

in Burlington House, and that portion of the 1000l. grant for scientific publications which it allots to its own printed output.

On the other hand, while thus giving freely that which it cannot afford to give, it keeps untouched its own freedom; and this is very precious to it. As the late president points out in the address in question, the purpose of the society is to advance natural knowledge, and this it does mainly through stimulating, encouraging, correcting and helping research by the methods which it judges best. It is true that it also advances natural knowledge by helping and advising His Majesty's Government and in many other ways, but its main work is to promote

cannot be told with certainty for many years to come, when the Government who asked that it might be done and the man who did it have both long passed away. If a Government could realise this, and be prepared to spend its money, without immediate vouchers, feeling sure that in the long run the money would be well and profitably spent, State aid to science would not be so hard a problem.

In this interesting volume the late president has not only brought before a public far wider than that which is present at the anniversary meetings and dinners of the society a knowledge of what the Royal Society is, is doing, and is striving to do, but also has directed their attention, in a striking and direct



FIG. 2.—Principal Library of the Royal Society, Burlington House. From "The Royal Society," by Sir William Huggins, K.C.B.

individual research. For this it must have perfect freedom.

Undoubtedly were the society to receive aid from the State under conditions which would fetter its actions, the result would be injurious to scientific progress; it would probably be disastrous if those conditions took the form of making the society more or less a Department of State. But is it not possible for the State to buy science and pay for it, without making the seller a servant? The answer to this seems mainly to depend on whether the State is able to recognise that the value of scientific work cannot be appraised by ordinary business methods; the money worth of an inquiry carried out to-day

way, to questions—the importance of which cannot be exaggerated—touching the relations of science to the nation. We thank him for it.

#### AN AMERICAN CONTRIBUTION TO ARCHÆ- OLOGY.<sup>1</sup>

WE welcome this publication as fresh evidence of the activity of archæological study and research in the United States at the present time. Nearly every American university now has its department of archæology, and the labours of its members are no

<sup>1</sup> "Transactions of the Department of Archæology, Free Museum of Science and Art." Vol. i., Part iii. Pp. iv+106+36 plates. (University of Pennsylvania, 1905.)

longer confined, as they were in great part until a few years ago, to the antiquities of Central America and Mexico, but now extend into the wider fields of original research on Greek and Oriental sites. The present volume well illustrates this extension in the scope of American archæology, for while in the first article in the Transactions Mr. G. B. Gordon treats of the serpent motive in Mexican art, the five concluding papers deal with the results of the excavations in Crete and Babylonia carried on by the American Exploration Society and the Babylonian Expedition of the University of Pennsylvania.

The papers of greatest interest and importance in the volume are those dealing with the excavations at Gournià, in Crete, and on other sites on the isthmus of Hierapetra during the year 1904, which were carried out, as in former years (see NATURE, June 1, 1905, vol. lxxii., p. 98), by Miss Harriet A. Boyd (now Mrs. Hawes) and her assistants. In the former article, above mentioned, we described Miss Boyd's discovery of the little Minoan town of Gournià, its geographical position, and the results of the first excavations. Miss Boyd's paper on Gournià, Miss Edith Hall's "Early painted Pottery from Gournià," and Mr. R. B. Seager's "Excavations at Vasiliki," published in the present volume of Transactions, enable us to bring the story of the American work in Crete up to date.

The chief result has been the discovery of some entirely new styles of pottery of very early date. Those who know what a great part the classification of pottery takes in early Greek archæology will appreciate the importance of this discovery when we describe the most important of the new "Mycenæan" pottery from the isthmus of Hierapetra as a polychrome ware much anterior in date to the well-known Kamâres ware (middle Minoan period of Evans), which was contemporary with the twelfth dynasty (*circa* B.C. 2000) in Egypt. Miss Boyd describes it as "a remarkable new ware from Vasiliki, with Trojan shapes, monstrously long beaks, and decoration in black and red, mottled, with highly hand-polished surface." It is described by Mr. Seager, who discovered it in a Mycenæan settlement on the Kephala (ridge) of Vasiliki, in the Hierapetra isthmus-depression, two miles south of Gournià. One fragment only was previously known; this was discovered at Zakro by Mr. Hogarth.

"The hard red finish is perhaps the most remarkable and characteristic feature of the ware. At first it recalls the Libyan ware of Dr. Petrie's Pre-dynastic race . . . the body-colour is usually a red shading to orange, and the patches black to bronze green, owing to the different degrees of heat to which it has been exposed. Exactly how this effect was produced has not yet been satisfactorily explained, but possibly the vases were covered with paint and then put into a bed of coals (*sic*) which were heaped over them, the black patches being the effect of a live coal lying actually against the surface of the vase. This would be only a variation of the method used in firing the Pre-dynastic Libyan ware, where the necks, which were in actual contact with the coal, have burnt to a black. Very possibly this technique may have been strongly influenced by that of Libya, but with his characteristic ingenuity the Agean (*sic*) potter, not content with the set form and colouring of the Libyan ware, experimented with the method until he produced this varied and at times gorgeous effect. The greatest charm of the prehistoric ware of the Agean is that the potters never allowed themselves to remain long tied down by a tradition of style and were constantly inventing new and original ideas of which the Egyptian workman seems never to have been capable. The Agean peoples were always ready to receive ideas

from their neighbours, but they never remained content until these ideas had been changed and beautified to suit their own more artistic tastes."

We have quoted Mr. Seager's description at this length for several reasons. First and primarily because of its excellence as a description of his important discovery; this pottery is highly remarkable, and may indeed be described as "gorgeous," as the coloured plate showing specimens of it proves. The explanation of its technique is probably correct. Secondly, on account of its being a good example of the way in which Greek archæologists run down the poor Egyptians; but we will not quarrel with Mr. Seager on this score; he sins in good company, and, after all, it needs a considerable acquaintance with Egyptian archæology before one realises that the Egyptians were as capable of inventing new and original ideas as the Mycenæans. Thirdly, as an example of the way in which an archaeological statement which has long been given up as incorrect by the archæologists of the branch of work to which it belongs may still be perpetuated by the archæologists of another branch: the prehistoric Egyptians, whose pottery was discovered by de Morgan and Petrie, are not known to have been Libyans, nor can their pottery be called "Libyan." We know nothing of the Libyans of 5000 B.C.; the pre-dynastic Egyptians can only be called Egyptians. We may note in passing also that it is more probable that the resemblance of early Ægean to early Egyptian pottery is due to a possible common origin of their civilisations than that Ægean technique was "strongly influenced by that of Libya" (*read* Egypt); so early. Finally, we quote this passage as a warning against misprints. "Agean" for "Ægean" three times in a few lines is not pretty, and not far off we see "Cypress" for Cyprus (p. 216). The American printer has original ideas, and often carries them out—at the author's expense.

Another unusual ware of early date was found at Gournià; its characteristic is white paint on black, with geometric ornament. This ware is described by Miss Edith Hall. The most primitive ware of all, from the rock-shelter burials at Gournià and Agia Photia near by, is also interesting; it is sub-Neolithic in date, and closely related to the Cycladic pottery of Thera and Amorgos, which it resembles.

The buildings at Vasiliki explored by Mr. Seager, in which the strange new pottery was found, are remarkable in plan and construction, and the description of the difficulties of excavating them is interesting. The rooms are filled with hard plaster, the presence of which is explained by Mr. Seager as follows. The ceilings were made of canes covered with heavy clay plaster, and these were supported by transverse beams. "When the beams gave way, the ceiling sank into the rooms below, making a layer of débris about fifty centimetres and sometimes more in thickness. This débris, owing to the action of fire and water, has become an almost petrified mass on which the picks of the men made but slight impression. Certain rooms had to be abandoned on this account, as little short of actual blasting would have been required to clear them. . . . As in Gournià, and, in fact, most of the prehistoric settlements in Crete, the building seems to have been destroyed by fire. . . . It is plain that the building must have possessed several stories, as the mass of débris which fills the rooms is far too deep to have been the result of the collapse of a single floor." Mr. Seager tells us that when, "as was often the case," the clay plaster "had fallen on a deposit of pottery or pottery from the upper rooms had fallen in with it, the objects were as fresh as on the day of the catastrophe which destroyed the building, but it

required the greatest skill and patience to save them unbroken, and in some cases to save an unusually fine piece it was necessary to sacrifice inferior ones surrounding it." A short time ago I visited Vasiliki myself under the guidance of Mr. Seager, and can testify to the great interest of his work there. The plaster-filled houses are remarkable. May it not be possible that this hard stuff, which makes the excavation of the houses at Vasiliki so difficult, can be explained in a manner different from that adopted by Mr. Seager? At Phaistos the older palace (*Middle Minoan* or *Kamáres* period) was partly razed, and the remains filled up and covered with a layer of hard beton or cement, as hard as that of Vasiliki, on which the *Late Minoan* palace was built. I would suggest that the plaster of Vasiliki may be in reality a cement filling-up, on which later houses were built. There are certainly two or three distinct superimposed "towns" at Vasiliki. Mr. Seager is now proceeding with the work at Vasiliki alone, as Mrs. Hawes (Miss Boyd) has not visited Crete this year.

Thus Miss Boyd's Mycenæan Pompeii still continues to be interesting, and we hope that she will be enabled to go on with her work in Crete. Miss Boyd's is the most important archæological work connected with the University of Pennsylvania, and we hope that the authorities of that institution adequately recognise this fact.

H. R. HALL.

#### THE IMMIGRATION OF SUMMER BIRDS.<sup>1</sup>

THOUGH great advance in our knowledge has been made during recent years concerning the migration of birds as observed in our islands, yet much remains to be learned, and any inquiry that will add to what is already known must be hailed with satisfaction. In what direction and by what methods such advancement is to be sought are questions requiring not only careful consideration, but a full knowledge of what has already been accomplished.

In electing to investigate the immigration of summer birds, the committee appointed by the British Ornithologists' Club has selected the best known of all the phases in the phenomenon. It is true that a special feature has been added in the endeavour to trace the movements of the migrants through the country after their arrival on our shores, but it is much to be doubted whether the results will contribute anything of material importance or at all commensurate with the labour involved. On the other hand, our knowledge of the autumnal departure movements, both from their inland nesting haunts and from our shores, of these same birds is far from complete.

The new committee labours under a misapprehension in supposing that the south coast was entirely omitted from the scope of the British Association committee's inquiry, for part of both the eastern and western sections were scheduled annually. Moreover, the migratory movements on the whole of that coast, for both spring and autumn, were afterwards fully investigated for three years, and the results incorporated in the later reports submitted to the Association.

Then as to methods. It may be well, perhaps, to remind the new committee of the opinions, based on long experience, expressed by Prof. Newton and his colleagues in their final report to the Southport meeting of the British Association in 1903. They say, "the last thing your com-

<sup>1</sup> "Report on the Immigrations of Summer Residents in the Spring of 1905." By the Committee appointed by the British Ornithologists' Club. (London: Witherby and Co., 1906.)

mittee would wish is to discourage the prosecution of observations, but they feel bound to express the opinion that no great advance of our present knowledge of the subject seems likely to be made until new methods are applied. What they should be it is impossible to suggest, but those used at present appear to have reached their limit." In this mature opinion the present writer fully concurs.

The report under notice is not lacking in interest, but it does not add anything material to our knowledge; indeed, several years' observations will be necessary before conclusions of permanent value, though possibly not advancing what is already known, can be expected. By premature publication much harm may be done, and it is to be feared that writers will arise and tell us, on the strength of this report, that, among other things, whinchats, redstarts, whitethroats, reed warblers, cuckoos, and other species do not arrive on the western section of the south coast, when further investigations by the committee will prove that they *do*. It is certainly surprising to find the new committee instituting a comparison between the weather conditions prevailing in the English Channel and the arrival of birds on its shores (of course with abortive results), for it was hoped that it had been clearly proved by exhaustive investigations that the meteorological conditions influencing such movements must be sought in the area whence the migrants took their departure.

In conclusion, one is tempted to suggest that it would be well if the members of the committee of the British Ornithologists' Club, before proceeding further with their arduous labours, took stock of the situation, and asked themselves if their energies might not be advantageously directed to more useful and productive branches of the subject they have at heart.

#### NOTES.

PROF. I. P. PAVLOFF, professor of physiology in the University of St. Petersburg, will deliver the Huxley lecture at the Charing Cross Hospital Medical School on Monday, October 1.

PROF. EMIL FISCHER, professor of chemistry in the University of Berlin, has been elected a foreign member of the Royal Society of New South Wales.

AN Irish International Exhibition will be opened in Dublin in May next. It will be the first exhibition of its kind to be held in Ireland for nearly forty years.

THE Italian Electrotechnical Association will meet in Milan on September 30, when visits will be paid to various factories in the neighbourhood and the hydro-electrical installations which have been recently constructed.

THE Right Hon. Sir John Eldon Gorst has been appointed special commissioner to represent His Majesty's Government at the New Zealand International Exhibition, the opening of which is to take place on November 1 next.

WE regret to have to record the death of Prof. W. B. Dwight, who occupied the chair of natural history in Vassar College, Poughkeepsie, N.Y. Prof. Dwight was an original member of the Geological Society of America, and interested himself for many years in the Palæozoic rocks of Wappinger Valley and others in the neighbourhood of Poughkeepsie.

THE programme of the prize subjects of the Industrial Society of Mulhouse for the competition closing in 1907 has just been issued. Little change has been made in the pro-