

are well defined, and both these features indicate that there has been movement along the contact, so that it may be classed as a fissure lode on an igneous contact. It is certainly too regular in strike to consider it a replacement along what superficially appears to be rather regular igneous contact. Where the gangue is extremely hard indurated schist this is much jointed or broken, further pointing to a settling movement along the contact planes. The lode underlies 75° - 80° easterly, which is the dip of the schists on the hanging walls. The gangue in the lode consists of diorite in various stages of alteration, soft weathered schist, and hard indurated schist. Where the last-named occurs replacement appears to be confined to the fracture-faces, which are coated with cobaltite in process of oxidation to erythrite.

A few chains north of No. 4 shaft there are some old abandoned workings on the contact. These were worked for copper, and there is a good deal of copper carbonate associated with the mullock. With the copper occurs a vein of scheelite 2-4 in. wide, from which well-developed crystals of that mineral have

been obtained. Although so closely contiguous, there is no appearance of cobalt stains.

In the diorite dyke in juxtaposition to the cobalt lode there is a quartz outcrop running at right angles to it which contains cobaltiferous wad as well as jasper-brown iron ore. Although it does not meet the cobalt lode at the surface, it has possibly a genetic relationship to the cobalt lode, and it is suggested that it may have been a channel of supply, thus accounting for what, at the present time only, appears a definite localisation of the cobalt in the contact lode. A sample of the wad from this outcrop contained:

Metallic cobalt	...	...	...	5.2 per cent.
Metallic nickel	...	...	...	nil
Arsenic	...	...	...	0.9 per cent.

It is very desirable, however, that the whole of the diorite contact should be prospected, particularly the eastern contact, on account of copper carbonates, scheelite, and cobalt ores having been already found along it.

The Study of British Roses.

THE study of our British roses has been rendered increasingly difficult by successive attempts to classify the numerous forms—species or varieties—in a satisfactory system. The late Mr. J. G. Baker in his "Monograph of British Roses" in 1869 recognised thirteen species and a moderate number of varieties. In the "London Catalogue of British Plants" (1908) some of Baker's varieties are raised to specific rank, and twenty-five species and a large number of additional varieties are recognised. Wolley-Dod's "List of British Roses" (1911) included about 170 names, but in his "Revised Arrangement" recently published in the *Journal of Botany* the number of names having full specific rank is reduced to eighteen, the author remarking that most of the very detailed descriptions of Déséglise and other specialists can scarcely be other than those of an individual bush or specimen which cannot be completely matched by any other.

The present position is discussed in the *New Phytologist* (vol. xix., Nos. 7 and 8) by Mr. J. R. Matthews, who considers that only by culture, combined with cytological study, will it become possible to determine finally the genetic relationships of the numerous micro-species into which old, well-known species like *Rosa canina*, Linn., have been split. The study of external form has so far failed to give a satisfactory solution of the problem, and the anatomical method followed by Parmentier has not proved more successful. Several hybrids—that is, crosses—between distinct species have been recognised among British roses, and it is not improbable that the difficulty in classifying the genus may be largely due to

hybridisation and segregation, complicated, it may be, by rehybridisation. Hybrids between closely similar parents would be difficult to diagnose, and in actual practice would, as a rule, be considered distinct species or varieties; and it is suggested that a large portion of the total number of named varieties of roses has arisen in this way.

The work of Jeffrey on hybridism in the Rosaceæ indicates that certain recognised species are, from the study of their pollen, in reality concealed hybrids (cryptohybrids), and Miss Cole more recently from the study of the pollen in numerous roses concludes that the great majority of so-called species are really of hybrid origin. There is no experimental evidence to show whether these species-hybrids segregate or remain stable; but presuming segregation to occur in the genus *Rosa*, we might expect to find a large number of visually distinct forms showing various combinations of Mendelian unit-characters, such as hairiness, leaf serration, glandularity, glaucousness, etc.

Mr. Matthews attempts a theoretical analysis of some of the British species of roses on the basis of a few separate characters such as these. The species selected are the aggregate species generally recognised by systematists, and the author suggests that the numerous sub-species and varieties of these aggregates which have been described represent some of the various combinations of unit-characters which might be expected to result from the process of segregation. The argument is confessedly entirely hypothetical, and the author emphasises the importance of experimental work to establish the hypothesis.

Commerce and Customs of Papua.¹

IN his Report on the Territory of Papua for the year ending June, 1919, the Lieutenant-Governor, the Hon. J. H. P. Murray, shows that, as in so many other parts of the world, the scarcity and irregularity of shipping facilities are acting prejudicially to the progress and development of the Territory. This is especially indicated by the decrease of exports upon

which the prosperity of the country mainly depends. Rubber alone showed an increase, but the quantity is as yet small (207 tons as compared with 144 tons in 1918). Another important vegetable export, copra, has decreased (2598 tons as compared with 3189 tons in 1918). Native-made copra forms a large proportion of the output, and, owing to variation in the production, this does not increase steadily like the plantation product. The production of sisal hemp has also decreased, whilst the value of all the crops has been much reduced by a fall in prices. The

¹ "Commonwealth of Australia. Papua. Annual Report for the Year 1918-19." Pp. 117+2 pls. (Printed and Published for the Government of the Commonwealth of Australia by Albert J. Mullett, Government Printer for the State of Victoria.)

export of the chief minerals, gold and copper, has decreased, but there are good prospects of development and increased production at Port Moresby and Misima Island. The value of the gold was 26,766*l.* in 1919 as against 33,512*l.* in 1918. Copper was worth 11,537*l.* in 1918, but only 1653*l.* in 1919.

The actual revenue of the Territory, including a grant of 30,000*l.* from the Commonwealth of Australia, amounted during the year to 103,120*l.* The expenditure was 102,961*l.* Thus a surplus of 18,778*l.* in 1918 was increased by about 159*l.* to 18,937*l.*

The European population was 1007. Coloured persons other than Papuans were 304, of whom 217 were mission teachers. There were also 340 police and 821 village constables of various races. During the year 8610 native labourers were recruited, to whom more than 40,000*l.* was paid in wages.

The actual native population is uncertain. A quarter of a million is suggested by the Acting Medical Officer. In some districts the number is increasing, but around Port Moresby the physique of the natives appears to be deteriorating through the adoption of European food and clothing. In a supplement to the report the Rev. J. B. Clark, of the London Missionary Society, gives a hopeful account of the progress of the natives. Boys leaving school become telephone operators and clerks, and some of the native churches are capable of self-government. The relations of the natives with the Government have been, on the whole, satisfactory. A few affrays and murders have taken place in remote districts, but there has been a general prevalence of respect for law and order. An incident in the Chirima district of the Mambare Division is typical of dealings with the natives. The attempt of a patrol to arrest a native led to an attack in which another native was killed and a woman and a boy were wounded. The natives were afterwards pacified by the Resident Magistrate of the Kumusi Division. The pacification involved some difficulty and risk, as the natives took to the bush and refused to parley unless the officers, Messrs. Blyth and Fowler, went to them unarmed and alone. The officers took the risk, and after a conference the confidence of the natives was restored.

A valuable scientific section of the report is found in the supplements contributed by the Resident Magistrates and patrol officers, the Medical Officer, the Government Geologist, and the Agricultural Expert.

A paper of considerable ethnological interest by the late W. Beavers (*cf.* NATURE, February 19, 1920) is also included. It deals with the use of emblems or insignia of man-killing among certain tribes of the north-western part of Papua. A preface gives an account of the ceremonious reception of the man-killer by his village, and of his life on his return. The insignia consist of various decorations of shell-rings, feathers, dog-teeth, and similar articles. There are also other distinctions not of a material nature, such as taking the name of the individual slain, prohibition of his flesh to the slayer, skull trophies, and mutilations. A further account describes the *Kortopo* ceremony by which the privileges of the man-killer are passed on to others. The custom is now decadent, and the slaying of a fat pig is sufficient justification for the wearing of the emblems.

The polyglot character of the tribes of Papua is shown by an index of the vocabularies of native dialects contained in the annual reports from 1889 to 1918. There are more than 450 titles. The present report increases them by fourteen.

SIDNEY H. RAY.

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Ancient Egyptian Survivals in Modern Egypt.

AN interesting lecture upon the above subject was delivered on behalf of the Egypt Exploration Society at the rooms of the Royal Society, Burlington House, on February 23 by Prof. C. G. Seligman.

Two classes of survival from ancient Egypt may be distinguished, namely, (1) beliefs and (2) certain technological objects and processes. Each group embraces, on one hand, survivals *in situ*, such as certain beliefs connected with the calendar, and a ceremony in which a sacred boat takes a prominent part; and, on the other, examples from other parts of Africa in which Egyptian customs, often modified by later cultural waves, have persisted for a longer or shorter period. As examples may be cited certain medieval graves of Senegal, and probably the funeral customs of a number of tribes of Equatoria, as well as the belief in multiple souls found in the Southern Congo and West Africa.

A striking example is found in the persistence of old beliefs attached to certain days. In the Sallier papyrus, which dates from the time of Rameses II., or possibly of his successor, Athyr 19th is marked as one of the days "to beware": "storms are engendered in the skies; do not travel on the river neither up nor down; do not . . . at all on this day." In a modern calendar for 1878 the instructions for Zu'l-Heggeh 4th, which corresponds to the Coptic Hatour, *i.e.* Athyr 19th, is: "Avoid travelling on the Mediterranean." Thus we have persisting for some 3500 years the tradition that this day is unlucky for travellers.

Another interesting example mentioned by Prof. Seligman was that of a boat which is kept at Luxor, at the present day on the roof of a mosque, but a few years ago suspended in a tree. At stated times the boat is brought down, decorated with green branches, placed upon a cart, filled with children, and taken in procession round the town. There are three boat processions in Luxor every year, one to commemorate the birthday of Abu'l Heggag, the patron saint of Luxor, and the others on the birthday of the Prophet and the beginning of Ramadan.

These beliefs and ceremonies are of interest, not only because the period over which they have persisted is longer than that bridged by the host of beliefs and practices that constitute the folk-lore of other peoples, but also because it is possible to adduce perfectly definite evidence of their direct continuity over a very much longer period of time. The interest of the boat ceremony is even greater; Prof. Seligman thought a fairly good case could be made out for a number of boat ceremonies still performed in the East—*e.g.* one he had himself witnessed in Ceylon—having originated in Egypt and been carried eastward by Islam, just as was the Malay alphabet.

University and Educational Intelligence.

CAMBRIDGE.—Trinity College has offered to establish a prælectorship in geodesy if satisfactory arrangements are made for the institution in the University of a school for research in that subject. This is a very welcome move forward in a scheme which has been under consideration for some time to found a centre of geodetic teaching, and ultimately a Geodetic Institute, at Cambridge.

It is proposed to offer a diploma in hygiene which will suit the needs of medically qualified students of public health whose qualification is foreign and not registrable in Great Britain.