THE HERCULES BEETLE.

In the handsome engraving herewith are shown the male and female of the Hercules beetle (Dynastes hercules) of Brazil. The family of the Dynastidæ comprises some of the largest and most beautiful of the beetle race, all of them are remarkable for enormous development of the thorax and head. They are all large bodied and stout limbed, and by their great strength abundantly justify their generic name, Dynastes, which is from the Greek and signifies powerful. The larvæ of these beetles inhabit and feed upon decaying trees and other rotting vegetable matter, and correspond in size with the mature insects. Most of them inhabit tropical regions, where they perform a valuable service in hastening the destruction of dead or fallen timber.

An admirable example of this family of beetles is the one here represented. In the male of the Hercules beetle the upper part of the thorax is prolonged into a single, downward curving horn fully three inches long, the entire length of the insect being about six inches. The head is prolonged into a similar horn, which curves upward, giving the head and thorax the appearance of the enormous jaws, resembling the claw of a lobster. The real jaws of the insect are underneath the lower horn, which projects from the forepart of the head. The under surface of the thorax-horn carries a ridge of stiff, short, golden-yellow hairs, and the under surface and edges of the abdomen are similarly ornamented.

The head, thorax, and legs are shining black; the elytra, or wing-covers, are olive-green, dotted with black spots, and are much wrinkled. The wings are large and powerful.

The female Hercules is quite unlike the male. It is much smaller, being not more than three and a half inches long, is without horns, and is covered with a brown hairy felt.

These beetles are nocturnal in habit, and are rarely seen in the daytime, except in dark hiding-places in the recesses of Brazilian forests.

SKILLED AND UNSKILLED LABOR.

A writer in one of our mechanical exchanges, says: The wisdom and value of the old apprentice system are to-day very apparent. A consciousness begins to prevail that the hasty and superficial methods of later years have resulted in widespread and unmitigated evil. Young men once were bound for a suitable term of years in order that they might slowly and thoroughly learn a trade. Nowadays they do not find it necessary to gradually climb up from the bottom rounds of their vocations before they can claim work as regular mechanics. They get a smattering knowledge in some shop, and if offered good wages elsewhere leave and make the most of what they have learned, instead of waiting and mastering all details of their pursuit before setting out as regular workmen. The country is thus filled with men who are not competently trained and completely fitted for doing the best mechanical work. As a consequence skilled workmen are in great demand, but so few are they in number that enough of them cannot be had.

A foolish notion has arisen that it is degrading for a youth to regularly bind himself as an apprentice for a considerable period of time. He is signing away his privileges as a free being; and besides, so impatient a desire to rush ahead within a short time to great lengths has been bred in Young America, that his restless mind regards the apprentice system with high disdain. He can do wonders while he is young. He can make five thousand dollars before the age at which his slow-going father had laid up two hundred dollars as the result of hard work. He doesn't intend to waste his time in acquiring a lot of mere routine knowledge.

Yet the apprentice system is the only one under which a master mechanic can give a youth a thorough training. Unless the former can have some surety that an apprentice will remain with him for several years, it is no object to him to spend time and pains in teaching the unskilled hand. For at first the master may even lose money by having the apprentice in his shop; but if the latter, at a low rate of wages, is obliged to remain a year or two with his master, after he has acquired dexterity in his trade, he makes more than good, so to speak, the trouble and expense previously borne in his behalf by his employer.

It is also important that mechanical knowledge should be thoroughly acquired in youth; for the fingers become stiff and awkward with advancing years, and one at thirty or forty cannot well become so manually dexterous as if he had given his hands skilled training when he was young. If a mechanic half learns his trade during the first years he is engaged upon it, it will be a hard, if not impossible, matter to fully remedy the early defects resulting in carelessness.

In view of the promise that good mechanics of all kinds are likely to be in great demand during coming years, it is highly desirable that young men who intend to depend on the skill of their hands for a livelihood, learn a chosen trade as it should be acquired—from beginning to end, and in all details. The outlook for skilled labor is excellent. Many manufactories are now flourishing throughout this country, and many more like establishments will doubtless be erected. Americans bid fair to occupy a leading and commanding position among the nations of the world as manufacturers of all kinds of labor-saving machines, implements, fabrics of every variety, &c. Consequently men who are masters of their respective trades are likely to secure steady and remunerative employment; but as the country becomes more thickly populated and competition greater and more narrowed down, the unskilled mechanic will find himself at a discouraging distance below par. The reasons are weighty why the old apprentice system should be vigorously revived.

Was Iron Before Bronze?—Professor Huntington, of King's College, London, holds that, from a metallurgical point of view, there is no reason why iron should not have been used before bronze, although it depends on other circumstances whether it was so not. Dr. Percy—than whom, says Professor Huntington, there has never yet lived a more learned and trustworthy metallurgical author—says: "From suitable ores, of which abundant and readily accessible supplies exist in various localities, nothing more easy can be conceived than the extraction of malleable iron. Of all the metallurgical processes, it may be regarded as among the most simple. Thus, if a lump of red or brown hematite be heated for a few hours in a charcoal fire, well surrounded by or imbedded in the fuel, it will be more or less completely reduced, so as to admit of being easily forged, at a red heat, into a bar of iron. The primitive method of extracting good malleable iron directly from the ore, which is still practiced in India and in Africa, requires a degree of skill very far inferior to that which is implied in the manufacture of bronze." The professor characterizes as erroneous the statement that copper was more likely to have been first used than iron, because the latter is difficult to reduce from its ore and the former is found native. Considering the great quantities of copper which must have been used, we know of no locality whence at that time it could have been obtained. From Pliny's description of the methods of obtaining metallic copper, it is evident that the principle was the same as that of our own day. We have every reason to suppose that, in pre-historic times, copper was obtained from its ore, on the large scale, by the dry process. If we grant that copper was obtained in the uncombined condition, we must not forget the tin, and tin does occur native, and the reduction would imply the use of charcoal, aided by a high temperature. Considerable skill is required, even at the present time, to obtain copper and tin from their ores and alloy them successfully. We ought not, therefore, finally to decide that bronze was known before iron. "It is very possible it was, but we do not as yet know the reason why." Professor Huntington concluded the lecture of which the preceding statements and reasonings formed a part by some very sensible words concerning the study of science and of literature. "Literature gives to the mind weight, dignity, and all those characteristics which, blended, constitute true civilization and a cultured intellect. Let me urge, then, that those who are engaged in scientific pursuits should seek in literature their recreation. And those whose daily occupations are of a literary nature should make science their pastime." Our acknowledgements are due to Professor Huntington for a report of the lecture, from which we have made the proceeding incomplete abstract.

A boy recently applied for a situation in Fitchburg, Mass., in a commission house. He had received a diploma from the High School of that place. The proprietor of the house examined him in book-keeping, reading, writing and spelling, and found him so deficient that he was forced to refuse to hire him. The boy said they did not teach these branches in the high school, and that it was such a long time since he had been to the grammar school he had forgotten nearly all he had acquired there. The boy was simply useless. He had a smattering of French, chemistry, natural history, algebra, English literature, physiology, ancient history, natural philosophy, astronomy, geometry, trigonometry, moral philosophy, civil government, rhetoric. In some of our Canadian schools these matters occupy altogether too much the attention of our children. They should be set aside until more useful branches are acquired, and the sooner our educationists are made to understand this the better for all parties concerned.