

and Australia. This will never be accomplished until we thoroughly understand the influence of the Antarctic Continent. Its investigation would alone be a fit subject for an imperial conference. It is a problem which should no longer be nibbled at, but made the object of systematic attack.

If we turn from the physical to the biological field the need of cooperative endeavour is no less insistent. The problems of geographical distribution are hampered for want of material from large, uninvestigated areas. In anthropology our knowledge is still fragmentary, even of the subject races of the Empire. Commerce affords a wide area for the distribution of their local diseases. Cases of sleeping sickness are to be seen in our hospitals, and beri-beri has sometimes produced a panic in our ports. Yet the campaign against tropical disease has only begun.

If it is objected that such schemes are visionary, it may be replied that half a century ago they were actually within the field of practical politics, and that, too, at a time when anything like Imperialism was certainly not in fashion. In 1859 the Duke of Newcastle, the Secretary of State for the Colonies, wrote officially that "her Majesty's Government have under their consideration a project for collecting the materials of a National Work on the Astronomical features, the terrestrial physics, the botany, zoology, and geology of the Colonial Possessions of the British Empire." All this remained a project except as regards botany, which was imposed on Kew. The task, with various fortunes, sometimes of neglect and discouragement, has occupied it steadily ever since. With the completion, now in sight, of the two great Floras of Africa, under the editorship of Sir W. Thistelton-Dyer, the vast undertaking will have been practically accomplished. It is to be noted that except in the case of tropical Africa, the expense has been borne by the Dominions and Colonies concerned. And to the Flora of South Africa a spontaneous and not the least liberal contributor has been the Transvaal Government.

The inference that may be drawn from such facts is that while the Imperial Government could probably be induced to aid well-considered scientific work in the Crown Colonies and Protectorates, funds would be forthcoming for the share of that of the Dominions. Cooperation would give them a voice in the scope and character of any scheme, and a guarantee of its efficient and economical execution.

Such a sketch of what imperial cooperation might do for knowledge of the globe on which we live has at any rate the charm of a pleasant dream. Will it ever be realised? Not as long, certainly, as a Prime Minister can describe our Government as "the organised power of Philistines." The Philistine has the Government he deserves, and Philistine he will remain until the schoolmaster is touched with idealism and the aim of life ceases to be purely materialistic. Men may learn that though the pursuit of wealth may be exciting its attainment is dull in its results and usually mischievous in its effects. Ambition may prompt the rich to leave a worthier monument behind them than the mere record of their death duties. The value of wealth consists not in its possession but in its power, whether for good or evil. Perhaps the sporting instinct will come to the rescue of knowledge. Wealth may effect the performance of what a man may not be able to achieve himself, and yet feel some pleasure in seeing done. Money has been found to explore the ornithology of New Guinea, and men have been ready to risk their lives in the enterprise. Such sporadic efforts will never be wanting; what is needed is the coordination which will unite them in a considered campaign.

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NATURAL HISTORY OF THE BIBLE.

THE celebration of the tercentenary of the English authorised version of the Bible is an event of national importance, when everything connected with Holy Writ commands, if possible, more than ordinary interest, not only from Biblical scholars, but also from a large section of the general public. Among the numerous sections of the subject, that which most commends itself to students of natural science is, of course, the natural history of the Bible in the wider sense of that term—that is to say, inclusive of zoology, botany, and mineralogy; and the present celebration affords a fit opportunity of reviewing and revising our knowledge of Bible animals, plants, and minerals, and also of considering whether any emendations of the names by which some of them are referred to in the authorised version ought not to be amended. This has been recognised by the authorities of the British Museum, who are now arranging in the hall of the Natural History Branch at South Kensington an exhibition of Bible animals, plants, and minerals, which will be opened in due course, and will doubtless attract a large amount of attention and interest on the part of the public.

Although comparatively little interest and importance attaches to the list of species regarded by the ancient Jews as unclean, the correct identification of the animals and plants referred to in other parts of the Bible is in many cases essential to a proper appreciation of the context, more especially when they are introduced to illustrate a simile, or to accentuate some striking or picturesque feature in local conditions. At the time when the authorised version was written natural history had scarcely attained the position of a science, even the birth of Linnæus not having taken place until nearly a century after the translators had finished their labours. But this lack of knowledge of natural history common to all educated persons of that day was by no means the only difficulty with which the translators had to contend. For, in the first place, the animals and plants of Syria and Palestine were probably even less known than those of several other parts of the world; while, secondly, the dispersal of the Jews had led to the proper meaning of many of the old Hebrew names of animals and plants being more or less completely forgotten.

Consequently the translators were plunged into a very sea of difficulties, from which, considering all things, it is little short of a marvel that, despite many egregious blunders, they emerged as creditably as they did. In regard to names of which the true signification was not apparent the translators followed two distinct courses. In some cases, as, for instance, with *shâphân* ("the hider"), they made a "shot" at the meaning of the name, rendering the one quoted by coney, the then current designation of the rodent we now term (except in legal phraseology) rabbit. On the other hand, some Hebrew names, like *shittim* and *almug*, among the designations of timber and trees, were transferred directly to the English version without any attempt at translation or identification. And there is little doubt that this latter was the preferable course. Indeed, in the case of *almug* trees it is almost the only legitimate one, as the species is not yet identified with absolute certainty, although it may be the red sandal-wood of India. *Shittim*-wood might, of course, be now translated as acacia, but even this would be unsatisfactory, as the tree popularly known in this country by the latter name is really a Robinia.

In a few instances, as in the case of "pygarg" for *dishon*, the translators used terms of which they could not possibly have known the proper meaning;

the African antelope termed *πύργος* by Herodotus being still unidentified, and therefore having no claim to be regarded as the equivalent of the Hebrew *dishon*.

The real misfortune is, however, when well-known English names of plants and animals are given as the equivalents of Hebrew words of totally different signification. Examples of this are apple for apricot, chestnut for plane, sycamore or sycamore (etymologically justifiable) for a fig of the banyan group, ferret for an animal which may have been a gecko, the aforesaid coney for the Syrian hyrax, and, above all, badger (in the shape of badgers' skins) for the Red Sea dugong. The last is indeed a particularly bad case, as it should have been obvious that badgers' skins, even in a comparatively dry climate, do not form suitable material for a church-roof. The case of "coney" has been complicated by the word having fallen practically into disuse, in the original sense, in consequence of which many persons, and especially Americans, appear to regard it as the proper English name of the hyrax.

In nearly all the cases where the real meaning of the original cannot be ascertained, or where, as in the instance of sycamore, we have no vernacular name for the species referred to, it appears to me that it would be much better if the Hebrew word were retained, with a brief marginal explanation.

In modern times much light has been thrown on Bible natural history by identifying the old Hebrew names of animals and plants with their apparent equivalents in Arabic and Coptic, and likewise by the study of the animals represented in the Assyrian and other ancient sculptures, as well as in the Egyptian frescoes. The mummified animals of Egypt have also contributed their quota of information. There is, however, little doubt that if further attention were devoted to the correct identification of the animals in the magnificent series of Assyrian and Babylonian sculptures in the British Museum still more information might be obtained.

In our own country the great pioneer in this line of research was the late Canon Tristram, whose "Natural History of the Bible" and "Fauna and Flora of Palestine" still remain standard authorities. To Tristram we owe the identification of the Hebrew *reem*, mistranslated unicorn in the authorised version, with the extinct wild ox, or aurochs, the name apparently still surviving in the Arabic *rim*, now applied in North Africa to certain large gazelles. And in his works will be found mention of the identity of the Hebrew *nesher* (translated eagle) with the Arabic name, *nisr*, of the griffon vulture; of the Hebrew *cabh* (rendered tortoise) with *dab*, the Arabic term for the lizards of the genus *Uromastix*, and many other analogous instances. Unfortunately, Tristram was led to believe that several kinds of large North African antelopes, such as the bubal hartebeest, the addax, and the white or sabre-horned oryx, were natives of Palestine and the adjacent regions, whereas it is now ascertained that none of these ranges to the east of the Lower Nile, although the white oryx was brought down from the interior by the ancient Egyptians. Consequently his identifications of Bible ruminants are to a great extent erroneous, but an attempt has been made to correct them in the new edition of "Murray's Dictionary of the Bible." Important information, especially in regard to insects, will also be found in the "Oxford Bible." On the Continent, Dr. Duerst, in various publications, has contributed largely to our knowledge of the cattle—wild and tame—of Biblical times, while Dr. Lortet and his associates, whose studies of their mummified remains are pub-

lished in the Archives of the Lyons Museum, have done the same for the sheep, goats, dogs, &c.

To attempt anything like a complete survey of Biblical natural history in the space at my disposal is obviously impossible, and references can only be made to a few points of general interest. Whatever may have been the origin of the story of Jonah, it is curious to note that in the Ethiopic Bible the whale is referred to as *anber*, the Arabic equivalent of ambergris, and was thus evidently regarded as the sperm-whale, by which alone that perfume is produced. Here my readers may be reminded that ambergris was the original amber, the latter word having been subsequently transferred to the substance now known by that name. Although leviathan in one passage seems undoubtedly to indicate a whale, it generally refers to the Egyptian crocodile, the range of which, until recently at any rate, extended to Syria, and formerly, as attested by the story of St. George and the dragon, included Asia Minor.

The above usage of one and the same Hebrew word in two senses is not unparalleled in the Bible, and must have been another sore difficulty in the path of the translators. *Tinshemeth*, for instance, which is translated in one passage as mole and in others as swan, is considered to indicate the chamæleon in Leviticus xi. 30, while in another part of the same book it is believed to stand for some kind of aquatic bird, which may perhaps have been the purple water-hen. Before leaving *tinshemeth*, it may be added that not only were the translators wrong when they rendered it mole, but that they were also in error when they identified another Hebrew word, *hephor-perôth*, with that animal; for, as a matter of fact, there are no moles in Palestine and Syria, and the burrowing animal indicated would seem to be one of the rodent mole-rats of the genus *Spalax*.

In the rendering of the names of birds, the translators were in several instances either exactly or approximately correct, pelican, crane, stork, quail, and partridge being exact translations, while glede (an old name of the kite) and hawk are near enough approximations for the smaller birds of prey, as is also swallow for swift. It is curious, however, that in two passages where swallow and crane are mentioned together, the latter name is employed as the translation of the Hebrew word meaning swallow (or rather swift), and *vice versâ*. Sparrow, the translation of *tziphor*—"the chirper," is doubtless used in a general sense, although, as Tristram pointed out, the solitary sparrow on the housetop is in all probability the blue rock-thrush. Possibly such names as "gier-eagle" (from the German *gier*, a vulture, and familiar in the form of lammergier) and "ossifrage" may have been in use in this country in the seventeenth century, but nowadays neither conveys any definite meaning to the reader, the former really indicating the Egyptian scavenger-vulture, or "Pharaoh's hen," and the latter the lammergier. Lapwing is distinctly an unfortunate translation, the bird indicated being probably the hoopoe.

In regard to invertebrates, it may be noted that the rendering of *sās* in Isaiah as worm is not far out, as the word indicates the larva of a clothes-moth, and it has been suggested to me that the "booth that the keeper maketh" (Job xxvii. 18) refers to the rough larval case of a psychid moth. "Canker-worm" is now generally admitted to refer to one of the immature stages of the locust, and in the Oxford Bible it is suggested that "palmer-worm" may include not only caterpillars, but likewise a second immature phase of the locust, which would accord well with the context. Locust, grasshopper, ant, hornet, bee, fly, flea, and scorpion are correct, or

nearly correct, renderings of the Hebrew names for which they stand; and the same is doubtless the case with coral, which is found in the Red Sea and the Persian Gulf. Pearls in the Old Testament is, however, the rendering of the Hebrew *gābhish*, signifying ice and thus rock-crystal, whereas in the New Testament *μαργαρίται* is rightly translated pearls. Manna, it is perhaps needless to add, was certainly not the product of a Coccus, as the natives of Palestine now tell travellers, but apparently a mountain lichen, of which quantities were at times blown down to the plains.

A few allusions to botany have been already made, and it may be added that in the case of cultivated plants many of the translations are more or less nearly true to nature. A "garden of cucumbers," for instance, conveys an excellent idea of the abundance of melons, gourds, cucumbers, &c., characteristic of so many Eastern countries; but a local touch of colour is unfortunately lost in the reference to "white, green, and blue hangings," in which the word rendered "green" should have been translated "cotton," so that the passage should run "where were hangings of white and violet-coloured cotton." Lack of space prevents me, I regret to say, saying more on this part of my theme, and the same limitation prevents a discussion on minerals. This, however, is not a matter for regret, as Dr. Fletcher informs me that the whole subject is in great confusion, and it will therefore be advisable to await his contribution to the forthcoming exhibit at the Natural History Museum. It may be mentioned, however, that in many cases at any rate the precious stones referred to in the Bible are rightly identified only so far as the matter of colour is concerned, sapphire being apparently lapis lazuli, ruby an unknown red stone, chrysolite probably a topaz, and chrysoprasus a green chalcedony akin to the "prase" from which Egyptian scarabs were cut.

I should have liked to say something with regard to the animals of the New Testament, but can only refer to Prof. Ridgeway's identification of the "pale horse" (*ἵππος χλωρὸς*) of Revelation with the dun breed, or the one of the colour of dry grass. Naturally one would have expected to find the black horse associated with Death; but, according to Prof. Ridgeway, the dun was regarded as the worst breed, and accordingly despised, a fact which, it may be suggested, perhaps affords another argument in favour of the antiquity of this type.

R. L.

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MEDITERRANEAN CIVILISATION AND THE PHAESTOS RIDDLE.¹

JUDGED by the declared aims of the author, who before his lamented death, was one of the brightest of Italian men of science, this is an eminently successful work. He is "convinced that it is worth while to excite the curiosity of those who are not archæologists," and he never forgets the average reader. He is equally convinced of the independence of Mediterranean civilisation, and he has undoubtedly made out a very strong case. The author's enthusiasm sometimes makes the reader unnecessarily suspicious, but added to the popularising and argumentative motives of the author is a sincere



Face A.

FIG. 1.—Disk, with Hieroglyphic Inscription, from Phaestos. From "The Dawn of Mediterranean Civilisation."

respect for facts, and the wants of the specialist are also provided for in numberless references and footnotes. The author was himself an experienced explorer, and he has some interesting theories of his own to put forth, such as that Cyprus is not "the land of copper" and that the word *bronze* is a form of Brindisi (p. 208). On Minoan matters he writes from first-hand knowledge. In Italy he did excellent work in completing a survey of the known dolmens of that country. The dolmens illustrated are remarkably similar to our British cromlechs. The book is

¹ "The Dawn of Mediterranean Civilisation." By A. Mosso, translated by M. C. Harrison. Pp. xxiii+424. (London: T. Fisher Unwin, 1910.) Price 16s. net.