

are yet entirely or partially self-supported, some words of criticism must be devoted to this system. The independent means of the Universities are not only means for the protection of their independence, but at the same time are a bulwark against the attacks of an absolute Government, hostile to science. In those states, however, where a protection against violence is provided by distinct legislation, and especially in those in which the people has a share in the Government, every other bulwark than that which the law offers is only antiquated trumpery; the independent foundations of the Universities are no better than a means for the maintenance of the spirit of caste, and for the fostering of nepotism. In Austria the independent foundations of the Universities have fallen a prey to the insatiability of the State treasury. The freedom which has so rapidly developed itself in Austria during the last few years, found the doors of the Universities open, and forthwith established herself there. Well might their noble spirit be envied by those institutions which have used their independent means for enclosing the school and the church within a common wall!

It will not require many words to prove that the state institution enjoys an advantageous position with respect to the private institution. For while, on the one hand, the State can calculate on future revenues in laying out money for the establishment of scientific institutions, the private institution must regulate itself in accordance with its actual means, and can only reckon upon much narrower materials and temporary factors. This contrast cannot be illustrated in a more striking manner than by comparing the palace which the Saxon Government has built in Leipzig for instruction in physiology, with the one or two rooms which University College, London, is able to devote to the same purpose.

It must, however, not be forgotten that it is only recently that such institutions as that at Leipzig have been established. There are, indeed, at the present moment, only three other institutions in Germany which can be compared to it, viz., the Physiological Institute at Breslau, the splendid Anatomical Institute at Berlin, and the Pathological Institute at Vienna, all of which occupy separate spacious buildings. In these and other universities, establishments of a similar kind, and on a similar scale of completeness, are either projected or are now in course of construction.

S. STRICKER

#### THE EARLY HISTORY OF MANKIND

*Researches into the Early History of Mankind and the Development of Civilisation.* By Edward B. Tylor. Second Edition. (London: Murray, 1870.)

MR. TYLOR has devoted himself to a branch of Anthropology of which there are very few students in this country, that namely which treats of the mental development of man as elucidated by his arts and customs, and especially by his myths, his superstitions, and his language. More than a third of this volume is devoted to an elaborate account of the gesture-language used by deaf mutes and savages, and to picture-writing, word-writing, and the influence of names and images, as illustrative of various phases in the development of the human mind. After this we have chapters on the growth and decline of culture, as illustrated by the use of stone

implements of various degrees of perfection, by weapons, by modes of procuring fire, and by modifications in various domestic utensils. Then follow accounts of remarkable savage customs, such as the curing of disease by the extraction of foreign substances from the body of the patient, the prohibition of marriage with certain relations or namesakes, tabooing the names, and even avoiding the sight, of certain relations, and the extraordinary custom of the *couvade*. Myths, their origin and geographical distribution, are then discussed; and these varied subjects are all treated from a twofold point of view, either as giving us an insight into the laws of the development of the human mind and the growth of civilisation, or as furnishing, by their similarity over extensive areas and in widely separated countries, an argument for the common origin of the different races of man.

The work is throughout carefully written, and is illustrated by abundance of curious and little-known facts and a critical examination of their bearings. The author is very cautious in drawing any general conclusions, and when he does so carefully indicates all sources of error and uncertainty. The character of such a book cannot be fairly shown by extracts; we shall, therefore, briefly summarise one or two of the more interesting subjects and arguments.

Many persons are, no doubt, under the impression that the deaf and dumb talk to each other by means of the finger alphabet; but the use of this pre-supposes a knowledge of the meaning of words and letters, which the deaf and dumb child can hardly be taught till intelligible communication has been established with it. Alphabetical speech is slow and clumsy, whereas the deaf mute speaks to his comrades as rapidly, if not as precisely, as we do by means of vocal speech. He uses a copious and expressive language of signs, indicating words and ideas by means of simple motions and gestures. This language has the advantage of being natural and universal. English, French, and German children to a great extent understand each other, and even a North American Indian would be able to talk with them all, it being a curious fact that many of the signs used by the Indian tribes are identical with those of the deaf and dumb schools of Europe; and Mr. Tylor states that a Sandwich islander and a Chinese both made themselves understood in an American deaf and dumb institution. The "gesture language" is also connected with spoken language in two remarkable ways. Among low savage tribes there are cases in which speech has to be supplemented by gesture to make it intelligible, and it is, perhaps, reasonable to suppose that at an earlier stage of civilisation the proportion of gestures to words would be greater than it is now. There is also an agreement in some fundamental idioms. In the Aryan languages many substantives have verbal roots descriptive of some of their essential attributes. "Thus, the horse is the *neigher*; stone is what *stands*, is *stable*; water is that which *waves*, *undulates*; the mouse is the *stealer*; and age is what *goes on*; the oar is what *makes to go*; the serpent is the *creeper*; and so on." Now the deaf and dumb who have no means of communication but by signs, express themselves in the same way. To them the bird is what *flies*, the fish what *swims*, the plant what *sprouts out of the earth*, &c., and the motions of

flying, swimming, and sprouting up, are used as the signs for bird, fish, and plant.

Mr. Tylor is usually very cautious in concluding that any art or custom found among distant peoples has had a common origin, or can be used to measure the comparative antiquity of the migrations of races. Yet, in one case, in which he considers that it can be so used, he arrives at conclusions which hardly seem warranted by the facts. The Madagascans smelt iron, as do also the natives of Africa and of the western islands of the Malay Archipelago, but the bellows used in Madagascar is the peculiar Malay form—an upright bamboo, with piston formed of a bunch of feathers, and entirely different from the inflated skin-bellows of Africa. This curious fact, taken in conjunction with many others, and with the presence of a considerable Malay element in the Malagasi language, as well as some physical resemblance between the Hovas and Malays, conclusively proves that there has been a Malay immigration to Madagascar, and also that it took place subsequent to the introduction of the art of working iron. So far the facts lead us safely; but Mr. Tylor, if we understand him rightly, goes further than this, and holds it to be proved that the art of smelting iron was first introduced from Malaisia rather than from Africa, and also that the Malay migration to Madagascar was a much later event than the Malay migration to Polynesia, where the use of iron was unknown till introduced by Europeans. Now, for all that the facts tell us, iron working may have been known in Madagascar before the Malays came, they merely introducing the bamboo bellows, which would be especially adapted to a country in which bamboos were abundant, but cattle, deer, and all large animals which could furnish suitable skins, *entirely absent*. They certainly might have introduced iron-working also, but the fact of their introducing a more useful form of bellows does not prove it. So, with regard to Polynesia, there are two sufficient reasons why iron-working should not have been introduced there, even if the Malay immigration had been long subsequent to that which invaded Madagascar. The only Malay iron-smelters are certain tribes of Borneo, Sumatra, and the Malay peninsula, while among the Javanese and Coast Malays who are the chief navigators, as well as among the whole of the Moluccan tribes, the art is entirely unknown. But the Malay element in the Polynesian languages is composed of pure Malay and Javanese words, and there is every reason to believe that wandering traders of these nations introduced the Malay language into Polynesia. Added to this the fact that the volcanic and coralline islands of the Pacific contain no iron ore, and we need not wonder at iron workers not being found among them, or that the tribes who still more recently peopled New Zealand should not know how to make use of the iron ore that occurs there. The evidence of language on the other hand would seem to be in favour of the Madagascar migration being the most ancient, because the Malay and Javanese words are generally more changed in the Malagasi than in the Polynesian languages. In the latter, scores of words are slightly modified but intelligible Malay, as *pu* for *bu* (fruit), *ika* for *ikan* (fish), while in the former many equally common words have been greatly altered, as *ravina* for *ron*, Jav. (leaf), *lanitra* for *langit* (sky); and the word

*lima* or *rima* (five), which extends almost unchanged over the whole of Polynesia, becomes the hardly recognisable *dimi* in Malagasi. The Hovas are undoubtedly much nearer the true Malays in both physical and mental characteristics, than are the Maories or Tahitians, and this would indicate that a larger and more compact body had reached Madagascar than Polynesia. This is what we might expect, for the chances are so much against a safe canoe voyage across the open Indian Ocean, a distance of nearly 3,000 miles with scarcely an intervening island, that we can hardly suppose it to have occurred more than once; while the numerous islands in every part of the Pacific render it much more probable that canoes accidentally blown out of their course from the Moluccas or New Guinea, might repeatedly reach some islands tenanted by the Polynesian race. But a compact body which ultimately conquered much of the country and established a dominant race, would have a greater tendency to preserve their language unchanged; and the fact that so much change has taken place is an additional argument for the comparative antiquity of the Madagascar immigration. The ignorance of making pottery in Polynesia, an art which has certainly been known to the Malays and Javanese from a very early period, seems at first sight opposed to the theory of a late communication; but this fact may, I think, be easily understood when we consider that the immigrants were most probably traders, and of the male sex, and therefore ignorant of an art which in their native country is almost entirely practised by women. While treating of this subject, Mr. Tylor falls into some confusion by speaking of the "Malayo-Polynesian culture," and "the pure Malayo-Polynesian race," things which can have no existence, if, as I believe, Malays and Polynesians are almost as distinct as Malays and Africans.

The geographical distribution of customs, beliefs, and myths, furnishes our author with materials for some of his most curious and interesting chapters; but, still less than the arts of savage life, do they appear to afford any safe ground for conclusions as to the affinities or early migrations of the races of mankind. We cannot conclude without expressing our admiration of Mr. Tylor's industry and research in so little trodden and comparatively unproductive a field. He has carefully brought together a vast number of interesting phenomena illustrative of the mental condition of savage man, but we cannot help feeling that a satisfactory explanation of them has not yet been arrived at, and that we require researches of a very different nature before we can form any adequate conception of the various causes that have influenced the early mental development of the human race.

A. R. WALLACE

#### KARL KOCH ON TREE-CULTIVATION

*Dendrologie: Bäume, Sträucher und Halbsträucher, welche in Mittel- und Nord-Europa im Freien kultivirt werden.* By Prof. Karl Koch. 8vo. Vol. I. 735 pp., without illustrations. (Erlangen: F. Enke, 1869. London: Asher and Co.; Williams and Norgate.)

THE work of Prof. Karl Koch is a valuable addition to the literature of applied Botany; and no doubt throughout German-speaking countries it must early become the volume of all others most redolent of Nicotian essence