

THE ETHNOGRAPHY OF ASSAM.

THE new volumes of the ethnographical series issued by the Government of Eastern Bengal and Assam, in continuation of Major Gurdon's excellent monograph on the Khasis, are devoted to an account of the Mikirs and the Meitheis. These manuals are in pleasing contrast in appearance to ordinary Anglo-Indian ethnological publications. Printed in England, the format is all that could be desired, and they are fully equipped with excellent half-colour illustrations, photographs, and maps. It is to be hoped that the success of this series will encourage the Central Provinces authorities to issue similar accounts of the Gonds and their kinsfolk, and the Madras Government to arrange for the issue of Mr. Thurston's *Bulletins* in less inartistic form.

The volumes now before us illustrate the varying condition of the savage or semi-savage tribes on the eastern frontier. The account of the Mikirs, based

on materials collected by the late Mr. E. Stack, and largely supplemented by the editor, Sir C. Lyall, describes a race which has been little affected by civilisation. The monograph on the Meitheis of Manipur, prepared by Mr. T. C. Hodson, late superintendent of the State, describes an interesting tribe which has been deeply influenced by the culture and religion of the Hindus. The plan of these monographs is uniform, separate chapters dealing with the geographical distribution, physical



FIG. 1.—Mikir Man. Reproduced by permission from a coloured plate in "The Mikirs."

characteristics, culture and social life, laws, customs, and religion, to which are added a grammar of the tribal dialect and a chrestomathy which contains a number of folk-tales in the local language, accompanied by an English translation. The reader is thus provided with abundant materials for the study of some of the most interesting tribes within the Indian Empire.

The Mikir tribe, numbering 87,000 souls, inhabits a hill tract lying south of the Brahmaputra river, abutting on the east on the Naga country, and on the south on that of the Khasis. Their ethnical affinities are still somewhat uncertain. Dr. Grierson, on linguistic grounds, classes them as intermediate between the Boro and Western Nagas, while Sir C. Lyall, mainly on ethnographical evidence, connects them with the tribes forming a link between the Nagas and the Kuki-Chins, especially those dwelling south of the Arakan Roma range, where the Chin tends to merge into the Burman of the Irawadi

valley. They are a peaceful agricultural people, accustomed to depend for protection upon the more warlike neighbouring tribes, like the Khasis, from whom they have assimilated much—dress, ornaments, personal names, methods of divination, funeral rites, and the habit of erecting memorial stones, besides many additions to the tribal vocabulary. From the Assamese Hindus they have borrowed certain elements in their language, folk-tales, and religion. At the same time, they have enough which is original about them to make them interesting. Thus the absence of matriarchal institutions clearly distinguishes them from the Khasis; in physique they differ both from Assamese and Khasis; they build their houses on posts, while their neighbours, except the Kukis, build on the ground. In their animistic reverence for Nats they resemble the Burmese. But to this primitive animism they have added from Hindu sources the conception of a hell and a paradise, with a vague belief in metempsychosis. These views, however, do not influence their ideas about a life to come.

The Meitheis of Manipur, though possessing a long and eventful history, were little known in Europe until the tragedy of 1891, when Mr. Quinton, Chief Commissioner of Assam, and other British officers were treacherously murdered. As is the case with the Mikirs, their ethnical affinities are uncertain, but, in spite of their desire since their conversion to Hinduism to affiliate themselves to the Aryan race, they are probably an offshoot of one of the hill tribes like the Nagas. When the Raja and Rani perform the rite of ascending the throne, they wear Naga dress, and the architecture of the coronation hall, with its front beams crossed and carved, suggests the decoration of the Khullukpa houses in Naga villages.

Though the Brahmans of Manipur date their settlement from the fifteenth century, Hinduism did not become the State religion until the middle of the seventeenth. It is still only a veneer on the primitive animism, its chief social result being the abolition of hunting, except in the case of tigers, for the destruction of which village clubs, with a due provision of nets and spears, are established. Hinduism has brought with it new restrictions in regard to food and drink, but it has removed the curious taboo on the use of milk characteristic of the Indo-Chinese races.

Considerations of space prevent us from directing the attention of anthropologists to all the points of interest in these monographs. Specially noticeable among the Mikirs are the annual compulsory village festival, when sacrifice is made to Arman-paro, the



FIG. 2.—Rās Costume. Reproduced by permission from a coloured plate in "The Meitheis."

"hundred god," and to the local deities of hill and river, the flesh being consumed only by the men, who must live apart from their wives during the rites; the cremation of the dead with subsequent interment of the bones, the ceremonies including an elaborate animal sacrifice and a tribal dance; the bachelors' club of youths associated for agricultural work, which is now passing into decay. Among the Meitheids may be noted the selection of a man who gives his name to the year, bears all the sins of the people during that period, and whose luck, for good or ill, influences the luck of the whole country. Sportsmen will be interested in the account of polo, with its primitive regulations. Introduced into Manipur from the Indo-Tibetan region about 1600 A.D., the possibilities of the game were suggested to British officers by Manipur teams which played at Cachar and Calcutta.

SOME SCIENTIFIC CENTRES.

NO. XIV.—THE HORTUS BOTANICUS AT AMSTERDAM.

THE name of one of the most famous centres in the domain of biology conveys little idea of what goes on there to the average English-speaking man, unless he knows already. The Experimental Garden—as this centre is called—in the Hortus Botanicus at Amsterdam is a laboratory in which the results for which it is famous have been obtained, not by experiment, but by observation, as we usually understand these terms.

This is not the place to discuss the question whether a line can be drawn between experiment and observation; nor, supposing that one can, to attempt to arrive at some conclusion as to where observation ends and experiment begins. But it seems to us that the whole essence and significance of de Vries's work lies in the fact that it has been a work of observation. De Vries's name will be remembered as that of the man who saw what Darwin foresaw; who spent his life in carefully observing and accurately recording the process of the origin of species.

To appreciate the nature of the work which has been done in the Experimental Garden, it is necessary to take a brief glance at the main features of the previous attempts to deal with a problem which, until de Vries attacked it, resisted all attempts to solve it satisfactorily. This survey will also serve to explain more fully what is meant by the statement that de Vries's work was, in the main, one of observation.

The history of the efforts of biologists to deal with the problem of evolution, as told by de Vries in his "Mutationstheorie," is a history of the gradual improvement of the power of observation, which first saw in the genera the units of the natural system; then the Linnean species; and, finally, the elementary species of which the Linnean species are composed. At each stage in this history, the observer very naturally regarded as the ultimate unit of the natural system that unit which he saw by focussing his faculty of observation on it as finely as he could. In pre-Linnean days, the genera were regarded as the units; from then until now, the Linnean species have been so regarded, and the modern view, put forward by de Vries, is that the Linnean species are compound things, being, in fact, composed of the elementary species, which are the real units of the natural system.

In pre-Lamarckian days, the chief attribute of the real unit of the natural system was that it had been created and had not arisen by natural means. So that when Linnæus elevated the species to the rank

of the unit of the natural system they acquired this attribute automatically. *Species tot numeramus quod diversae formae in principio sunt creatae* are Linnæus's words. It is a very interesting fact that Linnæus knew that his species were capable of further subdivision into what he called *varietates minores*; but these had arisen by natural means, and so were not worthy of the attention of the serious student. *Varietates levissimas non curat botanicus* were the words in which he forbade his students to pay any attention to them. The fads of genius are not buried with their authors. Prof. de Vries himself can remember pointing out on one or two occasions, when a student, curious abnormalities and instances of apparent subspecific characters to his professor, and being told by him not to pay any attention to them. He has occupied the rest of his life in doing so.

The nucleus of the Experimental Garden at Amsterdam was a certain potato-field near Hilversum, not far from Amsterdam. It had been bounded on its southern side by a canal from time immemorial. In 1870 the owner of the field, Mr. Six, had an extension of the canal dug along its western and part of its northern side; the result of which was that the original access to the field on its northern border was blocked, and that it could only be reached by its eastern side, where, however, there was, unfortunately, no road. Mr. Six found himself unable to let the field, and decided to plant it with trees. Rough paths were accordingly cut, and small trees planted.

Here was a wonderful opportunity for the wild plants, which had been kept in check with the hoe year after year, to establish themselves and multiply—an opportunity for the supercession of the horticultural by the cosmic process, to borrow Huxley's famous illustration. Yet, curiously enough, the fullest advantage of this opportunity was taken, not by an indigenous species, but by an introduced one which had spread over into the field from a small bed in a park close by, where a few annuals were grown every year. It was the beautiful evening primrose, *Oenothera Lamarckiana*.

De Vries first saw the field in 1886. The *Oenotheras* spread over a wide zone, the centre of radiation of which was the point at which the species had invaded the field. The centre of this zone was covered by a dense jungle of *Oenotheras* as tall as a man; outside this zone the adult plants gradually gave way to younger ones, whilst outside of all was an advanced guard of rosettes which did not lift their heads above the level of the ground.

All this seemed to offer to de Vries an opportunity which might never occur again of studying the phenomena of variation as exhibited by a plant multiplying, practically without restriction, in a state of nature. Moreover, he had been trying for some years past to find plants in a state of mutation (that is, of giving off new elementary species) but in vain. *Oenothera* broke the spell of failure. It was in a mutable period; new elementary species were arising; two had already arisen in the potato-field, *Oenothera brevistylis* and *O. laevifolia*. It very soon became evident that, to observe the process of the origin of mutations properly, it was necessary to grow the plants under direct personal observation in one's own garden. In the first place, only a very small proportion of the seeds that are shed in nature can germinate, and, of those that do, a very small proportion can attain maturity; so that if a mutation does arise the chance that the seed which contains it will survive to maturity is small. In the second place it is impossible to know the parentage of any of the plants in the field, partly because it is not possible to know from which plants the seeds which gave rise to