THE DIET OF THE PRECIBICULTURISTS.

By HARRY CAMPBELL, M.D., F.R.C.P.,

Physician, North-West London Hospital and to the Hospital for Diseases of the Nervous System, Welbeck Street.

V.

THE DIET OF THE BOTOCUDOS.

THE Botocudos, Puris, and Caraodos are wild tribes inhabiting the western parts of Brazil between the Parahiba and Coutas rivers. In the early part of the nineteenth century they were naked nomad hunters, using stone axes and living in temporary dwellings made after some primitive method, as by driving a few palm branches circlewise into the ground and inclining them so as to meet at the top. Until recently they were wholly ignorant of agriculture, and even to this day retain, in spite of their contact with the European settlers, many of their pristine customs. The Botocudos have long been the irreconcilable foes of the settlers and the dread of the neighbouring tribes, and it is to them rather than to the Puris and Caraodos that this account applies.

They are a dolichocephalic people, who roam naked in the woods in quest of roots, berries, fruits, palm-cabbage, honey, frogs, snakes, grubs, "man, and other large game," cannibalism being at one time rife among them; with the exception of serpents, all kinds of animal food are acceptable. Larvæ are eagerly sought for, especially in the decayed parts of trees and in bamboo trunks. They possess the domesticated dog.

The women, to whom—as is usual with primitive peoples—falls all the drudgery, dig up edible roots. Thus, Von Martius writes, "All the household work falls upon the women, even sometimes the building of the huts"; and Maximilian, Prince of Newwied, describes how he saw a number of Botocudos women, each laden with a heavy sack, marching in single file after their day's labour.

Game is grilled on a spit, or cooked in underground ovens, as is also vegetable food. Maximilian came upon a band of these people grouped round a large oven fire and enveloped in a cloud of smoke. Food is also cooked in ashes and in bamboo stems. Vegetables are sometimes boiled "*in einem schlecht gebrannten Topfe*," which is often a bamboo stem in which, with great care, water can, it appears, be boiled.

Von Martius, to whom we are chiefly indebted for our knowledge of the Botocudos and neighbouring tribes, gives the aboriginal method of preparing wholesome meal from the poisonous manioc, and then goes on to describe a shorter one which consists in cutting the roots into slices, or long pieces, spreading them out to dry, and finally cooking them in ashes or underground ovens.

The chief weapons employed are the bow and arrow, the spear and the stone axe.

The Diet of the Fuegians.

These people inhabit the southernmost part of South America—the Terra del Fuego. They are a dark-haired dolichocephalic, copper-coloured people of moderate stature, and are apparently derived, like the Botocudos, from the original dolichocephalic race which migrated from Europe into America across the land which formerly united the two. In spite of the great cold of their country they wear no clothes, but are said to keep themselves warm by smearing their bodies with grease and yellow ochre—a veritable grease paint. Their habitations consist of a few poles fixed circlewise into the ground, drawn together at the top, covered with bark, and with moss stuffed in the intervals between them. They wander about in families, rather than tribes, in search of food. There are several tribes, some living mainly by war, plunder, and the chase, and others chiefly on the harvest of the sea.

Animal Food.

One of the chief animals hunted is the wild llama. Birds and eggs are sought after. The coast tribes live on seals—otters, porpoises, fish, shellfish and sea eggs.

In seasons of distress they become cannibals, eating their old women even before their dogs, which are more useful. The victims are suffocated in smoke by their own relations, the arms and breasts being eaten by the women, the legs by the men, the trunk being generally thrown into the sea. A terrier-like dog is employed in the hunt.

Methods of Procuring Animal Food.—A bone-tipped spear is the chief weapon employed; the bow and arrow (stone-headed) and sling are also used. Seals and porpoises are hunted from canoes with the help of dogs, and speared. Fish are caught with a line. The Fuegians are expert swimmers, and both

sexes dive for sea eggs. Birds are caught while roosting, also by dogs, or they are shot with the bow and arrow, or stoned.

Methods of Preparing Animal Food.—Animal food is sometimes eaten raw, sometimes roasted over a fire. A Fuegian when given a live fish, instantly killed it by biting it near the gills and without further ado proceeded to devour it.

Vegetable Food.

With the exception of a few berries, chiefly of the dwarf arbutus and a fungus, the Fuegians eat no vegetable food. This fungus is a bright yellow variety which grows plentifully on beech trees. It is collected in large quantities by the women and children and is eaten uncooked. The women, we read, catch fish, gather shellfish, dive for sea eggs, make baskets and water buckets, and do all the drudgery—the old tale.

When ill the Fuegians drink plenty of water to promote perspiration.

THE DIET OF THE ESQUIMAUX.

Though the Esquimaux—so called on account of their being raw flesh eaters—are a most interesting people, as showing to what adverse conditions man can adapt himself, a study of their dietetic customs does not throw much light on the evolution of man's diet, inasmuch as these people are peculiarly circumstanced, and can scarcely be said to represent a normal phase in that evolution.

They are of all homogeneous races the most widely spread, ranging between Alaska and Greenland along a coast line of 5,000 miles. They all speak the one language, showing no greater dialectal differences than obtain between English and broad Scotch. There is some doubt as to their racial affinities: their language, legends and customs connect them with the American redskins, while in their use of the dog-sledge they resemble more the races of the Asiatic Polar regions.

In common with the seal, walrus, bear, and other Arctic animals, they are furnished with a thick layer of subcutaneous fat, in adaptation, doubtless, to the Arctic cold. They are an amiable and happy people, little given to quarrelling or bad language; their language is, in fact, said to be devoid of any abusive term, so that it is actually impossible to swear in it! In winter they live in huts made of stones covered over with moss, or of snow and ice; in summer they dwell in tents made of skin. Their two most characteristic possessions are the kayak, or canoe, consisting of hairless sealskin stretched on a wooden or whalebone frame, and the stone lamp, without which existence in the Arctic was impossible. The lamp serves to light the hut during the long Arctic night, which in some parts lasts over 120 days, to melt the ice for drink and dry the frozen garments, as well as for cooking purposes; indeed, much as the Esquimaux values blubber as a food and as providing fuel for cooking, he prizes it still more as providing oil for his lamp. So hardy are these people, however, that they are said to be able to pass months, or even the whole winter, without a lamp or fire of any kind (Rae). To keep themselves warm the Esquimaux rely chiefly on their clothing; the effect of a fire inside a hut would too often lead to an inconvenient dripping from the roof and walls.

Metal—often obtained from wrecks—now generally takes the place of stone in the manufacture of their weapons and implements. Rae once saw an ice chisel made of stone, this being the only stone implement he encountered.

Contact with civilization has had a sadly deteriorating influence on these people, causing them to lose their former manliness and to become drunken and debased.

Animal Food.

The food of the Esquimaux is derived chiefly from the cetacea, such as the seal, walrus, and whale. The reindeer and musk ox are a favourite food, and when they can be hunted constitute the chief source of it. The bear, fox, and hare are also eaten; also wild fowl, which are in some parts numerous. When winter comes and the Esquimaux move into their huts fish may largely take the place of meat. During the season salmon is abundant.

The dog is used for drawing the sledge.

Methods of Securing Animal Food.—The seal is speared or harpooned, the hunter cunningly imitating the appearance and movements of the animal, and thus being able to approach within striking distance; or again, he will watch over a seal-hole, which he will do in the bitterest cold for hours or even days together. The musk ox, after being brought to bay by dogs, is either speared or shot with the bow and arrow.

Reindeer are either shot in a similar manner, or caught in pitfalls dug in the snow, or chased in kayaks and speared while swimming. Birds are netted. Salmon are caught by damming the outlet of a stream at half tide; when the tide ebbs they are then easily speared.

Preparation of Animal Food.—Much of the animal food is eaten raw; when frozen the Esquimaux appears to relish it uncooked. Cetaceous animals, providing as they do fuel for their own cooking, are often cooked, while the deer and musk ox, not furnishing the necessary fuel, are more generally eaten raw. The flesh and uncooked marrow of the former animals are highly esteemed. The skin of the seal, porpoise, and whale are eaten raw; that of the Greenland whale, which is described as $\frac{3}{4}$ in. thick and as having the appearance of india-rubber, "is good eating in its raw state, even for a white man" (Nansen). Captain Hall was, as a special compliment, offered a piece of whaleskin by an Esquimaux woman, though not before she had first carefully licked it all over to remove the dust! The Esquimaux, in fact, regard the whaleskin as "the acme of deliciousness" (Nansen), and being as tough as india-rubber the enjoyment of it can be protracted indefinitely. The blubber of the cetacea is said to have a sweetish, somewhat mawkish taste.

The following is a description of a raw seal feast: First the skin and blubber were separated; the body was then opened and the blood, which is considered very precious, scooped out; the liver was then cut into pieces and distributed among the party and eaten with small pieces of blubber; finally, the ribs were sent round for picking.

The raw viscera of the ptarmigan are considered a great delicacy. They and their contents are eaten "in a twinkling," says Nansen. A Greenlander who accompanied this explorer on a hunting expedition "devoted a day to tearing the entrails out of all the ptarmigans, but as they numbered more than a hundred he could not devour the whole on the spot, and gathered up the remains for a feast."

Sometimes meat is allowed to decompose, when it is known as "mikiak," which is eaten without further preparation; a highly esteemed dish of this kind consists of "rotten seals' heads."

Animal food when cooked is either roasted or stone-boiled in stone saucepans. Captain Hall tells how he met three men in a tent doing full justice to a dish of smoking-hot seal blood, adding that he himself found it excellent.

Storage of Animal Food for Winter.—Food is abundantly stored for winter. In the frozen state it keeps indefinitely; sometimes it is dried.

Vegetable Food.

The country of the Esquimaux affords but a scanty supply of vegetable food, and this only at certain seasons and in limited areas. Some of the tribes, such as the South Sound Esquimaux, the most northerly people in the world, are without any kind of vegetable food whatever.

The vegetable foods include the cranberry, bilberry, dandelion, sorrel, angelica, Iceland moss, and a few flowers, buds, and roots. They are eaten, for the most part, raw, though some plants are made to undergo a preliminary process of fermentation, such as occurs in the preparation of sauerkraut. Seaweed, either unprepared or after being washed in fresh water, is consumed in considerable quantity and is often eaten with blubber.

Vegetable food is also procured from the stomach of the musk ox and reindeer, that of the latter containing the highly-prized Iceland moss. The gastric contents of these animals are regarded as a great delicacy, and in the form of frozen lumps are frequently to be seen in the snow huts. If a Greenlander kills a reindeer, writes Nansen, "and is unable to carry much of it home with him, he will, I believe, secure the stomach first of all; and the last thing an Esquimaux lady enjoins on her lover when he sets off reindeer hunting is that he must reserve for her the stomach of his prey," which contains "a very choice collection of the finest moss and grasse; which that gourmet the reindeer picks out for himself. It has undergone a stewing in the process of semi-digestion, while the gastric juice provides a somewhat sharp and aromatic sauce."

Angelica stalks are prepared as follows: A woman chews a piece of blubber and spits the fluid which accumulates in her mouth into a vessel; when a sufficiency of this has collected the stalks are allowed to soak in it, and in due time are taken out and eaten as dessert.

Storage of Vegetable Food.—Berries and reindeer moss are stored for the winter. Esquimaux in touch with Southerners are provided with coffee, tobacco, spirit and flour.

Quantity of Food.—The Esquimaux can consume large quantities of food. They are said to eat "till they cannot move." Two of them have been known to dispose of a seal at a sitting. Captain Hall says: "No human stomach but an Eskimo's could possibly hold what I saw these men and women devour." One man, who had been for a long time without proper food, gorged himself on a pile of frozen seal, and without apparent discomfort "swallowed enough to have killed six white men," and followed this by drinking two quarts of water!

It is not surprising that they can go for a long time without food, for though they have their seasons of plenty, they sometimes have to endure long periods of famine, when they will eat almost anything, not disdaining to make soup of their skin jackets, or even their old trousers!

Time of Meals.—There are no fixed times for meals. "They did not eat all at once, but each man when and as often as the impulse prompted him." They would appear, however, to make their principal meal before going to bed.

BIBLIOGRAPHY.

Dr. Kane, *Arctic Explorations*, 1853-4. Captain Hall, *Life with the Eskimo*, 1864. Nansen, *Eskimo Life*. H. Kink, *Danish Greenland: Its People and Products*, 1897. K. Brown, *Ency. Brit.*, 1888. Dr. Rae, *Trans. Ethnol. Soc.*, March, 1865. Peary, *Northward Over the Great Ice*, 1898. Von Martius, *Beiträge zur Ethnographie und Sprachkunde Americas*, vol. 1, 1867. Auguste de St. Hilaire, *Voyages dans les Provinces de Rio de Janeiro*. Maximilian Prinz zu Wied, *Reise nach Brasilien in den Jahren 1815 bis 1817*. Charles Darwin, *Voyage of the Beagle*. W. Parker Snow, *A Two Years' Cruise off Terra del Fuego*.

MEDICAL NEWS.

A MEDICAL assurance company is being organized in France by members of various protection societies. The Society proposes to make temporary weekly payments to members suffering from accident or disease; the arrangements under this head appear to be similar to those made by the Medical Sickness, Annuity, and Life Assurance Society. The French Society also proposes to pay pensions after a certain number of years.

WE are asked to announce that in consequence of a family bereavement Dr. E. Markham Skerritt will be unable to fulfil his engagement to preside at the annual dinner of the old and present students of the Medical Faculty of University College, London, on October 2nd. The chair will be taken by Sir Thomas Barlow, Bart., K.C.V.O.

A DEATH under chloroform was recently the subject of an inquiry before the borough coroner of Wigan. The deceased, a widow, was admitted into the Wigan Infirmary in order to undergo an operation. Chloroform was administered, but before the operation was commenced it was noticed that the patient was in a moribund condition. A *post-mortem* examination was made by Dr. Batten, who attributed death to fatty degeneration of the heart.

CHILD LABOUR.—The Corporation of Sheffield has passed a series of by-laws imposing some restrictions on the employment of children of school age either in domestic work, in shops, as errand boys, or in the streets. It was stated that there are at present about fifteen thousand children in the city who, though nominally attending school, are really engaged in various paid occupations.

THE late Mr. George Gilhesby, of Gateshead, whose will has now been proved, bequeathed a sum of £10,000 to the Gateshead Dispensary. The governors of the institution are to be allowed to use the amount in any way they think fit, but the wish is expressed that the fund should be known by the testator's name, and a portion of it specially devoted to the relief of cases coming from the factories and workshops in Gateshead itself and its immediate neighbourhood.

THE INTERNATIONAL MEDICAL CONGRESS AT LISBON.—The Travel Bureau, 29, Cockspur Street, London, asks us to state that it has reserved a number of first-class cabins on the R.M.S. *Ambrose*, leaving Liverpool on April 9th and Havre on April 12th. The *Ambrose* will call at Oporto, where she will remain about thirty-six hours; the return journey can be made from Lisbon about April 29th by a steamer of the same line. The return fares will be £11 11s. from Liverpool and £12 12s. from London. Berths can be booked either at the Travel Bureau or at the Booth Steamship Company, Limited, 30, James Street, Liverpool. The Bureau also proposes to arrange excursions at reduced rates to various parts of Portugal and the South of Spain. It will also arrange for the overland journey via Paris and Biarritz. Further particulars can be obtained on application to the Secretary of the Travel Bureau.