

THURSDAY, DECEMBER 16, 1875

HAECKEL'S HISTORY OF CREATION

The History of Creation. From the German of Ernst Haeckel, Professor in the University of Jena; the translation revised by Prof. E. Ray Lankester, M.A., F.R.S., Fellow of Exeter College, Oxford. In two vols. crown 8vo, pp. 374, 401; 15 lithographic plates, woodcuts, and genealogical tables. (London: King and Co., 1876.)

HAVING in a review of Prof. Haeckel's "Anthropogenie" (see NATURE, vol. xi. pp. 4, 22) criticised both the manner and the substance of his popular lectures on Evolution, it is unnecessary to repeat what was then said. The "Schöpfungsgeschichte" is the earlier work of the two; it deals more with the general question of the evolution of the Organic Kingdom and less with its special application to Man; its tone is somewhat more moderate, and its statements and plates are less highly coloured. But the object and the style of both books are essentially the same, and they will be praised or condemned together.

Even in the short time since the delivery of the present lectures several points have been established which necessitate a modification of the views here expressed. The origin of the urino-genital organs has been proved in the classes as yet completely examined to be from the middle layer of the embryo; the embryology of Amphioxys and of Mollusca has been elucidated—by none more than by the editor of this translation; the placental classification of Mammalia, never accepted by all zoologists, has been almost reduced to the same rank as Waterhouse and Owen's cerebral system; the true nature of Lichens has been cleared up, and relations between Algæ and Fungi have been established which disturb the roots of the genealogical tree on Plate V. Moreover, Dr. Dohrn's bold speculations lately published in his pamphlet "Der Ursprung der Wirbelthiere und das Princip des Functionwechsels," have brought the question of degradation of many lower forms as well as of the genetic relations of Vertebrata into a new phase. It is remarkable how little the previously well-known instances of "degraded forms" are considered in these lectures. Surely some of the numerous twigs of the fifth, sixth, and fourteenth plates might have been turned downwards.

But whatever may be thought of the advantage of exhibiting together established truths and more or less erroneous speculations, in a dogmatic and controversial form, before an uncritical audience, there is no question of the value of these lectures to naturalists. They awaken thought, provoke criticism, and stimulate inquiry.

Turning from the subject-matter to the translation, we must call it an exceedingly good one. No one who has not tried knows the difficulty of presenting a continuous work in a foreign language to an English reader so as to drop the idiom and yet retain its character. If a page of the body of the work be compared with Prof. Haeckel's own preface—written in very good English, but as a foreigner writes—the reader will see at once how much he is indebted to the lady who, we are told, made the first draft, or to Mr. Lankester, who revised it.

The following passage is a fair specimen of the book:—

"Of the twelve species of men distinguished in the following table [namely Papuan, Hottentot, Caffre, Negro, Australian, Malay, Mongolian, Arctic, American, Dravidian, Nubian, Mediterraneanese, beside hybrids], the four lower species are characterised by the woolly nature of the hair of their heads; every hair is flattened like a tape, and thus its section is oval. These four species of woolly-haired men (*Ulotrichi*) we may reduce into two groups, 'tuft-haired' and 'fleecy-haired.' The hair on the head of tuft-haired men (*Lophocomi*), Papuans and Hottentots, grows in unequally divided tufts. The woolly hair of fleecy-haired men (*Eriocomi*) on the other hand, in Caffres and Negroes, grows equally all over the skin of the head. All *Ulotrichi*, or woolly-haired men, have slanting teeth, and long heads, and the colour of their skin, hair, and eyes, is always very dark. All are inhabitants of the Southern Hemisphere: it is only in Africa that they come north of the equator. They are, on the whole, at a much lower stage of development, and more like apes than most of the *Lissotrichi*, or straight-haired men. The *Ulotrichi* are incapable of a true inner culture and of a higher mental development, even under the favourable conditions of adaptation now offered to them in the United States of North America. No woolly-haired nation has ever had an important history.

"In the eight higher races of men which we comprise as straight-haired (*Lissotrichi*), the hair of the head is never actually woolly, although it is very much frizzled in some individuals. Every separate hair is cylindrical (not like a tape), and hence its section is circular (not oval).

"The eight races of *Lissotrichi* may likewise be divided into two groups—stiff-haired and curly-haired. Stiff-haired men (*Euthycomi*), the hair of whose heads is quite smooth and straight, and not frizzled, include Australians, Malays, Mongolians, Arctic tribes, and Americans. Curly-haired men, on the other hand, the hair of whose heads is more or less curly, and in whom the beard is more developed than in all other species, include the Dravidas, Nubians, and Mediterranean races."

The Caucasian, or to adopt Fr. Müller's less recognised name, the Mediterranean race, is divided into four sub-races by the aid of language: these are (1) the Caucasians proper of Georgia and the surrounding mountainous district; (2) the Basques; (3) the Semitic nations, including not only the Arabs and Jews (*Eusemites*), but also the Hamitic or "Dysæmitic" Egyptians and Berbers, with some other African tribes; (4) the great Indo-Germanic or Aryan race, including Indo-Persians, Greeks, Italians and Kelts, Slavonians and Teutons. The following passage concludes the chapter:—

"The third and most important main branch of primæval Malays, the curly-haired races or *Euplocomi*, have probably left in the Dravidas of Hindostan and Ceylon that species of man which differs least from the common primary form of the *Euplocomi*. The principal portion of the latter, namely, the Mediterranean species, migrated from their primæval home (Hindostan?) westwards, and peopled the shores of the Mediterranean, South-Western Asia, North Africa, and Europe. The Nubians in the north-east of Africa must perhaps be regarded as an offshoot of the primæval Semitic tribes who migrated far across Central Africa almost to the western shores.

"The various branches of the Indo-Germanic race have deviated furthest from the common primary form of ape-like men. During classic antiquity and the middle ages, the Romanic branch (the Græco-Italo-Keltic group), one of the two main branches of the Indo-Germanic species, outstripped all other branches in the career of civilisation; but at present the same position is occupied by the Germanic. Its chief representatives are the

English and Germans, who are in the present age laying the foundation for a new period of higher mental development in the recognition and completion of the theory of descent. The recognition of the theory of development and the monistic philosophy based upon it, forms the best criterion for the degree of man's mental development."

A noteworthy feature in the present translation is the attempt Mr. Lankester has made to use English equivalents for the technical terms of anatomy and zoology. The facility with which Prof. Haeckel invents terms, and the habitual use in German of vernacular phrases in scientific writing, made this a good opportunity for trying an experiment which the translator has before now recommended. The result shows great ingenuity and good judgment, and is probably as successful as the conditions of the attempt allow.

It will be generally admitted that the English language is incomparably richer and more flexible than the French, while it lacks the precision and neatness which with ordinary French writers is apt to become too mechanical and uniform, but in the hands of a master produces the most perfect instrument for scientific exposition. On the other hand, German is far more cumbersome and undisciplined than English, but has a slovenly ease, a picturesque force and a power of adaptation and word-making, which reminds one of our own language in the first half of the seventeenth century.

A French scientific writer cannot make a new term or form a compound in his own language, but must construct a Greek compound (often ill-formed), and even this must be modified so as to assimilate it to French pronunciation. And comparing the style of Bichat and of Cuvier with that of contemporary writers, we see that the stiffness and severity of the language has increased during the present century. Germans, on the other hand, can invent compounds without limit in number or in length, and can introduce foreign terms as they are wanted, even declining them in accordance with the German prepositions against which they are thrown.

The English language has much less power of forming compounds, though poets like Tennyson and Morris show us how flexible it becomes in powerful hands; but it has a remarkable capacity for assimilating foreign words. The unequalled richness of the language chiefly depends on its having so many synonyms, and this again on its composite character. The choice of words like friendship, amity; righteous, just; begin, commence; wax, increase; weariness, fatigue; spue, vomit; raise, erect; fruitful, fertile, gives peculiar accuracy, character, and delicacy to modern English.

If purely English words were to be generally adopted in science, we should, in the first place, be obliged to shock modern decorum in a way that would be practically impossible. Germans still write of *Kothentleerung*, *Wol-lustorgane*, *Afterbildung*; but such plainness of speech would be intolerable in English. Even such words as sweat, spue, spit are much better kept for rhetoric and poetry than used as physiological terms.

Moreover, our purely English names are too popular to be tied down to technical definition. The word "worm," for instance, applied by Milton to the serpent, and universally to the larva of diptera, can never be limited to correspond with the class Vermes. The objection that

English terminology is not "scientific" can only mean that it is not scientifically accurate. To make it so would injure it for every other purpose.

Surely it is better to speak of the *ophidian* character of a vertebra than to call it "serpentine" or "snake-like." The first word refers to the anatomical distinctions of the class Ophidia, the second to the peculiar, lateral, wriggling locomotion of these animals, and the last to their supposed mental characteristics. In the same way *avian* is a better scientific term than "bird-like,"* *mammalian* than "beastly," and *piscine* than "fishy;" because those are at once recognised as referring to the technical characters of the classes Aves, Mammalia, and Pisces respectively, while these suggest far more vividly the special peculiarities which common observation associates with them.

It must however be admitted that a vernacular synonym is often of value. It brings an unobvious fact vividly and clearly before one. Thus the phrases, "a fox is a kind of dog," "a tiger is only a large cat," "the swordfish is a sort of mackerel," are certainly more easily remembered than corresponding statements in "scientific" language.

The simplicity and directness of idiomatic English is often an advantage as a matter of style.

For teaching botany to children, and generally for explaining scientific facts to persons unfamiliar with technical names, it is often desirable to use vernacular terms, either to avoid disgusting them with hard words to begin with, or to fix the attention on facts rather than names and prevent the learner supposing that he has made a step in knowledge when he has learned to call hardness impenetrability, or a buttercup *Ranunculus*.

Lastly, for the probably increasing number of persons who study science without having learnt Greek, it is of great importance that even when using technical names they shall know the English synonym as a kind of ready translation. When everyone wrote in Latin many terms which are now become technical were simply descriptive. Thus "the passage from the third to the fourth ventricle of the brain" was certainly never meant to be a proper name, nor was "the waterpipe of Sylvius:" but now when "iter," "aquæduct," "tympanum," "cilium," have become restricted to single objects, it is well that their meaning should be readily apprehended by the use of appropriate English synonyms. At all events the attempt was worth making, and we will conclude this notice by giving a list of some of the synonyms used by Mr. Lankester.

Cotyledon	= Seed-lobe or germ-leaf.
Nucleus	= Kernel.
Nucleolus	= Kernel-speck.
Cytod (surely this should be cythode).	
Catallacta	= Flimmer balls.
Labyrinthulæ	= Tramweavers.
Diatomacæ	= Flintcells.
Rhizopoda	= Raystreamers or Rootfeet.
Algæ	= Tangles or waterweeds.
Labiata	= Lipblossoms.
Gamopetalæ	= Bell-flowers.
Ctenophora	= Combjellies.
Lamellibranchiata	= Mussels.
Gasteropoda	= Snails
Crustacea	= Crabfish.

* The prettily invented word "unbirdly" occurs in Cowley's fine Ode on Liberty—

"Even to the universal tyrant love
You homage pay but once a year,
None so degenerate and unbirdly prove
As his perpetual yoke to bear."

Sagitta	= Arrowworm.
Tunicata	= Sea-sacs, including sea-squirts (<i>Phal-lusia</i>), and sea-barrels (<i>Salpa</i>).
Chitonidae	= Beetle-snails.
Tetrabanchiata	= Chamber-poulps.
Pycnogonida	= Nobody-crabs.
Arthropoda	= Insects.
Insecta	= Flies.
Phocidae	= Sea-dogs.
Sirenia	= Sea-cows. (This order is allowed to remain in unnatural alliance with Cetacea.)

We have noticed a few verbal errors, such as "cetae" for "cete," "coecum" for "caecum," two misprints on p. 308, and an unlucky form of the name of an African tribe on p. 330.

The plates are excellently reproduced, and the print, paper and index show the care with which these two volumes have been prepared.

P. H. P. S.

BURTON'S GORILLA LAND AND THE CONGO
Two Trips to Gorilla Land and the Cataracts of the Congo. By Richard F. Burton. Two vols. (London; Sampson Low and Co., 1876.)

THE journeys here recorded were made so long ago as 1862 and 1863. Since that time Capt. Burton has not been idle; between exploring and publishing the results of his explorations he has sufficient excuse for having kept from the public for so long the narrative of his trips to the Gaboon and the Congo. Moreover, as he says himself, Africa moves so slowly, that ten years makes scarcely any appreciable change on a locality. The publication of the work at the present time is opportune, as public attention is being directed to the region with which it is concerned; the German African Society have taken up the Congo district as a *point de départ* for the interior, and although the expedition sent out has not been so successful as might be wished, still Dr. Pogge and Dr. Lasaulx, according to the latest news, are endeavouring to push inwards from Loanda. There have been several explorers on the same ground since Capt. Burton visited it twelve years ago, and there have been many previous explorers—the stretch of coast included in the two narratives contains some of the earliest Portuguese settlements; but as was shown in his recently-published book on Iceland, this widely experienced traveller and keen observer can shed new and unexpected light even on the most frequently trodden paths. The present work will be found a substantial contribution to our knowledge of the Gaboon and Congo districts, especially in the matters of geography, topography, and people.

Capt. Burton's visit to the Gaboon extended over only a few weeks in March and April 1862, but during that time, his first volume shows, he managed to see and to learn much. He is nothing if not unflinchingly true to his opinions, and these, as usual, he expresses freely and without respect of persons throughout the two volumes. He gives rather an unpleasant picture of the character and condition of the French trading establishments on the Gaboon, and indeed has not much praise to bestow on any of the establishments, French, Portuguese, or English, which he has occasion to mention in his work. Capt. Burton's chief object in visiting the Gaboon was to obtain some specimens of Gorilla, and, if possible, get a

young one alive. He did not, however, get a shot at one during all the time of his visit; but a fine specimen was sent him by a native before he left, which, in a sadly deteriorated condition, now rests in the British Museum.

The traveller made a trip in pursuit of "our big brother," as he calls the animal, to the south side of the river, and gives some very graphic pictures of the degraded natives who inhabit the many villages of the district. His remarks on the customs of the people, the Mpongwe, as they are called, especially their marriage and religious customs, are extremely interesting. This chapter is interspersed with many shrewd philosophical remarks, in Capt. Burton's well-known style, on human customs generally, and shows extensive knowledge derived both from reading and experience. What he says upon the curious resemblance between certain customs among the Mpongwe and other West-Coast tribes, and the religious rites of the Jews, seems to us of real value. He also refers to what has been done to obtain a knowledge of the language of these people. His lively description of the troubles he had with the slippery and lazy natives in seeking the Gorilla will be found very amusing. With reference to the habits of the Gorilla, Burton substantially confirms the statements of Du Chaillu, though in some few points the matter-of-fact Englishman shows that the Frenchman had given way to exaggeration; e.g., in the matter of the elaborately-constructed canopied nest or hut, Capt. Burton thinks Du Chaillu must have been deceived by some vagary of nature. The natives ridiculed the idea, and all that Capt. Burton saw were heaps of dried sticks built in forks of trees, and which a schoolboy might have taken for birds' nests. One entire chapter is devoted to "Mr., Mrs., and Master Gorilla," in which are discussed the results of his own and of other observations. It includes a historical account of references to the Gorilla, from Hanno the Carthaginian, downwards; the geographical limits of the animal are pointed out, as well as the modifications which ought to be made in Du Chaillu's account.

Capt. Burton made a trip down the coast for a few miles and another up the river to the Fan (Fan he spells it, to indicate that the *n* is strongly nasalized cannibals; but the existence of cannibalism, in the ordinary sense of the term, seems doubtful. They do roast and eat portions of their enemies slain in battle, but this evidently is regarded as a quasi-religious rite. As might be expected, Capt. Burton indulges in a brief dissertation on anthropophagy in general, bringing to bear upon it much knowledge of the customs of peoples in various parts of the world. With regard to the Fans, Du Chaillu's account led him to expect to see "a large-limbed, black-skinned, ferocious-looking race, with huge mustachios and plaited beards. A finely-made, light-coloured people, of regular features and decidedly mild aspect, met my sight." On the whole, the Fans seem to be a very fair specimen of savage man. Capt. Burton gives details concerning the various tribes at the head and to the east of the Gaboon, about whom little or nothing is as yet known, and points out the suitability of the river as a *point de départ* for exploration in Inner Africa. One chapter is devoted to the geography of the Gaboon region. On the voyage back Capt. Burton visited Corisco Island in the bay of that name, about which and the missionaries