type; consequently it would be misleading to speak of this *Hesperopithecus* at present as an anthropoid ape; it is a new and independent type of Primate, and we must seek more material before we can determine its relationships. It is certainly not closely related to *Pithecanthropus erectus* in the structure of the crown, for *Pithecanthropus* has a single, contracted crown in which the superior grinding surface has a limited crenulated basin, whereas *Hesperopithecus* has a widely open crown with broadly channeled or furrowed margins, and a postero-internal crest suggesting the hypocone of a higher Primate form. The disposition of the roots in *Hesperopithecus*, in *Homo*, in *Pithecanthropus*, is shown to be very broadly similar in comparative Fig. 2. The *Hesperopithecus* molar is three-fanged, the postero-external fang having been broken off in the type; the internal fang shows a median internal groove and a tendency to a deep external groove on the outer side.

Since 1908 there has been in the American Museum collection from this same horizon another small water-worn tooth, discovererd by Dr. William D. Matthew. The specimen belonged to an aged animal and is so water-worn that Dr. Matthew, while inclined to regard it as a Primate, did not venture to describe it. It now appears, from close comparison with the type of *Hesperopithecus*, to be closely related generically, even if it is not related specifically. The greatly enlarged drawing (Fig. 3), reproduced to the same scale as that of the type above described, shows that the molar pattern is fundamentally similar. The crown differs in its much more triangular form and, were it not for its extremely worn surface, we should unhesitatingly pronounce it as a third superior molar; it has, therefore, been given this position provisionally in the diagram; it seems to confirm the opinion of Gregory and Hellman that the type of *Hesperopithecus* is a second superior molar.

The geologic age of these two specimens is now believed to be the same as that of Thousand Creek, Nevada, and Rattlesnake, Oregon, among the fauna of which *Pliohippus* is very abundant and varied; it also contains *Ilingoceras* and other strepsicerine antelopes of Asiatic affinity; it is the last American fauna in which occurred the rhinoceros, preceding the Blanco fauna in which the Asiatic brevirostrine *M. mirificus* first occurs.

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MEDALS AND DINNER OF THE NATIONAL ACADEMY OF SCIENCES

AT the annual dinner of the National Academy of Sciences, held at the Hotel Powhatan on Tuesday evening, April 25, 1922, two medals were awarded.

The J. Lawrence Smith Medal was bestowed upon Dr. George P. Merrill, curator of geology at the United States National Museum. This is a gold medal of the value of $200, from a fund established in 1884, as a reward for "original investigation of meteoric bodies." But because investigators in this field are so rare it has not been given since 1888. Dr. Whitman Cross, in his speech presenting the medal, pointed out that Dr. Merrill had continued to carry on the work of his predecessor, J. Lawrence Smith, on meteorites by the application of modern methods of analysis. The earlier analyses of meteorites were not always to be relied upon, and Dr. Merrill in his long years of research has been able to show that some of the elements previously reported as having occurred in meteorites are absent and, at the same time, he has extended the list of elements and compounds that do exist in these bodies. Among other minerals he has found a calcium phosphate similar to apatite, which has been named in his honor Merrillite. Dr. Merrill also has discovered evidences of metamorphism in meteorites, cases where a mineral structure has been broken up and the fragments later fused together like the conglomerates found in igneous rocks in the earth's crust.

Dr. Merrill in receiving the medal said that meteorites had in all ages attracted a great deal of popular interest. In the earliest times they were worshipped as divine and nowadays the newspapers give great attention to any meteoric fall. Yet few scientists have made them the subject of concentrated and long-continued study. In his work, Dr. Merrill said

he had tried to keep his feet upon the earth as though his shoes had leaden soles and to leave to others premature speculation as to the origin of these bodies. It is evident from their composition that they come from regions where there was no air, for they contain iron, both in a free state and in compounds that are not stable in the presence of oxygen. From their structure it is evident that some have undergone secondary igneous changes. In conclusion, Dr. Merrill quoted the verse, "All my dreams come true to other men," and said that he would leave the developments and deductions from his work to future investigators and "may all my dreams come true to other men."

The address bestowing the Daniel Giraud Elliot Medal for the year 1920 was made by Dr. Henry Fairfield Osborn, of the American Museum of Natural History, New York City. This medal is intended to be awarded every year for contemporary contributions to zoology. Previous awards were made to F. M. Chapman, C. W. Beebe and Robert Ridgway. Dr. Osborn sketched the history of paleontology from the time when Cuvier first announced the law of correlation. But the ability of the biologists to restore an extinct animal from a single bone was exaggerated and for a time such general theoretical work fell into disrepute. The great American paleontologists, Leidy, Cope and Marsh, limited themselves mostly to description. But now again the time has come when general principles and relationships may be founded upon a more substantial basis. Among the young investigators who are taking up this work is Professor Othenio Abel, of Vienna, who has undertaken a general study of the causes of evolution. His guiding thought is that morphology depends upon physiology and that to understand a form we must know its function. Professor Abel pursued his studies even during the war when his family was in such distress that he had to send out his children to friends for food, and in 1920 he produced an inspiring work, entitled *Methoden der Paleobiologischen Forschung.*

In the absence of Professor Abel the medal was received by Edgar L. G. Prochnik, Austrian chargé d'affaires, who said that all Austria would rejoice over this honor done to one of her citizens. Conditions in Austria are exceedingly hard at present on account of the curtailment of Austria's resources and it is felt that the future of Austria lies in the mental power of her sons. The Austrian scientists are determined to bring their country to the rank which she occupied in science and art previous to the war. The disposal of this medal was another proof that science was not limited in its scope to creed or nationality. Professor Abel serves in the ranks of science, the peace maker.

President Walcott, in handing over the medal to the representative of the Austrian Legation, said that the award would carry with it an honorarium which was to be forwarded to Professor Abel.

Next, Dr. Vernon Kellogg, permanent secretary of the National Research Council, was called upon to tell something of the work and plans of that institution. The National Research Council, he said, was the child of the National Academy of Sciences, born in the tempestuous times of the war. The child had grown with amazing rapidity and had manifested the characteristic virtues and defects of lusty youth. Some of its parents—the use of this unconventional plural is justified by the collective parenthood—do not know whether to be proud of it or uncomfortably disturbed by it. The motto of the National Research Council is "cooperation and organization." The latter word was looked upon with disfavor and even suspicion by some scientists, but, rightly understood, as the council interprets it, there was nothing to fear from it. He had recently been reading the reports of the visits that had been paid by members of the council to 150 universities, colleges and other laboratories. In all these were found men earnestly engaged in research, often under disheartening conditions and in isolation. The National Research Council can aid and encourage these scattered and ill-equipped scientists to work out their plans in a concerted way. Nothing shall interfere with the individual freedom and initiative which are the main strength of scientific endeavor. Apart from the endowment and building fund, the National Research Council had raised over a million and a half dollars, which was being expended in promoting research

work in various lines. Plans for the new building had been exhibited at this session of the academy. This building will cost about $1,300,000, this money being provided by the Carnegie Corporation, and $200,000 had been provided by a score of private donors for the purchase of the ground. The edifice will be worthy of standing in the group of patriotic, philanthropic, international and memorial structures, and here the National Academy of Sciences and her daughter, the National Research Council, may live together in peace and happiness.

The president then asked Dr. William H. Welch to speak on the new School of Hygiene and Public Health founded at Johns Hopkins University and endowed with six millions from the Rockefeller Foundation. Dr. Welch said that the prevention of disease in communities as distinct from the cure of disease individually was comparatively a new profession. The beginning of the public health work may be traced back to the seventeenth century, when three great discoveries were made. One was Captain Cook's success in preventing scurvy in his long voyage in the Pacific by the use of vegetable vitamines. The second was the discovery of the cause of "Devonshire colic," which was found to be due to lead poisoning from the drawing of cider through lead pipes. The third was the introduction of vaccination for smallpox. The Napoleonic wars set back work in this direction as in others, but in the great reform year of 1848 the English Parliament passed the Public Health Act. Then began a campaign directed against filth and for sanitation, water supply and sewage disposal. Now with our new knowledge of the causes of infection and epidemics, public health can be guarded as never before. Yellow fever has been swept from its old haunts, malarial fever can be controlled and typhoid has become so rare that it is difficult to teach it for want of cases. In Baltimore last year a single death from typhoid aroused great excitement among the students who were eager to attend the autopsy as the only opportunity they had to become acquainted with this disease. The new school is to be composed of men and women who are to make the prevention of disease the primary aim of their life work. There are four members of the National Academy of Sciences in the faculty of the School of Hygiene and Public Health.

At the close of the evening Dr. Hendrik Anton Lorentz, of the University of Leiden, was asked to speak and responded with characteristic geniality. He recalled his visit to the United States sixteen years ago and told how glad he was to accept the invitation of the Carnegie Institution of Washington and the California Institute of Technology, Pasadena, where he has been lecturing. Now on the eve of departure he expressed his gratitude for the kindness that had been showered upon him in various parts of the United States which was, he felt, more than he deserved and was, as he had discovered in some cases, due to the fact that he was taken for the Viennese surgeon, Dr. Lorenz. Everywhere he found earnest young men engaged in research which promised great things for the future of science in America. He found nothing to criticize, but took the opportunity of suggesting that perhaps the strenuous life and feverish activity of Americans might be benefited by somewhat of the Dutch restfulness of his own land.

EDWIN E. SLOSSON

THE EDWARD C. PICKERING MEMORIAL

THE wonders of the sky present such a fascinating appeal to the general public that large numbers of telescopes are sold each year to the amateur who with keen delight views the marvels of Saturn's rings, the everchanging appearance of Jupiter and his satellites, and the glories of the nebula of Orion. These and many other objects are observed with the greatest of eagerness, and books on descriptive astronomy are bought and are read with great avidity. The pleasures brought by the new telescope are all the more enjoyed if the instrument arrives during the summer season. Then it may be taken out into the garden or on to the roof top and the pleasure is unalloyed by biting winds, cold hands or freezing feet. With the coming of autumn and winter the telescope is used less frequently, and the warmer weather of spring and summer is looked forward to