

inquiries respecting the identity of chemical, electrical, and magnetic forces "was well rewarded in the winter of 1819 by the discovery of a fact of which not a single person besides himself had the slightest suspicion, but which when once known instantly drew the attention of all those who were at all able to appreciate its importance and value."

From the autumn of 1822 to the summer of 1823 Oersted was in Germany, France, and England. He is less enthusiastic than in the past about the German men of science whom he met. "Schweigger at Halle has brains, but is a reed shaken with the wind. His experiments are not of much importance. Kastner at Erlangen writes thick volumes compiled with much toil but without all judgment. Yelin at Munich makes indifferent experiments and lies much. But I have found much that was instructive with Fraunhofer at Munich, so that I have been able to occupy myself with benefit there for about a fortnight."

To the Frenchmen he is more kindly. "My stay here grows more and more interesting to me every day. The acquaintances I have made grow every day more cordial and intimate," he writes to his wife from Paris in February, 1823. He saw Biot, Fresnel, Pouillet, Ampère, Arago, Fourier, Dulong, and many others: such was the brilliant list of physicists then at work in Paris. With Ampère he had many discussions as to their rival theories; at one time he thought he had disproved the existence of the molecular currents which in Ampère's view constitute a magnet. Mrs. Meyer quotes from another letter an amusing account of a three hours' discussion which took place after a dinner given by Ampère. Among the guests were two of the host's pupils, and of them Oersted writes: "Even Ampère's two disciples declared that my theory was able to explain all his phenomena. They declare that so will Ampère's, and as his theory is nothing but the reverse of mine, he having removed the circuits of forces discovered by me from the conductor to the magnet, it will no doubt be difficult to find an entirely decisive objection to his theory."

The experiments which Ampère arranged for his benefit were not successful. "On the 10th I was at Ampère's by appointment to see his experiments. He had invited not a few. . . . He had three considerable galvanic apparatus ready; his instruments for showing his experiments are very complex; but what happened? Hardly any

of his experiments succeeded. He is dreadfully confused, and is equally unskilful as an experimenter and as a debater." Somehow this is hard to believe; some at least of the confusion existed, we may suspect, in the mind of the narrator. Ampère's own descriptions of his work are models of clearness; his formula remains, as has been said above, "the cardinal formula of electrodynamics."

Oersted lived for some thirty years after the discovery of 1820, engaged almost to the last in physical work. During part of the time he was greatly interested in measurements of the compressibility of liquids. Details of some of these are given in a letter to Brewster dated December 30, 1826. He was one of the first to realise the necessity of allowing for the expansion of the vessel containing the liquid, and a piezometer which he described in the Proceedings of the Danish Society of Sciences for 1821 has been frequently employed for measurements of the kind, though Oersted was mistaken in thinking that it avoided all the difficulties arising from the expansion of the containing vessel.

Under date 1845 we have the following suggestion for a moving coil galvanometer: "A metal wire bent as a multiplier and able to revolve easily round two points is placed opposite the poles of a strong magnet in such a way that it will be deflected as soon as it is traversed by electricity."

In 1848 Denmark was at war, and in a letter of that date Oersted alludes to the fact that thirty years earlier he had experimented on the use of electricity for firing mines, and makes the suggestion of "burying in a road to be taken by an attacking enemy, under a comparatively thin layer of earth, small reservoirs filled with gunpowder and earth or small fragments of stones which could be fired by a communicating wire on a given signal and that in a shorter time than one second after the signal."

More will be found in Mrs. Meyer's excellent volume about the activities of a remarkable man; she has done her work admirably, and we are indebted to her for her labours in producing this most interesting work. The book, which is printed in English, has been published in Copenhagen under the editorship of the Royal Danish Society of Sciences, and is in every way a worthy memorial of perhaps the most distinguished member of that society.

R. T. G.

Native Life in the Loyalty Islands and Southern Nigeria.¹

By HENRY BALFOUR.

(1) **M**R. HADFIELD'S book on the Loyalty Islands is the outcome of a long residence in this group, in connection with the work of

¹(1) "Among the Natives of the Loyalty Group." By E. Hadfield. Pp. xix+316 (London: Macmillan and Co., Ltd., 1920.) 12s. 6d. net.

(2) "Among the Ibos of Nigeria: An Account of the Curious and Interesting Habits, Customs, and Beliefs of a Little Known African People by One who has for Many Years Lived amongst Them on Close and Intimate Terms." By G. T. Basden. Pp. 315. (London: Seeley, Service, and Co., Ltd., 1921.) 25s. net.

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the London Missionary Society. The greater part of the time was spent on Lifu Island, but eight years were spent on the smaller island of Uvea. The account which she gives of the natives is unpretentious and straightforward, written in an easy and attractive style and with a vein of humour. She reveals her sympathy with the natives, with whom she became on excellent terms, and much

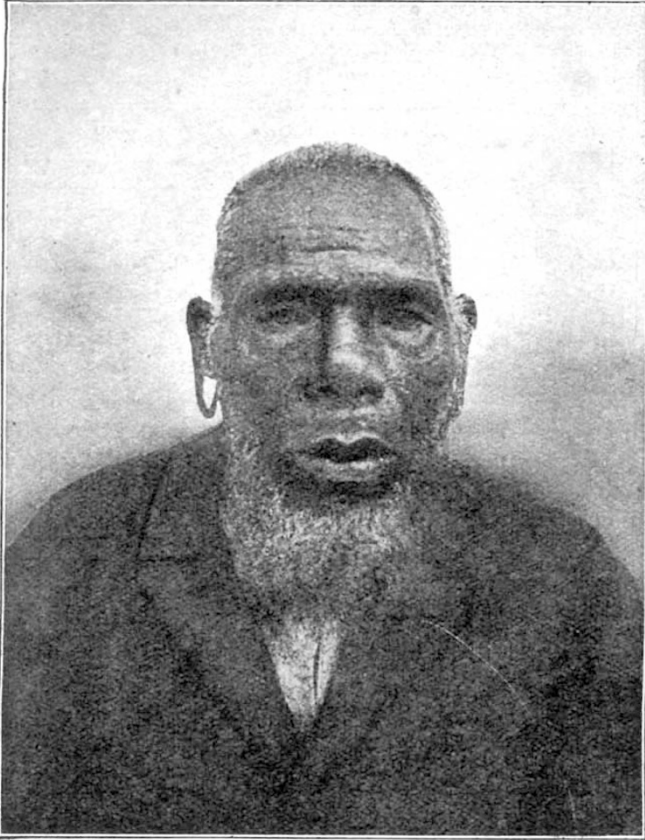


FIG. 1.—Type of Uvean native, Loyalty Islands. From "Among the Natives of the Loyalty Group."

of the information acquired regarding their habits, customs, and ideas was the reward of having gained the confidence of the islanders. Although but some sixty miles separate the Loyalty group from New Caledonia, the natives of the former, with their cheery disposition and laughter-loving habit, differ markedly from the dour, sullen natives of the latter. The tradition that Uvea was peopled partly by immigrants from the Polynesian Wallis Island (also called Uvea), lying about 1000 miles away, is borne out by the fact that Uvea boasts of two languages, the original "Iaian" and a distinct and apparently intrusive language spoken in the north and south of the island. This Polynesian intrusion explains, perhaps, the temperamental difference which is noticed between the Loyalty Islanders and the more strictly Melanesian New Caledonians, and also accounts for certain customs

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and appliances which exhibit Polynesian affinities.

The account given by Mrs. Hadfield of the mentality, daily life, useful and æsthetic arts, and also of the customs, social ethics, and legends of the Loyalty Islanders, is very concise and full of interest. One cannot but recognise how rapidly the old indigenous culture is disappearing. The author dwells upon their many good qualities, and endeavours to account for those characteristics which civilisation deems undesirable and bad. Allowances must be made for the native point of view and for the environment, though the former is always difficult of diagnosis. Even in war a system of sportsmanlike etiquette prevailed, and certain unwritten laws were studiously observed. Due notice was given of an impending "state of war," and operations were not commenced until after the expiry of a period of several days. The heads and noses of children were modified by pressure in order to induce the orthodox, fashionable shape, a practice which is of much interest owing to its wide dispersal over the world, but is disconcerting to the ethnological craniometrist.

The natives exhibit skill and boldness in surgery, though their methods are necessarily of the crudest. Trepanation was freely resorted to, and with success; fractures were dexterously reduced. Hygienic principles are practically non-existent, and the spread of infectious diseases is rapid. The intro-

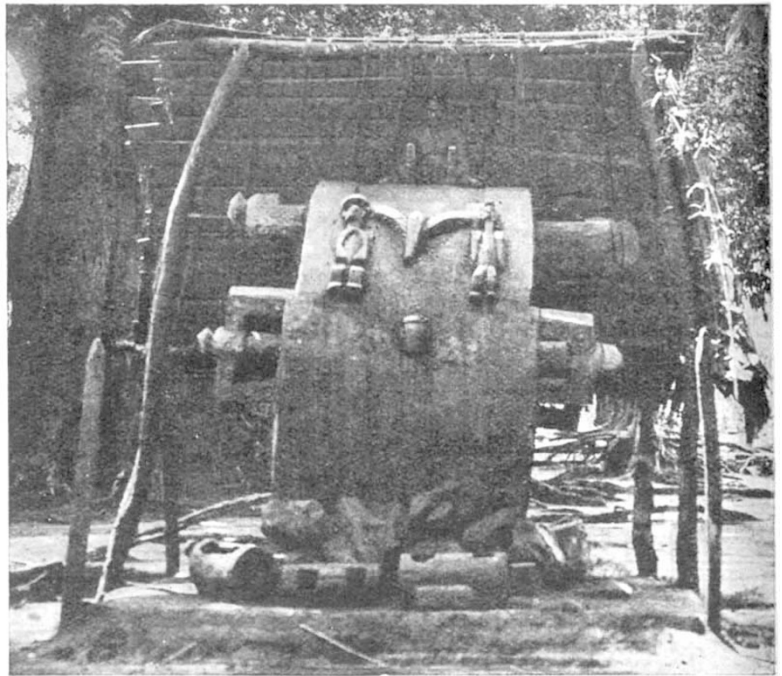


FIG. 2.—The wonderful wooden gong of Umu-nze, the maker of which was murdered lest he should make an even finer one for another town. From "Among the Ibos of Nigeria."

duction of foreign diseases has had a disastrous effect, accentuated by the imported vices, which are usually more attractive and more easily assimilated than are the white man's virtues. Fear of death does not appear to weigh heavily upon the natives. A number of native legends is given at the end of the volume, affording useful material for comparative study.

It may seem ungrateful to express the wish that Mrs. Hadfield's descriptions of industries,

intercourse with natives, involving close personal contact, is the Rev. G. T. Basden's volume dealing with the Ibos of Southern Nigeria. The author has aimed at giving a fairly detailed, though popularly written, account of these interesting natives, and has succeeded in producing an instructive and attractive volume. He sounds a note of caution which may well be taken to heart by globe-trotters and stay-at-home amateurs who, with little or no experience, write books about native ideas and beliefs. He writes: "The longer one lives amongst West African natives, the more one is convinced that it is a practical impossibility for the European to comprehend fully the subtleties of the native character. Some white men claim to have done this, but my experience leads me to think that the claim can rarely, if ever, be substantiated with definite assurance."

This is an honest admission on the part of one who has lived long enough among the natives to realise the difficulties involved in the diagnosis of their mentality, and to recognise the fundamental difference between their "philosophy" and ours. The Ibo people, who form nearly one-half the population of Southern Nigeria, occupy the country lying mainly between the Niger and Cross rivers, a huge tract extending from the coast to 7° N. lat. There is a westerly extension across the Niger. The Ibos are not homogeneous, important variations occurring in the extensive area occupied. The environment varies considerably, from the low-lying swamps of the Delta to the higher land around Onitsha.

The book is a timely one, since the indigenous customs are very rapidly undergoing changes, though in 1900, when Mr. Basden arrived there, primitive conditions still largely persisted. The general life of the Ibos is well presented. A man's greatest desire in life is to advance in social status, and many crimes are committed in order to promote this advancement. Theft (to obtain the necessary funds), murder, and head-taking (as a sign of prowess) are very usually the outcome of this craving for higher titles. Cannibalism has been rampant, human flesh being regarded as a valuable food product. Polygamy is favoured equally by both sexes, and will be suppressed only with great difficulty. The first wife takes precedence

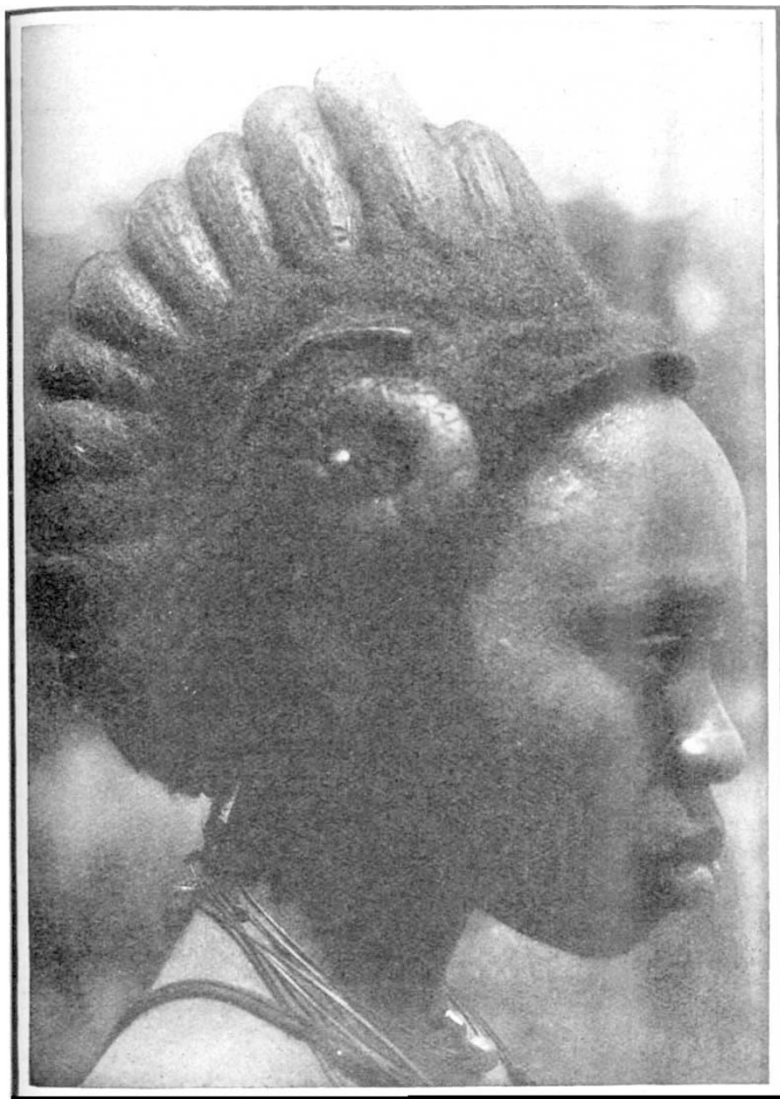


FIG. 3.—Hair-dressing as a work of art. From "Among the Ibos of Nigeria."

appliances, and habits might have been more detailed, since the production of a complete textbook was not her intention. In asking for more, one does so in full recognition of the praiseworthy and useful work performed by the author in giving us this very readable and well-illustrated book, which deserves fuller notice than can here be given.

(2) Another product of many years of missionary

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dence of all the others, and is regarded as the legal wife, *anasi*, who is priestess of the household gods. Belief in the survival of the soul prevails, and adequate burial of the dead is a matter of great concern. A first, necessarily hurried burial takes place soon after death, but a second more elaborate and very costly "burial" by proxy is performed later, with the view of keeping the spirit of the deceased in contentment. Failing this propitiation, the spirit may become restless and malignant. Reincarnation is believed in. Children are well treated and thrive, and although their treatment is often very drastic and appears cruel, the parents evince great fondness for them. Twins, however, are held in abhorrence. In this respect the Ibos differ from the neighbouring Ekoi, who welcome twins. Boys are initiated into the mysteries of the Ayakka secret society at the age of ten.

The secret societies are dealt with by the

author in detail, and the religion and superstitions are well, if briefly, described. The chief deity is Abwala, and at her shrine oracles are sought and "trials" are conducted. The priests, in consequence, exercise a great controlling influence, as is so often the case in Africa. The arts and crafts and the trading methods are interestingly dealt with, and one feels that the author has command of more information than could be published in a single volume. The illustrations are excellent and fairly numerous. One wonders why the household god called in the text *Ikenga* (p. 219) is designated *Skenga* on the plate (p. 120), and why the illustrations are sometimes inserted far from the text to which they refer. It would have been advantageous if all native names had been printed in italics. Such minor blemishes, however, do not materially lessen our appreciation of this very useful and instructive volume. Both the author and his readers may be congratulated.

Obituary.

PETER DONALD MALLOCH.

ARDENT naturalists in humble ranks of life during last century, such as Edwards, of Banff, and Robert Walker, of St. Andrews, in zoology, and Sergeant Sim, of Perth, in botany, have not been rare in Scotland, but few showed more acute penetration, combined with artistic skill and fitness for administration, than Peter Donald Malloch, the premier angler and skilful taxidermist, as well as the originator and able administrator of the Tay Salmon Fisheries Co.

A native of the neighbourhood, Malloch spent most of his life in the Fair City, taking the foremost place, after the death of Mr. Lamb, as a taxidermist (many examples of his skill being now in the Perth Museum), then well known for his remarkable success as a practical angler, and, lastly, as manager of the salmon syndicate just mentioned. It was in Perthshire that the artificial hatching of the salmon at Stormontfield ponds first attracted the attention of men of science in the fifties and early sixties of last century, and the work of Robert Buist, Wm. Brown, and John Dickson made it widely known. Malloch, however, following these, and in the unique position he held on the finest salmon-river in the country, one which carries the largest body of fresh water to the sea, was able to clear up certain ambiguities, and though he had no training in science he grasped the information derived from an investigation of the scales of the salmon, sea-trout, and other fishes, and worked out their life-history with great accuracy and acuteness. In 1910, indeed, he collected all his information in an interesting work entitled "Life-history and Habits of the Salmon, Sea-trout, and other Fresh-water Fish," a work illustrated by as many as 239 exquisite life-like photographs—mainly by himself.

Malloch's observations on the various classes of

salmon ascending the rivers, and a comparison of their movements with those of the sea-trout (the latter feeding in fresh water, whilst the salmon does not), are of great interest and value in this complex subject. He believed that almost all salmon in the sea make for the rivers where they were born. He had some hesitation in accepting the view that some of the parr become smolts at the end of their first year, but old "Peter of the Pools" at Stormontfield would have strengthened the case by demonstrating that many of the year-old parr reared there grew apace, assumed the silvery coat, passed down the rivulet to the pen near the river, and would even leap over its edge in their eagerness to migrate seaward.

Malloch's efficient marking of the smolts with silver wire gave him much information as to the rate of growth of the salmon, irregularity in spawning, and other points. His wide experience of the Tay and other rivers and of numerous lochs enabled him to corroborate Dr. Gunther's opinion as to bull-trout, and so with his remarks about yellow fins and whitling, the young of the sea-trout. Further, the acuteness of his observations is shown by his finding a new char (*Savelinus Mallochii*, Tate Regan) in a lake in Sutherland. That he was able to accomplish so much in the midst of strenuous commercial fisheries work, comprehending the Tay from Stanley to the sea, the surveying of rivers and lochs, and the letting and sale of highland estates, shows that his capacity was of no ordinary kind. Perth has always been the centre from which has emanated much of the life-history of the salmon, and Malloch enhanced and extended that reputation. He died toward the end of May at the age of sixty-eight years.

W. C. M.

WE much regret to see the announcement of the death, from heart failure, on June 5, of DR. A. M. KELLAS, of the Mount Everest Expedition.