upper part of the bone in front of the molars. The horizontal ramus is slender, and resembles in shape that of a young chimpanzee (*Anthropopithecus niger*). The lower symphysial border is produced into a broad flat junction with that of the opposite side, being in this respect completely simian. The ascending ramus is broad, with extensive insertions for the temporal and masseter muscles, and has a very shallow sigmoid notch. Molars 1 and 2 are typically human, though they are somewhat large and narrow; each bears a fifth cusp; their cusps have been worn perfectly flat by mastication. The mandible is certainly the most remarkable feature of the find; although it bears some general resemblance to the Heidelberg jaw, it differs in being less massive, with smaller molars, a still more negative chin, and the simian symphysis. In making a model of the restored jaw Dr. Smith Woodward found he had too much room for the missing teeth and consequently was forced to leave a disastema between the canines and premolars, but on other grounds he believes that the canines were not specially prominent. The jaw as restored is wonderfully like that of a chimpanzee. Thus we have a being with what is virtually a human cranium and a simian jaw. The weakness of the mandible, the slight prominences of the brow-ridges, the small backward extent of the origin of the temporal muscles, and the reduction of the mastoid processes suggest that the specimen belongs to a female individual, and it may be regarded as representing a hitherto unknown species of man for which not only a new species but a new genus must be erected—Dr. Woodward bestowed on it the name of *Eoanthropus Dawsoni.*

Mr. Dawson gave an account of the finding of the specimens, the nature and geographical and geological position of the gravel bed and Dr. Smith Woodward described the remains in a most excellent manner. He pointed out that the skull of *Eoanthropus* was very different from that of *Homo monsteriensis* (*H. neanderthalensis*), and that it bore some resemblance to the skull of a young chimpanzee. He suggested that as the characters of the adult male chimpanzee's skull diverged considerably from the juvenile characters, so possibly *H. monsteriensis* may have diverged from a type like *Eoanthropus.* Professor G. Elliot Smith was called on to give an account of his investigation on the cast of the cranial cavity, and he pointed out that, while the general shape and size of the brain was human, the arrangement of the meningeal arteries was typically simian, as was a deep notch in the occipital region; he regarded it as the most ape-like human brain of which we have any knowledge. Sir Ray Lankester, Professor A. Keith, Professor Boyd Dawkins, Mr. Clement Reid, Dr. Duckworth, Professor Waterston, Mr. Reginald A. Smith and others discussed the paper.

There can be no doubt that this is a discovery of the greatest importance and will give rise to much discussion. It is the nearest approach we have yet reached to a "missing link," for whatever may be the final verdict as to the systemic position of *Pithecanthropus erectus,* probably few will deny that *Eoanthropus Dawsoni* is almost if not quite as much human as simian. The recent discoveries of human remains in the Dordogne region and elsewhere are demonstrating that several races of man lived in paleolithic times, and we may confidently look forward to new finds which will throw fresh light upon the evolution of man.

A. C. Haddon

THE YALE PERUVIAN EXPEDITION OF 1912[1]

On Thursday, December 19, the Yale members of the Peruvian Expedition of 1912 returned to New Haven. This, the third Yale expedition to Peru, was conducted jointly by the University and the National Geographic Society, the Yale members being Professor Hiram Bingham, '98, director; Professor Herbert E. Gregory, '96, geologist; Dr. George F. Eaton, '94, osteologist, and Mr. Osgood Hardy, 1913, assistant—Mr. A. H. Bustead, the chief

[1] From interviews with members printed in the *Yale Alumni Weekly.*

topographer, and Dr. L. T. Nelson, the surgeon, had returned a couple of days previously, having caught an earlier steamer from Panama. Messrs. K. C. Heald and Robert Stephenson, assistant topographers, will return in the course of a week or so. Mr. Joseph Little, assistant, decided to stay in Peru, having secured a position with the Dupont Powder Company. Mr. Paul Bestor, assistant to the director, had been invalided home two months previously, having suffered from a variety of tropical ailments. Mr. Ellwood C. Erdis, archeological engineer, is coming to New Haven *via* the Berlin Museum, where he proposes to spend some time studying the Peruvian collections there before undertaking the work of putting together the various broken pots that were excavated in the department of Cuzco.

Considerable illness, says Professor Bingham in interviews given since his return, overtook this year's expedition and various members were at times incapacitated. The only serious accident happened to Mr. Heald, who escaped death from falling down the face of a precipice only to rupture the ligaments of his collar bone. Nevertheless he carried out important reconnoissance work for a month after the accident but had finally to be ordered back to Cuzco by the surgeon, so that he was unable to penetrate the jungles of the Pampaconas valley as had been hoped.

The map makers, members of the party say, complain that the seasons are changing in Peru. They expected that the "dry season" would give them plenty of time and opportunity for work, but they found, as did the expedition of 1911, that in the great Peruvian Montaña, the jungles on the east slopes of the Andes, the "dry season" is only a relative term, and is much wetter than the "wet season" in some other parts of the world. They were also hindered by finding that valleys which last year had been noted for their salubrity were now the scene of two violent epidemics, smallpox and typhus fever alternating for the mastery. The prevalence of these virulent diseases also interfered with the plans for the anthropological work. Dr. Nelson, who was in charge of the anthropometric measurements, neither dared to leave the engineering party as long as they were exposed to fatal diseases, nor cared to expose the party to the dangers of having Indians from infected houses come to camp to get measured. As practically all the houses in the region were infected, a very serious interference for a period of two or three months was the result. Notwithstanding this, however, the surgeon did succeed in measuring nearly 150 Indians, using blanks prepared by Dr. Ferris of the Yale Medical School. Two photographs were taken of each subject, and also a large number of Indians were photographed who would not submit to being measured.

Professor Gregory's work was confined almost entirely to the vicinity of Cuzco and the Huatanay valley. The complex geological problems here presented occupied nearly his entire time in Peru. Results will be given out in a series of articles to be published as soon as possible. Mrs. Gregory accompanied him, and after the illness of one of the assistants was able in large measure to take his place, especially in the development of important photographs.

Dr. Eaton was unusually fortunate in being able to collect and bring home more than fifty cases of osteological and ethnological material which he collected in the vicinity of Cuzco in the ruins of Choqquequirau and especially in the ruins of the great city of Machu Picchu. In addition to more than fifty skeletons of the Machu Picchu people who were probably Incas or their immediate predecessors, he found a considerable amount of anthropological material in the burial caves. He also collected a number of bones of prehistoric vertebrates, including mastodon, horse and deer. In addition to his osteological and ethnological work, he had general charge of meteorological observations both on the way down and back and at Machu Picchu.

Arrangements were made with Mr. Burt Collins, the director of the Inca Mining Company, and with Mr. Claude Barber, the manager of the Santa Lucia mine, to undertake the care of four meteorological stations for a

period of five years. These stations will be completely equipped with self-recording instruments, and as they are at widely different altitudes the results should prove to be of considerable value.

The chief work undertaken by the expedition was in connection with the study of the ruins of Machu Picchu discovered by Dr. Bingham in 1911. As has already been stated, Dr. Eaton was in charge of the bone hunting and was fortunate enough to find a large number of caves containing skeletons and ethnological material. The clearing of the jungle and the excavating of the ruins was placed in charge of Mr. Erdis, whose four months at Machu Picchu resulted in about sixty cases of potsherds and pots, and two cases of bronze implements. The making of a large scale map of the ruins was entrusted to Mr. Robert Stephenson, who spent three months at a task which it is hoped will result in the construction of a model of this extremely interesting city. The construction of the model will also be assisted by the more than seven hundred pictures which Professor Bingham has taken of the ruins at different times. In addition to the archeological study of Machu Picchu Professor Bingham also devoted himself to exploring four or five sites of ancient ruins hitherto undescribed, and in a systematic effort to discover the ancient place names and to identify localities in the region occupied by the Incas during the last thirty-five years of their reign.

SCIENTIFIC NOTES AND NEWS

The British New Year's honors include the conferring of knighthood on Dr. Francis Darwin, the distinguished botanist; Dr. R. W. Philip, known for his work for the prevention of tuberculosis, and Mr. Stewart Stockman, chief veterinary officer to the Board of Agriculture.

Professor Ehrlich, of Franfort, has received the Bavarian Maximilian order for scientific services.

Dr. Imbeaux, of Nancy, has been elected a corresponding member of the Paris Academy of Sciences in the Section of Agriculture.

A testimonial is planned to Sir Patrick Manson on the occasion of his retirement in recognition of his work in tropical medicine. The testimonial will be national and international. The national testimonial will consist of a portrait and, it is hoped, a scholarship for the advancement of tropical medicine. The international tribute is to be in the form of a gold medallion.

The officers of the Geological Society of America for 1913 are as follows:

President—Eugene A. Smith.

Vice-presidents—James F. Kemp, R. D. Salisbury, C. D. Walcott.

Secretary—Edmund Otis Hovey.

Treasurer—Wm. Bullock Clark.

Editor—J. Stanley Brown.

Librarian—H. P. Cushing.

Councilors—A. H. Purdue, Heinrich Ries, S. W. Beyer, Arthur Keith, Whitman Cross, Willet G. Miller.

Chairman of the Cordilleran Section—J. C. Branner.

Secretary—Geo. D. Louderback.

Councilor—W. S. Tangier Smith.

At the meeting of the Society of American Bacteriologists, held in New York on December 31 and January 1 and 2 the following officers were elected:

President—Professor C.-E. A. Winslow, New York City.

Vice-president—Professor Chas. E. Marshall, Massachusetts Agricultural College, Amherst, Mass.

Secretary-treasurer—Dr. A. Parker Hitchens, Glenolden, Pa.

Council—W. J. MacNeal, L. F. Rettger, D. H. Bergey, H. A. Harding.

Delegate to Council of American Association for the Advancement of Science—Professor S. E. Prescott.

At the recent meeting of the American Anthropological Association held in Cleveland, Ohio, the following officers were elected:

President—Professor Roland B. Dixon, Harvard University.

Secretary—Professor George Grant MacCurdy, Yale University.

Treasurer—Mr. B. T. B. Hyde, New York.

Editor—Mr. F. W. Hodge, Bureau of American Ethnology.