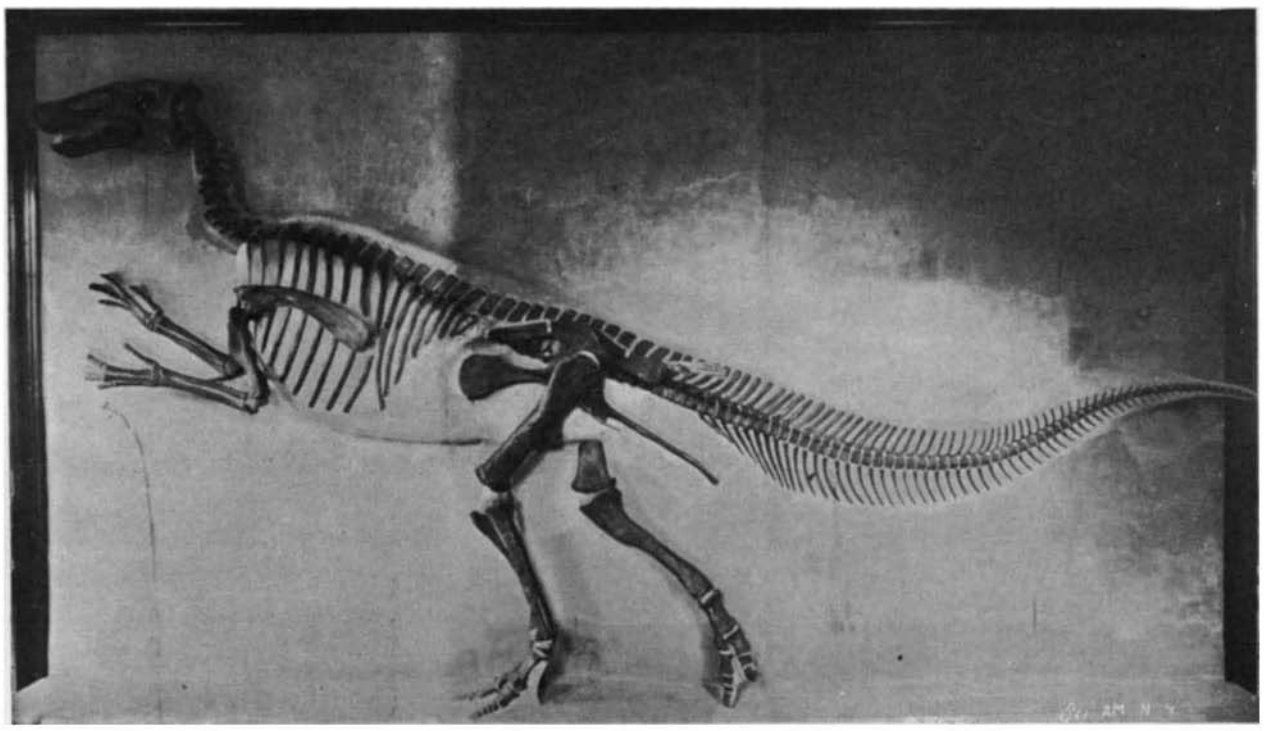
YALE'S LARGE DINOSAUR.

The large dinosaur, on the restoration of which the geological department of Yale University has been at work for a long time, has recently been placed in position. The particular specimen which the Peabody Museum of Yale possesses is of the variety known as Claosaurus. It was discovered by Prof. J. B. Hatcher and a party of friends, in the summer of 1891, while exploring for the late Prof. O. C. Marsh, in the Laramie Cretaceous of Converse County, Wyo. The specimen was in excellent condition, and was a new variety; it was named Claosaurus annecteus Marsh. There is but one specimen in the world which can be compared to it; this is in Brussels.

The dimensions of the skeleton are as follows: Entire length of animal, 29 feet 3 inches; height of head above base, 13 feet 2 inches; height of shoulder above base, 10 feet; length of tail, 13 feet 7 inches; length of hind limb, 9 feet 5 inches. The task of mounting such a gigantic specimen was far from being an easy one. Parts of the skeleton were so firmly embedded in the rock that it was almost impossible to dig them out without injuring the specimen. As much as possible was removed, and the gaps were built out with cement, making a solid background of stone on which the skeleton stands out in bold relief. It is mounted in a position which suggests motion, with one hind foot lifted a bit from the ground, while the front limbs, which are considerably smaller than the hind ones, are in the air, showing that the creature was in the habit of propelling itself by means of its hind legs. The fore limbs are adapted for walking and support rather than for purposes of prehension.



MOUNTED SKELETON OF DINOSAUR, PEABODY MUSEUM, YALE.

As is often the case with the small fore limb of dinosaurs, three fingers of the hand of this specimen were used. The first was a rudimentary one, the second and third of equal length, while the fourth was shorter, and the fifth entirely wanting.

The hind leg has three digits, all well developed and massive. These limb bones, instead of being hollow, are solid, which tends to confirm the idea that the Claosaurus was fond of the water. The whole backbone of this creature, consisting of ninety vertebræ, is complete.

The difference between the Claosaurus and other dinosaurs is mainly in the shape of the head. The skull of this Claosaurus is long and narrow, and this specimen must have possessed an exceedingly small brain. In the case of the Anchisaurus—the dinosaur which is said to have frequented Connecticut—the skull differs in many ways from that of the specimen in the Peabody Museum. It is larger and of much more delicate structure, resembling in shape the New Zealand reptile called the sphenodon. Succulent vegetation was the chief article of diet of the Yale dinosaur.

The work of mounting the specimen was carried out under the direction of Prof. C. E. Beecher, to whom we are indebted for our photograph.

The British Antarctic ship "Discovery" left London July 31 bound for the Solent and, after being inspected by King Edward, will take her departure for her trip of four years' exploration in the Antarctic Circle. The "Discovery" is believed to be the best steamship for navigation in the polar regions ever built. No iron is used in her construction because magnetic survey work is one of the chief objects of the expedition. The vessel is constructed so that if ice closes in around her she will rise and clear herself away. If the rudder and propeller are threatened both can be hauled on deck. One of the curious features of the ship is a system of air-locks between the exterior and interior. This will prevent cold air from entering the vessel when persons go on deck or below. Capt. R. F. Scott, R.N., will command the "Discovery," and Prof. Gregory, of Melbourne, will be the director of the civilian scientific staff. The expedition goes out under the auspices of the Royal Geographical Society.

SELF-PROPELLING FIRE ENGINES.

BY WALDON FAWCETT.

For almost half a century inventors in this country have been experimenting with self-propelled steam fire engines. More than a quarter of a century ago the municipal authorities of Boston purchased such a machine because of the prevalence of disease among the fire department horses of the city, and a little later the New York department secured one of the same type, but of greater dimensions. The steering apparatus on these engines was not all that could be desired, however, and most of them were gradually abandoned, although one or two of the old-fashioned propellers are still doing duty in one of the smaller Eastern cities.

The automobile fire engines of the Boston department were built in 1897, and have been in continuous service since that time. They weigh nearly nine tons each and are, of course, much heavier than any of the engines drawn by horses; and yet experience has demonstrated that they may be handled and placed in position at a hydrant with less difficulty than a horse engine. The Boston engines answer second alarms from boxes in the dangerous district and are considered more reliable hill climbers in all weathers than horses.

The largest size automobile engines when at work at fires throw an average of about 870 gallons of water a minute, or 52,200 gallons an hour, while the average horse engine usually throws less than half that amount of water. Upon exceptional occasions when throwing two streams simultaneously horse engines have been known to play almost 600 gallons of water a minute, but it will be noted that even this quantity is well under that discharged by the self-propelling engine under normal conditions. However, the value of the propellers as fire-quenching agencies has been most conclusively demonstrated at hot and extensive fires where the streams from their one and three-quarter-inch or two-inch nozzles appear to have several times the effect of those from the one and one-quarter-inch nozzles of the horse engines.

Some truly remarkable showings have been made by the "auto" engines during tests. On one occasion one of the propellers played over 1,500 gallons of water a minute, or 90,000 gallons an hour, as compared with about 1,000 gallons a minute, or 60,000 gallons an hour, by the largest and most powerful horse engine procurable. On trials through 100 feet of hose the stream of water from the propeller was projected through a one and three-quarter-inch nozzle to a horizontal distance of 349 feet, and through a two-inch nozzle to nearly 320 feet, whereas a one and one-quarter-inch stream was thrown into the air to a height of 236 feet. When the streets are clear the self-propelling engines invariably distance all the hose wagons drawn by horses. The machines will readily attain a speed of a mile in three minutes, and at tests have shown speed above twenty-five miles an hour. Steam being the propelling power, is carried at all times on these big engines, and as a rule the horseless engine can be depended upon to be started on its journey to the fire within seven seconds after the alarm has sounded.

The working boiler pressure of such an engine as has been described is 125 pounds to the square inch, and, of course, the cost of constantly maintaining about 100 pounds of steam is considerable; yet it is declared in no case to be more than the cost of feeding three horses, and the officials of the city of New Orleans who recently made a careful comparison of the operating expenses of their self-propeller and a three-horse engine (allowing for the death of horses, etc.) found that the horseless engine cost but $27 a month, as compared with $60 a month for the machine drawn by animals.

There are at the present time seven self-propelling fire engines in actual service in this country, and that this class of apparatus is expected to grow in popularity is attested by the fact that several firms are now placing automobile hose wagons. The heavier first cost will, of course, hold against the self-propelling engines in some instances, but this would appear to be offset by the reduced operating expenses. Then, too, the self-propellers have demonstrated their ability to go through snow in which half a dozen horses could not have drawn the lightest engine. Indeed, their great power has sent the Boston "auto" engine through the worst snow blockades which have occurred in that city in four winters. Finally, the introduction of self-propellers sounds the knell of the unsanitary conditions prevailing in those engine houses where the firemen have been obliged to sleep in the same building with the horses.

AUTOMOBILE FIRE ENGINE IN BOSTON.

Export of Russian Crabs.

Consul Hughes writes from Coburg, under date of June 20, 1901: A small fresh-water crab, very much like a diminutive lobster, is largely imported into Germany and Austria from Russia. During the years 1896 to 1900, 75,000 cwts. were imported by Germany alone. Austrian imports amount to some 6,600 cwts. a year. Without very much trouble this industry might, I think, be introduced into the United States.