



SATURDAY, AUGUST 28, 1926.

## CONTENTS.

	PAGE
African Natives and European Civilisation . . . . .	289
An Indian Clan in Wales. By Prof. R. L. Turner . . . . .	291
Ice Ages. By C. E. P. Brooks . . . . .	293
The Sylvester Programme in Algebra . . . . .	295
Our Bookshelf . . . . .	296
Letters to the Editor :	
The Classification of Research Work.—Dr. W. Lawrence Balls, F.R.S. . . . .	298
Science and Psychical Research.—A. A. Campbell Swinton, F.R.S.; Dr. R. J. Tillyard, F.R.S. . . . .	299
External Capillary Action.—Sir W. Galloway . . . . .	300
Scattering of Electrons in Ionised Gases.—Dr. F. M. Penning . . . . .	301
On the Law of Radiation.—Prof. G. Gianfranceschi . . . . .	302
The Electrical Polarity of Molecules.—Prof. C. V. Raman, F.R.S., and K. S. Krishnan . . . . .	302
Depth of Origin of the Earthquake of August 15.—R. D. Oldham, F.R.S. . . . .	302
The Groma: an Ancient Surveying Instrument.—R. W. Sloley . . . . .	303
The Absolute Density and Coefficient of Expansion of Silicon Tetrachloride.—P. L. Robinson and H. C. Smith . . . . .	303
The Movements of Molecules.—Prof. A. Liversidge, F.R.S. . . . .	303
Pernicious Grafting.—W. M. Macdonald . . . . .	303
The Relation between Cultivated Area and Population. By Sir Daniel Hall, K.C.B., F.R.S. . . . .	304
The Rate of Work done with an Egyptian Shadouf. By Dr. J. S. Haldane, F.R.S., and Dr. Yandell Henderson . . . . .	308
Audibility of Explosions and the Constitution of the Upper Atmosphere. By F. J. W. Whipple . . . . .	309
Obituary :	
Dr. J. F. Hall-Edwards. By Prof. S. Russ . . . . .	313
News and Views . . . . .	313
Research Items . . . . .	317
The Recently Discovered Gibraltar Skull . . . . .	320
Adhesives and Adhesive Action. By E. H. . . . .	320
Herrings along the Baltic Coast of Sweden . . . . .	321
University and Educational Intelligence . . . . .	321
Contemporary Birthdays . . . . .	322
Societies and Academies . . . . .	323
Official Publications Received . . . . .	324
Diary of Societies and Congresses . . . . .	324
Recent Scientific and Technical Books . . . . .	Supp. v.

*Editorial and Publishing Offices :*

MACMILLAN & CO., LTD.,  
ST. MARTIN'S STREET, LONDON, W.C.2.

Editorial communications should be addressed to the Editor.

Advertisements and business letters to the Publishers.

Telephone Number: GERRARD 8830.

Telegraphic Address: PHUSIS, WESTRAND, LONDON.

NO. 2965, VOL. 118]

## African Natives and European Civilisation.

IN his presidential address to the British Association, H.R.H. the Prince of Wales spoke with singular felicity of the relations which do actually, and should, subsist between the State and scientific research. The discussion of a multiplicity of topics, which was released as it were from a floodgate immediately after the inaugural meeting, may have obscured the fact that the opportuneness of the Prince's reference to the application of scientific study to the problems of the Empire in our Dominions and Dependencies was conclusively demonstrated by the presidential address delivered in the Geographical Section on the following day. The lesson was further driven home by the discussion on the effect on the native races of Africa of contact with European civilisation which arose directly out of Mr. Ormsby-Gore's address, and took place in a joint session of the Sections of Geography and Anthropology.

His Royal Highness spoke as one who had had many opportunities in peace and in war to observe the facts, the necessities, and the possibilities of conditions in the Empire as a whole. In like manner, if in a more restricted field, Mr. Ormsby-Gore laid before his hearers the results of his journeys of observation in East and West Africa—journeys which may become as memorable and as far-reaching in effect as those of Joseph Chamberlain when the latter was Minister of State for the Colonies. Those who have followed the newspaper reports of Mr. Ormsby-Gore's travels with some knowledge of the problems which were then brought before him, will appreciate the acute observation and the balanced judgment which underlie his summary of the situation in regard to the economic development of tropical Africa and its effect on the native population. It is, however, of no little significance that his lucid summary of the needs of Africa and its people is followed by an acknowledgment of the greatness of our opportunities and our responsibilities and an appeal for the continued efforts not only of "officials and unofficials in Africa," but also of "the men of science over a whole range of human experience such as are meeting under the auspices of the British Association." It is pardonable if in these words we think we hear the statesman and the administrator rather than the president of Section E.

It cannot be denied that the need of constructive thinking for which Mr. Ormsby-Gore pleaded is urgent. The situation in Africa was summed up by one speaker in the discussion as one of depopulation and disintegration, and he went on to point out that the African native has passed in a brief space of time from the Stone Age to the present day. The final partition of Africa among

the European powers began in the last decade of the last century. Since then the economic development of the country has proceeded at a rapid pace, but especially in the last few years. Figures are quoted in Mr. Ormsby-Gore's address which are worth repeating. Between 1921 and 1925 the domestic exports of Nigeria increased from 8,250,000*l.* to 17,000,000*l.*; in the Gold Coast in the same period from 6,000,000*l.* to 10,000,000*l.* In East Africa the increase is even more marked, due almost entirely to the development of cotton-growing. In Kenya and Uganda the figures for the corresponding years show an increase from 2,250,000*l.* to 7,820,000*l.*, and in Tanganyika Territory from 1,100,000*l.* to 2,900,000*l.* This sudden accession of wealth would not be without its element of danger in any community; but when it is realised that the greater part represents the earnings either as producers or as wage-labourers of a population to whom 'money' is still novel, and whose ideas of a currency and medium of exchange not so long ago were limited mainly to 'brass rods' or 'cloth,' it must be apparent that the problem is both immediate and grave. It is a problem which demands statesmanship, and a statesmanship which is informed with an intimate knowledge of the African, of his institutions, and of his needs.

It is not possible to set back the clock. For good or for ill, the economic development of Africa is bound to go on under pressure of an increasing world-demand for its raw materials and its market for imports. Apart from certain restricted areas which will be exploited for their mineral wealth, it will be developed as an agricultural country. In tropical Africa, where white labour is impossible, that development will depend upon the native. Even in South Africa it is doubtful if white labour will ever be able to hold its own. Whatever may be the ultimate result in South Africa, in the tropics it seems clear, owing to climatic conditions and the question of prestige, that the function of the white man is to act as an administrator or employer and the guide and teacher of the native.

Up to the present it cannot be said that this rapid development of Africa has been for the good of the native on the whole, even though it be recognised that certain benefits have accrued to him. It is doubtful, indeed, how far these benefits may be for his ultimate good unless steps are taken to neutralise the inevitable disabilities by which they are accompanied. It has also to be admitted, as has been pointed out recently by a resident of many years in the remoter parts of East Africa, that the native does not always accept the advent of the white man who comes to exploit his land as an unmixed blessing. The African has a distinctive culture of his own, in which the cardinal features are the religious beliefs which are interwoven as an essential

element in every aspect of his life, and the communal spirit which informs his thoughts and actions as a member of a tribal group. Notwithstanding differences as between tribes and peoples in the form of their political organisation, this is true of all in general terms. Especially is it essential to remember that the ultimate sanction of chiefly and tribal authority is religious. Further, apart from provision for the needs of the family and any contribution due to the chief or the community, the idea of the economic value of labour applied to production from the land or of wage-earning is alien to the native mind. Until recently, and as is still the case in many tribes, wealth consisted exclusively of wives and cattle. One of the reasons for the imposition of a hut-tax on the native population in South Africa was the hope that incidentally it would familiarise the native with the advantages of wage-earning and thus increase the supply of labour.

It is self-evident that the sudden impinging of European civilisation on a culture of this type, and the rapid economic development of the country, are bound to result in an equally rapid disintegration of native institutions. The growth of a class of native producers and of wage-earners has rendered the individual conscious of his individuality as a unit rather than merely as a member of a social organism, while introduction to the tenets of Christianity, an individualistic body of belief, has still further strengthened this tendency. The authority of the chief and the sense of responsibility to the tribe have been undermined, and the religious bond upon which they depend has been loosed. In the coast towns of West Africa, natives have become completely detribalised, and if the process is allowed to go on unchecked the existing tribes are in danger of becoming undisciplined mobs. Again, the native system of land-tenure, about which, incidentally, insufficient is known, is in danger. The economic value of land is beginning to be appreciated by the native, and where land is vested in the chief, this has introduced an entirely new relation of landlord and tenant as between the chief and the individual member of the tribe. Of the importance of a knowledge of the system of land-tenure, the disastrous experience of South Africa up to the passing of the Glen-Gray Act is a sufficient indication. Here, too, notwithstanding the reservation system, detribalisation, except in the case of the Zulu, is proceeding rapidly.

Of the results of this tendency to detribalisation, little need be said. They are obvious. The lack of restraint, and the accompanying break-up of the *morale* of the native, unless checked, are bound in the long run to be disastrous. They must accelerate the depopulation of the country, which, owing to disease and especially infant mortality, is already a serious factor in the

situation. Improved sanitation, a higher standard of nutrition, and increased efficiency in medical service may, however, be expected to cope with disease as time goes on; but an informed and intelligent guidance based upon a sympathetic understanding of native psychology, which will control and direct into safe channels the inevitable modification of the full tribal system, is an essential condition of the well-being of the native, and in the long run of the prosperity of Africa.

The present tendency to unchecked detribalisation is the more to be regretted in that the African native is one of the most adaptable of all the primitive races in the world, when the innate conservatism based on his religious taboos is not affected. This is shown by the readiness with which the native has mastered new arts of life in the course of the opening up of his country. Many of the African natives have beside, as the study of their history and institutions shows, a remarkable instinct for social and political organisation. The genius of Chaka, the great chieftain of the Zulu, is by no means unique in the annals of African tribes. This capacity for organisation and government is not confined to the men but has been displayed on more than one occasion by women, who by some accident or other have attained positions of authority.

A hopeful feature of the situation is the intense desire of the African for education. Hitherto the only form of education available for the native, with the exception of the interesting experiment at Achimotu, has been upon European lines; but education in Africa must take a new orientation. It is clearly of little use to offer the African a system of education which was designed originally to meet the needs of a European environment. Too often it has been the case that the curriculum of native schools has been framed with an eye only to the literary side of education, to the neglect of practical subjects. Yet it is not enough to insist on the need for vocational training. Even while recognising the excellence of much of the work which has been done in this direction, too great emphasis cannot be laid upon the fact that the education of the native must be based upon an intensive study of the culture, the institutions, and the needs of the African population. Much, it is hoped, may yet be effected through the Committee on Education of the Colonial Office. For many years the anthropologists have been collecting the facts, and although they are well aware that these facts may still be incomplete in certain respects, yet in response to Mr. Ormsby-Gore's appeal for the assistance of scientific workers they are ready and willing to place their knowledge at the disposal of the administrator for its practical application in the training and government of the native community of the new Africa.

### An Indian Clan in Wales.

*The Dialect of the Gypsies of Wales: being the Older Form of British Romani preserved in the Speech of the Clan of Abram Wood.* By Dr. John Sampson. Pp. xxiii + 230 + 419. (Oxford: Clarendon Press; London: Oxford University Press, 1926.) 84s. net.

THE majority of people are surprised when they are told that in almost every country of Europe, and even in America, there is spoken to-day a language which was brought out of India by a tribe or tribes between twelve and fifteen hundred years ago. This is the language of the people known to us as Gypsies, to themselves as Rom or the like, a word which phonologically is the exact equivalent of the modern Indian *Dom*, a general name for an outcast, so-called criminal tribe, who in many places act as scavengers and burners of corpses, and in all places are ready to augment their earnings by stealing or other anti-social practices. The Gypsies of Palestine and Syria still call themselves *Dom*, just as with them a spoon, *roi* in European gypsy, is *dowi* (and in modern Hindi *doi*).

It has long been recognised that the speech of the Gypsies, which, as regards the European branch at least, differs comparatively little from country to country, is like the modern Indo-Aryan vernaculars of India—Kashmiri, Panjabi, Sindhi, Gujarati, Marathi, Hindi, Bengali, and the rest—descended from an old language of which we have the literary form in the language of the Rigveda and in Sanskrit. Consideration of its sound-changes and of its vocabulary makes it certain that the Gypsy language, or Romani, originally belonged to the same dialect-group as gave birth to the present central languages of India, such as Hindi. At a comparatively early period, however, which must be dated before the beginning of this era, they had wandered away to live for a time with the ancestors of the wild and little-known tribes of the north-west frontier, among the mountains of the Hindu Kush. Linguistically these tribes are very conservative in certain respects; and, being with them, the Gypsies preserved certain sounds and groups of sounds which were afterwards lost by those they had left behind in India proper. Whereas, for example, in India an original *t* or *d* coming between vowels was altogether lost, it is preserved in some form or other only by two of these north-western dialects and by Gypsy. European Gypsy keeps them under the form of *l*, Syrian Gypsy under the form of *r*. It is then of peculiar interest to note that, of the two north-western dialects which also preserve them, Khowar, spoken in Chitral, has *r*, and Kalasha, spoken farther south, has *l*. Thus the word which in Pali (a later form of Sanskrit) is *deti*, 'he gives,' is Hindi *de*, but Khowar