

ANNUAL REPORT OF THE
BOARD OF REGENTS OF
THE SMITHSONIAN
INSTITUTION

SHOWING THE

OPERATIONS, EXPENDITURES, AND
CONDITION OF THE INSTITUTION
FOR THE YEAR ENDING JUNE 30

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GEOLOGICAL SURVEY OF PANAMA.

A plan has been formulated and some progress has been made in certain lines of field work for a geological survey of Panama, under the joint auspices of the Isthmian Canal Commission, the United States Geological Survey, and the Smithsonian Institution, and an allotment has been made from the Institution's funds toward the expenses of such investigation. The general plan of the survey comprises a systematic study of the physiography, stratigraphy and structural geology, geologic history, geologic correlation, mineral resources (including coal, oil, and other fields), petrography and paleontology of the Canal Zone, and of as much of the adjacent areas of the Isthmian region as is feasible. In this survey an opportunity is afforded for working out in detail the succession of the geologic formations and the study of the structure, petrography, and paleontology of a Central American area such as has never before existed, and probably never will be realized again. It is possible to make and properly characterize a standard geologic section of this part of the world, one with which the more obscure exposures of adjacent areas may be compared. There is already nearly completed a section of each side of the Culebra Cut in a horizontal scale of 1:5,000, vertical scale 1:2,500; and a general section has been made from the Atlantic to the Pacific, with collections from every fossiliferous exposure seen. A basis has been practically determined for the intercorrelation of the formations across the Isthmus and for correlation with the Gulf States, also with certain formations in some of the West Indian Islands.

Upon the completion of this survey the Institution will publish a general account of the work accomplished, and later it is planned to print a detailed report of the geological data of the Isthmus and adjoining regions.

BIOLOGICAL EXPEDITIONS IN AFRICA.

Rainey African expedition.—The Paul J. Rainey expedition in British East Africa came to a successful close in February, 1912. The collections, numbering 5,750 large and small mammals, 400 birds, 2,000 reptiles, and 500 miscellaneous specimens, included a large number of new genera and species since described in the publications of the Institution and the National Museum. During this expedition Mr. Edmund Heller, of the National Museum, who had previously served as naturalist on the expedition under Col. Roosevelt, was the guest of Mr. Rainey, who provided him all the native assistants that he could use, and accorded him perfect freedom as regards choice of collecting ground. Mr. Heller was thus able to visit the exact regions from which material was most needed to supplement that procured

Volume 57.

- No. 9. New York Potsdam-Hoyt Fauna. By Charles D. Walcott. Published September 14, 1912. 54 p., 13 pls. (Publ. 2136.)
- No. 10. Group terms for lower and upper Cambrian series of formations. By Charles D. Walcott. September 16, 1912. 3 p. (Publ. 2137.)

Volume 58.

- No. 2. Bibliography of the geology and mineralogy of tin. By Frank L. and Eva Hess. July 29, 1912. v, 408 p. (Publ. 1987.)
- Title-pages and contents. December 31, 1912. v p. (Publ. 2160.)

Volume 59.

- No. 11. Expeditions organized and participated in by the Smithsonian Institution in 1910 and 1911. July 17, 1912. 51 p., 1 pl., 56 figs. (Publ. 2087.)
- No. 16. New Rodents from British East Africa. By Edmund Heller. July 5, 1912. 20 p. (Publ. 2094.)
- No. 17. New Diptera from Panama. By J. R. Malloch. July 18, 1912. 8 p. (Publ. 2133.)
- No. 18. New species of landshells from Panama Canal Zone. By William H. Dall. July 27, 1912. 3 p., 2 pls. (Publ. 2134.)
- No. 20. The recognition of Pleistocene faunas. By Oliver P. Hay. August 17, 1912. 16 p., 10 figs. (Publ. 2139.)

Volume 60.

- No. 1. Three new species of Pipunculidæ (Diptera) from Panama. By J. R. Malloch. September 6, 1912. 4 p., 3 figs. (Publ. 2141.)
- No. 2. New mammals from eastern Panama. By E. A. Goldman. September 20, 1912. 18 p. (Publ. 2142.)
- No. 3. Descriptions of new genera, species, and subspecies of birds from Panama, Colombia, and Ecuador. By E. W. Nelson. September 27, 1912. 25 p. (Publ. 2143.)
- No. 4. Rubelzul cotton: A new species of *Gossypium* from Guatemala. By Frederick L. Lewton. October 21, 1912. 2 p., 2 pls. (Publ. 2144.)
- No. 5. *Kokia*: A new genus of Hawaiian trees. By Frederick L. Lewton. October 22, 1912. 4 p., 5 pls. (Publ. 2145.)
- No. 6. The cotton of the Hopi Indians: A new species of *Gossypium*. By Frederick L. Lewton. October 23, 1912. 10 p., 5 pls. (Publ. 2146.)
- No. 7. Descriptions of one hundred and four new species and subspecies of birds from the Barussan Islands and Sumatra. By Harry C. Oberholser. October 26, 1912. 22 p. (Publ. 2147.)
- No. 8. New genera and races of African ungulates. By Edmund Heller. November 2, 1912. 16 p. (Publ. 2148.)
- No. 9. A recent meteorite fall near Holbrook, Navajo County, Arizona. By George P. Merrill. November 21, 1912. 4 p. (Publ. 2149.)
- No. 10. The crinoids of the Natural History Museum at Hamburg. By Austin Hobart Clark. November 7, 1912. 33 p. (Publ. 2150.)
- No. 11. A fossil toothed cetacean from California, representing a new genus and species. By Frederick W. True. November 1, 1912. 7 p., 2 pls. (Publ. 2151.)
- No. 12. New races of insectivores, bats, and lemurs from British East Africa. By Edmund Heller. November 4, 1912. 13 p. (Publ. 2152.)

SMITHSONIAN EXPEDITIONS.

A brief résumé of the results obtained follows:

Biological survey of the Panama Canal Zone.—This survey was completed and the work accomplished was very valuable to science. It included collections and observations of vertebrate animals, land and fresh-water mollusks, and flowering plants (including grasses) and ferns. Collections had been made of fishes, reptiles, and amphibians, birds and mammals, and special studies and collections had been made of the microscopic plant and animal life of the fresh waters of the zone. Pamphlets had been issued from time to time describing new forms of animals and plants, and as soon as the mass of material could be worked up a more general account of the results of the survey would be accomplished.

Rainey African expedition.—The Paul J. Rainey expedition referred to at the last meeting came to a successful close during the winter of 1911-12. Mr. Edmund Heller, a Smithsonian naturalist and a member of the Smithsonian African expedition, accompanied Mr. Rainey and reported collections as follows:

| | |
|----------------------|-------|
| Mammals (large)----- | 750 |
| Mammals (small)----- | 5,000 |
| Birds----- | 400 |
| Reptiles----- | 2,000 |
| Miscellaneous----- | 500 |
| | 8,650 |

During the entire expedition Mr. Heller was Mr. Rainey's guest. Mr. Rainey gave him all the native assistants that he could use and accorded him perfect freedom as regards choice of collecting ground. Mr. Heller was thus able to visit the exact regions from which material was most needed to supplement that procured by the Smithsonian African expedition. After studying the mammals in the British Museum Mr. Heller reported that the United States National Museum now had the finest series of East African mammals in the world.

Eighty lions were secured on the expedition, which more than tripled the highest previous record for Africa.

The Childs-Frick African expedition.—This expedition left New York in October, 1911, and arrived at Djibouti, on the Red Sea, in French Somaliland, November 22. As previously stated, it was accompanied by Col. Edgar A. Mearns, United States Army, retired, who was a member of the Smithsonian African expedition.

The Frick party traversed the territory lying north of that visited by Col. Roosevelt and Mr. Rainey, covering at the same time certain parts of Abyssinia, northern British East Africa, and the country