

are repeated in the work in question alongside the degraded Bantu dialect now spoken by the Bushongo. It is at once evident that the Lumbila is not a Bantu language, though it undoubtedly possesses a few borrowed words of Bantu origin. So far as I have been able to compare the fragments of this tongue with other groups of African speech, I find the only clear indications of relationship to be with certain languages of the Shari Basin, and perhaps with that vague group of Sudanese tongues to which belong the non-Bantu languages of the Upper Mubangi. Mr. Torday points out on p. 43 that the Lumbila name for river is Chari (in modern Bushongo, Nchale), which certainly recalls the widespread term for lake or river which we find in Shari, Chade, Chada (both of them terms for Lake Chad and for the River Benue).

I have pointed out in my own work on "George Green and the Congo," that this central Sudan word for a great water has penetrated far into the Congo Basin, reappearing in the name Nzadi, often applied to the western Congo, and the Portuguese Zaire. According to tradition, when the Bushongo arrived in central Congoland from their northern home they were a naked people, accustomed to eat durra corn and other millet-like grains unknown to the forest regions. Their ancient nudity would ally them more to the central Sudan and Nilotic peoples, for, strange to say, however barbarous and savage may be all the peoples of Congoland, even the Pygmies, absolute nudity in the male is almost unheard of, and is reprehended. The word Bushongo, according to Mr. Torday, means the people of the "Shongo," and "Shongo" is apparently the name for the iron throwing-knife, which was brought by the Bushongo with them in their immigration, and which only penetrates into the more northern half of Congoland. This throwing-knife in its origin is only a modification of the wooden boomerang, and in its metal form seems to have originated in the Tibesti Mountains. Indeed, there is a good deal in the work under review, as well as in the reviewer's own researches, which tends to indicate a direct southward migration into the heart of Congoland from Kanem and Tibesti; and it is probable that from this direction comes the slight Caucasian infiltration of blood, which, as the Tibesti region of the negroid Teda or Tibu peoples, was probably Caucasianised from the direction of ancient Egypt, would explain the striking outcrop of Pharaonic face outlines occurring and recurring ever and again amongst the more aristocratic types in central and southern Congoland outside the great forests.

According to a Bushongo tradition, the first chiefs of the Bushongo (who are at present settled between the Sankuru and the Kasai) were white or semi-white, but the term white is constantly applied by the negroes to races of pale-yellow or reddish skin, like the Arabs and the Fula. Mr. Torday thinks that the southward march of the Bushongo may have been part of the same series of racial convulsions as the invasion of northernmost Congoland by the Azande (Nyam-nyam). The Bangongo and Bangende tribes, nowadays so much affiliated with the Bushongo, would seem traditionally to have arisen from a mingling north of the Sankuru River between the invading Bushongo and the pre-existing Basongo-meno, and there is obviously a relationship between the Bushongo and the Bashilele, and even an infiltration of Bushongo elements (the reviewer would add) amongst the Baluba and Alunda. Perhaps even the civilisation of the old Kingdom of Kongo, founded by a legendary hunter named Kongo, may have a Bushongo origin. It is interesting to note that a totally different Bakongo people exists in the vicinity of the Bushongo territory in central Congoland, several hundred miles separated

from the better-known Bakongo of the region between the Crystal Mountains and the Atlantic Ocean. The original word Kongo seems to have meant a metal spear, and consequently a hunter, and may even be related to the term Shongo, applied to the throwing-knife.

An interesting point made by Mr. Torday was the apparent establishment of the fact that when the pygmy Batwa, of the dense forests, have been established for some generations outside these forests in the open country under the protection of the Bushongo, their stature sensibly increased, so that at last their descendants were indistinguishable in physique from the other short-legged, long-armed, prognathous forest negroes of nearly normal stature.

In a succession of chapters after the first (which deals with the origin and relationships of the Bushongo) is given a full account of the elaborate government and administration of justice amongst the Bushongo and allied peoples. The long list of court functionaries reminds one of Uganda and other equatorial African kingdoms. The social life of the Bushongo, their morality (which in some respects is very high—see the admirable moral precepts set forth on pp. 85-6), their ideas of property and inheritance, commerce, sports, dances, warfare, distinctions of relationship, and forbidden degrees of affinity in marriage, their sexual life, religion, magic, funeral customs, industries, and arts, domestic animals, agriculture, building, costume, mutilation, skin decoration (tattooing), folklore, and languages are fully described and illustrated. A great deal of space is given up to the description of the really wonderful arts and industries of the Bushongo and allied peoples—their wood-carving and their beautiful woven cloths, their metal-work (very elaborate), and pottery. The linguistic information concerning the Bushongo, Bakongo, Bangongo, Bangendi, and Basongo-meno languages, will be of great interest to students of the Bantu family. This work is, in short, splendidly complete, with one exception. It is ethnological rather than anthropological, and it would have been additionally interesting if Mr. Torday had been able to include photographs of the many types of skull that he has collected, and other pictures, measurements, and descriptions, showing more clearly the physical conformation of the various peoples he has otherwise described so minutely. From the various numerous photographs and pictures one is able to deduce to some extent what is not actually described in words—namely, the physical features of these races of central Congoland; and it is interesting to note here and there a type of physiognomy occurring which is also met with on the northern Congo and in the central Sudan, namely, quite a Caucasian type of face amongst the men, with a fairly abundant growth of beard and moustache, very bushy head-hair (except where this has been removed artificially), and little of the negro but the dark skin.

H. H. JOHNSTON.

THE FRENCH ANTARCTIC EXPEDITION.¹

ONE of the problems of most far-reaching importance in the Antarctic is the nature of the southern border of the Pacific, for while we remain in complete ignorance of its structure no theory of the formation of the Pacific, the greatest geographical unit on the globe, can be more than a provisional hypothesis.

Cook's description of his view from his furthest south in the Southern Pacific suggests that he had

¹ Institut de France: Académie des Sciences. Rapports Préliminaires sur les Travaux exécutés dans l'Antarctique par la Mission commandée par M. le Dr. Charcot de 1903 à 1910. Pp. x + 104. (Paris: Gauthier-Villars, 1910).

reached the margin of an ice-clad land; but as he thought otherwise it would be rash to lay stress upon a different interpretation of the facts he described. The best clues as to the southern border of the Pacific have been obtained from Graham Land; but though the recent expeditions in that area have revealed the structure and character of the South Shetlands and of the north-western part of Graham Land, there has been no modern extension of geographical knowledge far to the south-west. The Peter I. Land of Bellingshausen, and the Adelaide Island of that stout-hearted whaler Bisco, remained the only sure evidence of the westward extension of the land.

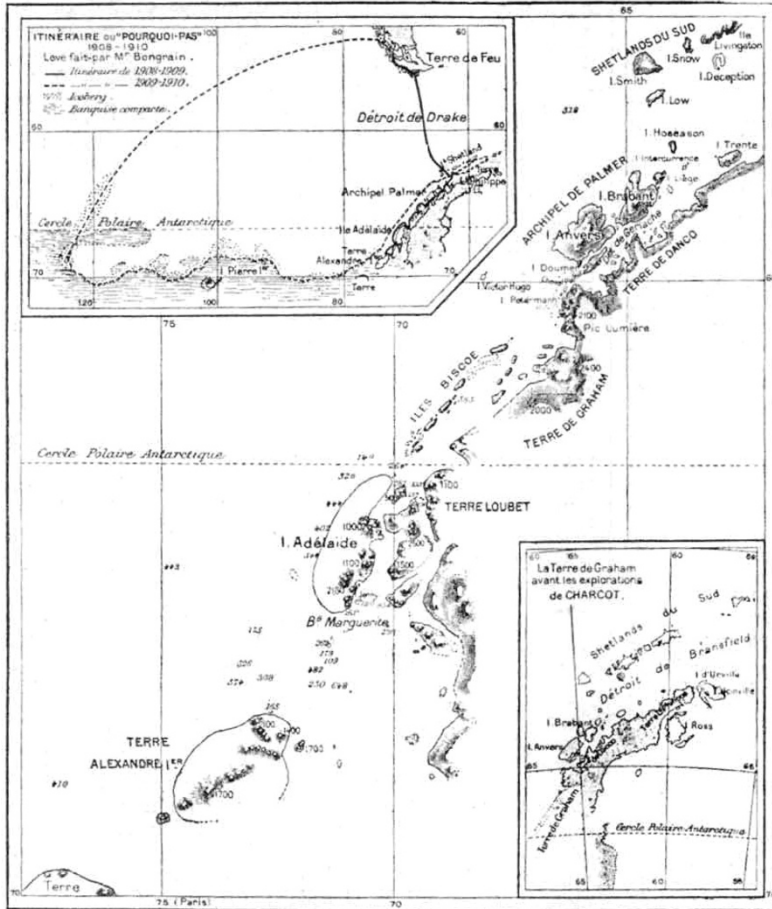
Geographers accordingly waited with keen interest

supplied with coal by whalers of the "Sociedad ballenera Magallanes." The expedition thence started south-westward, and, passing Graham Land, pushed westward into the South Pacific. It passed to the north of Peter Island, and kept along the latitude of about 70° S. from 72° W. to 124° W. The end of the season and the approaching exhaustion of supplies compelled the badly damaged *Pourquoi-Pas?* to return to South America.

Dr. Charcot describes the western lands he explored as penetrated by a network of fiords filled with ice. The most important of the new lands explored is a group of islands which he calls Alexandra I. Land. Still further into the unknown he saw another land which he has left unnamed.

The results of the hydrographic, pendulum, astronomical and seismographic observations are summarised by M. Bongrain. The preliminary conclusions from the determinations of gravity at five localities differ somewhat from the theoretical results from Helmert's formula. The seismographic observations made on Deception Island are said to promise interesting results; the instruments recorded seismic storms at the winter quarters in March and September, 1909.

M. R. Godfrey contributes a report on the tidal observations, coastal hydrography, and the chemistry of the air; careful determinations of the nitrates and ammonia in the air were prepared at winter quarters. A short account of the observations on meteorology, oceanography, and atmospheric electricity is given by M. M. Rouch. The meteorological instruments were read every four hours, or more often while the ship was at sea or when more detailed records seemed desirable. The work on terrestrial magnetism and actinometry was undertaken by M. Senouque, who determined the magnetic elements at four stations—Deception, Petermann, and Jenny Islands, and Matha Bay. Dr. Gourdon describes the geological observations; he found no sedimentary rocks or fossils, but widespread igneous rocks similar to those previously recorded from the lands to the north-east. M. Jacque Liouville gives a summary of the zoological log of the expedition, which shows that a most valuable collection was made. Especial attention seems to



Course of the French Antarctic Expedition.

the return of Dr. Charcot's expedition, which forced its way for more than 50° westward into the unknown. A preliminary report of the results has been issued by the French Academy of Sciences, prefaced by a short summary by Prof. Joubin, of the Oceanographic Institute. Dr. Charcot describes the general course of the expedition. It left Punta Arenas, in Patagonia, on the *Pourquoi-Pas?*, on December 10, 1908. It spent the first summer in geographical and other work in Graham Land, to the west of the region so well explored by the Belgian and Swedish expeditions. It wintered on Petermann Island, one of the islands of the Palmer Archipelago, at the south-western end of Gerlache Strait. At the close of the winter it returned for stores to Deception Island, one of the South Shetlands, and was there generously

have been devoted to parasitic zoology. The results of the dredgings during the summer voyage are described as having been very fruitful. M. Gain, the botanist, had a very limited field of work open to him on land, where he found some lichens, mosses, and the grass *Aira antarctica*; the plankton promises a rich harvest from the sea, while on shore M. Gain worked at bacteriology, and has brought back sealed preparations of faecal matter for culture in Europe. By tying coloured badges upon some of the birds he was able to show that they not only returned to the same rookery, but to the very same part of it.

The results of most general interest were gained in the voyage into the South Pacific. The first impression is one of regret that the expedition could not follow the land in that direction, but the thick ice

kept the *Pourquoi-Pas?* too far to the north. The ice conditions suggest that there is land not far to the south behind the ice-packed sea. The work in south-western Graham Land is unquestionably of great importance. Adelaide Island is much larger than its discoverer, Bisco, thought, but Graham Land, instead of extending south-westward as a continuous land, breaks up into an archipelago, or makes a sharp bend to the south-east. The lands explored clearly belong to a volcanic Andean chain, of which the coast has been penetrated by a network of fiords; but owing to the inaccessibility of the land, its composition remains less known than its distribution.

The results of the Charcot expedition suggest that Graham Land either breaks up south-westward into an archipelago, or that in the neighbourhood of Adelaide Island it curves sharply southward, corresponding to the northward curve of South America on the opposite side of Drake's Strait. Dr. Charcot's expedition, therefore, adds fresh interest to the problem of Graham Land. All interested in Antarctic research will join in Prof. Joubin's hope that the necessary funds will be provided for the full publication of these important additions to Antarctic knowledge.

J. W. G.

TUBERCULOSIS AND THE MILK SUPPLY.

ON the publication of the final report of the Royal Commission on Tuberculosis the view was frequently expressed that those in authority ought, long ago, to have taken precautions against the dangers arising out of the use of milk containing tubercle bacilli. To those who have followed the matter carefully this scarcely seems to be a very rational position to assume, as, up to the publication of this report, Koch's dictum, backed by the authority of his enormous prestige, held the field. It is now recognised that Koch's pronouncement on this question was the cause of the difficulties that arose immediately after he had spoken at the London Tuberculosis Congress, and there can be little doubt that these difficulties, then foreseen, led the executive of the congress to insist so strongly on the appointment of a Royal Commission. It was evident that inspection, the use of tuberculin, the destruction of tuberculous cattle, might all be ruled out as unnecessary, if Koch's thesis that there was no danger from the presence of the tubercle bacillus was to be accepted.

Now, however, that the commissioners have reported, and in no uncertain voice, that tuberculosis, especially in the child, may be the result of infection with tubercle bacilli conveyed in the cow's milk, it is essential that the question of regulations relating to milk and meat supply should be carefully reconsidered, and that, as the commissioners put it, "Government should cause to be enforced throughout the kingdom food regulations, planned to afford better security against the infection of human beings through the medium of articles of diet derived from tuberculous animals." Also that the supply of milk from a "recognisably tuberculous cow, irrespective of the site of the disease, whether in the udder or in the internal organs, should be prohibited," as the commission has demonstrated that infection of milk may take place, not through the udder merely, but by channels through which such infection has not hitherto been followed.

This report alters entirely the whole aspect of affairs. The President of the Local Government Board is now in a very strong position as regards the tuberculosis order issued in 1909, and his own Milk Bill already drafted. Indeed, the conditions are so far changed that it is absolutely necessary that some steps should be taken at as early a date as possible to

ensure the passage of legislative measures dealing with the protection and improvement of the milk supply. Hurried or "panic" legislation would, however, be unwise; a careful consideration of the whole position is necessary. On one hand are the interests of the consumer, which, in this instance, must be looked upon as of paramount importance; whilst on the other the great financial interests of the cattle breeders and dairy owners (though of secondary importance) must be considered.

In the tuberculosis order issued in 1909, but not yet brought into force, it is enacted that every person having in his possession, or under his charge, (1) any cow which has, or appears to be suffering from, tuberculosis of the udder, indurated udder, or other chronic disease of the udder, or (2) any bovine animal which is, or appears to be, emaciated from tuberculosis, shall give notice to a constable of the police force. The local authority shall then cause to be made a veterinary examination of the suspected animal, and the milk from such animal shall be kept separate and shall be boiled or sterilised. If the animal is found to be tuberculous, the local authority shall notify the owner that it is to be slaughtered. Moreover, if the owner objects, special authority must be obtained from the Board of Agriculture to slaughter.

So much for the animals themselves; and, after all, this is the point at which the question should be attacked in the first instance. It is evident, however, that until considerable advances have been made along the above lines, milk containing tubercle bacilli will still find its way into our milkshops and dairies, and regulations at least as stringent or more searching than those already in force will have to be devised in order to protect customers against milk coming from tuberculous cattle. Inspection and biological examination will, for some time, be essential, and certainly should not be neglected, as in these, probably, we have the only effective means of safeguarding the milk supply against infection from tuberculosis. It may confidently be anticipated that those in authority have already under consideration these and other points, to be attended to and included in any new measure to be brought forward.

The question of compensation is one of considerable difficulty and delicacy. How is the honest trader to be protected without at the same time making it easy for those not quite so honest to benefit at his expense? It is suggested in the tuberculosis order of 1909 that if the animal after slaughtering does not show that it was suffering from tuberculosis, full compensation as agreed shall be paid, along with a further sum of twenty shillings. If the animal is found to be suffering from tuberculosis (not being advanced tuberculosis), three-fourths of the value as agreed shall be paid, one-half of the cost of valuation being deducted. If, however, the animal is suffering from advanced tuberculosis, one-fourth of the value shall be paid, or the sum of two pounds, whichever is the greater, one-half of the cost of valuation still being deducted. It is further ordered that all suspected animals shall be isolated at once and until seen by veterinary surgeons, whilst disinfecting and cleansing shall be carried out at the expense of the owner on all premises where tuberculous animals are found.

Then, of course, the question arises, From what source shall the compensation be made? Abroad, compensation has been paid out of an insurance fund to which various authorities and individuals make contributions. The seller of the animal, the buyer, the municipality, and even the State are, in various places, put under contribution, and in a case of this kind it certainly seems reasonable that there should be some such cooperation. The farmer who sells his cattle