

comparatively small apparatus, secured the highest record yet established. With another engine a gain in weight of steam supplied the engine amounting to nearly 40 per cent. was effected, and in weight of fuel 28 per cent; the difference being due, obviously, to the fact that each unit-weight of steam carried an abnormal quantity of stored heat.

Professor Sinigaglia concludes :

1. Superheating vapor is irrefutably proved to be the most effective system of reduction of internal wastes of heat in the steam-engine.

2. The higher the degree of superheating attainable, the nearer does the thermodynamic result approximate that indicated by pure theory and by the formulas of thermodynamics.

3. From the industrial point of view, it is necessary to note the gain, not at the engine, but in fuel demanded at the boiler, and the apparatus of vaporization and of gasification must be efficient and durable.

4. The final test is in the study of the financial aspect of the operation.

"Mais, aujourd'hui, les installations nombreuses de l'Alsace et de l'Allemagne ont donné des résultats si remarquables qu'on finira par vaincre les dernières difficultés qui s'opposent à une application générale de la surchauffe aux machines à vapeur. Ce sera le meilleur hommage rendu à Hirn et à son école."

R. H. THURSTON.

#### THE REMOVAL OF DR. WORTMAN TO THE CARNEGIE MUSEUM.

DR. J. L. WORTMAN, of the American Museum of Natural History, has been called to take charge of the new collections of Vertebrate fossils in the Carnegie Museum at Pittsburgh, and has resigned his position in the American Museum in order to enter upon his new duties. The finest portions of the Cope collection of Fossil Mammals were made by Dr. Wortman previous to his connection with the Army Medical Museum in Washington. Since 1890 he has had charge of most of the parties sent out from the American Museum for Fossil Mammals and Reptiles and has conducted these explorations with extraordinary success. A very large part, therefore, of the collections in the Department

of Vertebrate Paleontology are due to the energy and intelligence of Dr. Wortman and his assistants in the field. His field work has been carried on almost exclusively during the summer months, and he has been occupied during the winters in the preparation of a series of bulletins based chiefly upon the field collections, many of which have attracted wide attention. Notable among these are the papers upon the Skeleton of *Patriofelis*, the Anatomy of *Agriochærus*, the revision of all the early species of horses, and a geological paper upon the Stratigraphy of the White River Beds. The most important of his original contributions in the series is, however, that upon the 'Origin of the Sloths,' based chiefly upon the fortunate discovery of the foot of *Psittacotherium* in the Torrejon beds of New Mexico. Dr. Wortman's latest paper, now in press, is upon the Ancestry of the Dogs, in which he successfully demonstrates the direct phylogenetic relationship between the Canidæ and of certain dog-like Creodonts.

Dr. Wortman's services to the Museum are greatly appreciated and his resignation has been accepted with much regret. He carries with him the best wishes of his friends for his success in his new undertaking.

H. F. O.

#### SCIENTIFIC NOTES AND NEWS.

PROFESSOR F. L. O. WADSWORTH has been appointed by the managers of the Western Pennsylvania University, Director of the Allegheny Observatory, succeeding in the position Professors Keeler and Langley. Professor Wadsworth has been connected with Yerkes Observatory since its opening and was previously at the Astrophysical Observatory of the Smithsonian Institution.

UNDER authority of the Secretary of the Treasury, the Superintendent of the Coast and Geodetic Survey has effected a reorganization in that Bureau in such a way as to relieve the head of the Bureau of a certain amount of the routine work and to insure also a more direct supervision of the field work. The following officers have been appointed: Assistant Superintendent, Mr. O. H. Tittman; Assistant in charge of the Office, Mr. Andrew Braid; In-