal Geological Museum of Hungary. Although partly described by Owen, the complete dermal structures of Ichthyosaurs were first discovered in the Holzmaden quarry in 1892. Five specimens have been found altogether in a somewhat restricted part of the quarry. The skin impressions are of a light brown to a deep black color with a grayish slate blackground, and are so fine that they must be exposed with the greatest skill by the use of a fine scapel working under a magnifying lens. The specimen here described gives a perfect picture of the dorsal and caudal fins and of the fin folds surrounding the paddles. The irregular folds behind the dorsal fin represent a displacement of a portion of the pigmented skin from the sides of the body. The caudal fin is remarkable in the elongation of its upper lobe, but it is not at all evident how this lobe was supported, since, unlike the sharks, the tail vertebræ turn down into the lower lobe.

H. F. O.

* *Annals N. Y. Acad. Sci.*, Vol. XII., No. 5. Pp. 103 to 118, July 7, 1899. 'Development of the ossicula auditus in the opossum.'

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*AGRICULTURAL EXPERIMENT STATIONS.**

THE most obvious indication of the success of experiment stations as a means for improving agricultural conditions in this country is the steady increase in the number of stations and station officers, and in the amount of financial support which they have received from the National and State governments. In the first volume of the *Record* it is stated that in 1889 there were 46 stations in the United States, receiving an aggregate revenue of about $725,000, of which $600,000 was appropriated from the National Treasury and $125,000 was received from State governments and other local sources. The total number of persons engaged in the work of the stations and at this office that year was 402. In 1898, the last year for which statistics have been compiled, the total number

* From *Experimental Station Record.*

of stations was 54. Their total income was somewhat over $1,200,000, of which $720,000 was received under the Hatch Act (in addition to $35,000 for this office) and $480,000 from State governments and other local sources. The number of officers had increased to 669.

With the increase in the number of the stations and the enlargement of their resources, there has been a corresponding increase in the number and variety of their publications, and these have been more thoroughly distributed each year. Besides the vast amount of agricultural information which has thus been generally diffused among our farmers, either directly through station publications, or indirectly through the public press, more than fifty books on strictly agricultural subjects have been written by station men during the past ten years, and the results of the work of the stations are being largely incorporated in books whose authors are not connected with the stations. It requires only a superficial retrospect to discover a very remarkable difference in the freshness of material and the thoroughness of treatment of the published information available to our farmers ten years ago and that which is at their command to-day. It is most encouraging to observe that, despite the pessimistic predictions in certain quarters, the output of carefully prepared books for the farmer's use has notably increased within the past few years, and American books for the American farmer are written from an American standpoint, and on the basis of accurate information obtained by American investigators.

SCIENTIFIC NOTES AND NEWS.

WE regret to record the death in New York on January 15th of Dr. Thomas Egleston, emeritus professor of mineralogy and metallurgy in Columbia University.

AT the January meeting of the American Academy of Arts and Sciences, Boston, Professor William M. Davis was chosen corresponding secretary in the place of Mr. Samuel H. Scudder, resigned.

M. MÉRAY has been elected a correspondent of the section of geometry of the Paris Academy of Sciences.

PROFESSOR RÖNTGEN, who has accepted the call to the University of Munich, has been appointed director of the State Institute of physics and metrology.

MR. W. N. SHAW, of Emanuel College, Cambridge, has been chosen to succeed Mr. Scott at the British Meteorological Office.

MM. RADAU AND BIGOURDAN have been presented by the Paris Academy of Sciences to the Minister of Public Instruction, who will select one to fill the vacancy in the Bureau des Longitudes, caused by the death of M. Tisserand.

PROFESSOR G. FREDERICK WRIGHT, of Oberlin College, has been given a leave of absence for a year and three months. He will make geologic studies in the Sandwich Islands, Japan, Russia, Egypt, Italy and other countries.

ON the twenty-fourth of December, 1899, the Physico-Mathematic Society, of Kazan, Russia, celebrated a jubilee in honor of the twenty-fifth year of professorial and scientific service of its President, Professor A. Vasiliev. It is also the fifteenth year of his presidency. Professor Vasiliev has been an important figure in Russian science. His discourse on Lobachevski has been translated into English by Professor Halsted, and a German translation of his book on 'Tchebychev' is to be published this month by Teubner at Leipzig. The first volume of an edition of 'Tchebychev's Collected Works,' in French, has just appeared, edited by the Academicians Markof and Sonine. It contains a fine portrait of the great mathematician and the first thirty-four memoirs of Vasiliev's list.

THE two books, Whitehead's 'Universal Algebra' and Killing's 'Einführung in die Grundlagen der Geometrie,' which were particularly signalized in Professor Halsted's Report on Progress in Non-Euclidean Geometry recently published in this JOURNAL, have been entered in competition for the Lobachevski prize of 1900.

THE American Society of Naval Engineers has awarded its first prize for the best technical essay submitted to Professor W. F. Durand of Cornell University, for his paper on 'Electrical Propulsion for Torpedo Boats.' The prize consists of a substantial compensation, life membership in the Society, and a gold medal. The second prize has been awarded to D. C. Ball, late of the Engineer Corps, and now a consult-