The argument is perhaps not altogether convincing, but the moral of the story is obvious enough. The Minister was a true literary artist, and felt the compelling need to end on the right note. In his striving after this, he may be held up as an example to young writers, but we must not be understood as recommending them to seek for inspiration in the same source.

THE DIET OF THE PRECIBICULTURISTS.

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I.

INTRODUCTION.

THOSE people who do not increase their food supply by artificial means, either by cultivating the vegetable kingdom or by breeding animals, may be spoken of as the precibiculturists. They are the most primitive people now living, and representing as they do a phase of culture through which all the more advanced peoples have passed, they constitute a group by themselves, and one whose dietetic customs are worthy of detailed study.

Most of them are, save, it may be, for some primitive covering round the loins, naked. This is true even of the Fuegians, who live on the cold and inhospitable shores of Terra del Fuego. Others clothe themselves in skins, some, such as the Esquimaux, displaying great skill in the manufacture of their skin garments.

All the precibiculturists are nomads living by hunting and fishing, and on seeds, roots, and other products of the uncultivated vegetable kingdom. They all employ cookery, though much of their animal food is eaten in a semi-raw state, and some of it quite raw, and they display remarkable ingenuity in the preparation of their vegetable food, knowing how to convert acrid and even poisonous substances into wholesome and palatable dishes.

Being nomads, and seldom remaining long in any one place, they have no permanent dwellings, but seek shelter in caves, rock-shelters, and temporary wooden structures, consisting of little more than branches of trees, sometimes covered with moss, or matting.

With the exception of some of the Esquimaux who employ meteoric iron, they are wholly ignorant of metals, using for their implements and weapons, wood, stone, bone, horn, and shell. They are, in fact, in the stone age—the later or neolithic stone age—although, speaking generally, they are in a lower phase of culture than the later paleolithic cave men of Europe.

Their weapons consist of wooden clubs, wooden spears, untipped or tipped with stone, bone, or shell, the spear-thrower, that prince of primitive weapons, the bow-and-arrow, and the blow-pipe (consisting of a wooden tube, several feet long, through which tiny poisoned darts are propelled after the fashion of peas from a pea-shooter).

Of the surviving precibiculturists, only the Australians are without the bow-and-arrow, its place being taken by the spear-thrower, and to a less extent the boomerang. Most of the precibiculturists poison their darts and arrows. All of them can make basket-work, limes and netting, and all of them have a rudimentary knowledge of weaving. Those living on the sea-shore employ primitive canoes.

With the doubtful exception of the Andamanese they are ignorant of the art of pottery, and are thus placed at a great disadvantage in the matter of vessels for holding water, employing such natural articles as bamboo joints, skulls, the shells of shellfish, or birds' eggs (for example, those of the ostrich), or gourds; or, again, manufacturing primitive vessels from skins, wood, bark, stone, or out of closely-plaited wicker-work. Only their stone vessels are capable of resisting the action of fire, but these they only occasionally manufacture, and but seldom for placing upon the fire; consequently they cannot boil water over the fire, but are obliged to resort to the indirect method of heating stones and then immersing them in a vessel containing water. The Bushmen and Australians are ignorant of the art of boiling water.

The dearth of convenient vessels for holding liquid, especially such as are capable of resisting fire, probably explains why the precibiculturists have not found out how to

make alcohol, nor how to extract starch and sugar from vegetable substances. Their not having done so is certainly not due to any lack of ingenuity on their part, as will be seen when we come to study the elaborate methods they adopt in preparing their vegetable food.

The following are the surviving precibiculturists:—The Australians; the Californians, or Digger Indians, the Fuegians, Botocudos and neighbouring tribes in Eastern Brazil, and the Esquimaux; the Bushmen of South Africa, the Forest Pigmies of Africa, and those of the Andaman Islands, the Malay Peninsula, and the Philippine Islands; the Veddahs of Ceylon, and the Hairy Ainus inhabiting islands to the north of Japan.

Of these various precibiculturists, we possess the most detailed information of the diet of the Australians and Californians; next of the Esquimaux, and next of the Andamanese, Ainus, and Bushmen. I have been unable to find more than a very cursory description of the diet of the Veddahs, and of the Forest Pigmies of the Malay Peninsula and Philippine Islands; still less of the Forest Pigmies of Africa.

THE DIET OF THE TASMANIANS.

These people are so recently extinct that their diet may be considered with that of the existing precibiculturists. The last representative of this interesting people died in 1858. The original immigrants probably passed from Australia into Tasmania when the two countries were joined or within easy distance of one another. Keane supposes the Tasmanians to have been aberrant Papuans (Melanesians) modified by long isolation, and Tylor refers to them as "the lowest normal tribes." Their culture was decidedly below that of the cave-men of France; they did not, for example, understand how to sew skins by means of bone needles and sinew thread, and were ignorant of the arts of drawing and carving. Like the Australians, they knew nothing of the bow-and-arrow, and were even ignorant of the spear-thrower, boomerang, and shield. Their weapons appear to have been limited to two kinds of primitive spear—one hardened at the point by fire—and a wooden club or *waddy*, all of which were unprovided with bone or stone attachments, being thus greatly inferior to the weapons of the later paleolithic age. The only stone implements they employed were roughly-chipped flints, which were quickly improvised when required. They had no permanent dwellings, but took refuge in caves or rock-shelters, or in temporary abodes made of branches of trees. They made bark canoes and rafts.

From this short account it will be seen that the Tasmanians were a most interesting people, and it was a dark day for them when the white man set foot on their island. Apart altogether from the question of humanity, it is much to be regretted that a people of such ethnological interest, forming as they did a link with the far past, should have been so ruthlessly exterminated.

The Tasmanians lived chiefly by the hunt, their animal food including the kangaroo, wallaby, bandicoot, kangaroo-rat, opossum, and wombat; nearly every bird and bird's egg that could be procured; and in the case of the coast-tribes, crawfish, oysters, and other shellfish. So far as is known they were not cannibals.

They consumed a variety of vegetable foods, one writer giving a list of 37 roots alone as having entered into their dietary. Among these, that of the bracken fern appears to have been the most important; the natives used to roast the roots in ashes and, having removed the black skin with their teeth, to eat them with roasted kangaroo, much as the Europeans eat bread; these roots were also eaten raw. Other roots which were roasted and eaten were those of the orchid and the balrush. Seeds also were eaten; for example, the aborigines collected the ripening pods of several species of acacia and after roasting them in ashes picked out the seeds. Fungi and seaweed also entered into their dietary. We read that the leaf of a species of kelp was in great favour, being eaten after it had been roasted and macerated in fresh water and then again roasted. Among the fungi was the "native bread" growing in the ground like the truffle, and the *Cyttaria*.

The natives used to split open about a foot and a half of the top of the trunk of the tree fern and take out the heart. The pith of two varieties was eaten, both partially cooked. The onion-like leaves of some orchids were eaten.

Doubtless the Tasmanians prepared their vegetable food in more elaborate ways than we have any record of. I have not yet been able to find any evidence of their having employed underground ovens, but should be greatly surprised if they were ignorant of their use.

¹ I am speaking of the time when the precibiculturists had not come into touch with the white man. Many of the statements I have made are not strictly true of the present time.

The Tasmanians had apparently very capacious stomachs. A child of 8 months, still at the breast, was seen to eat a whole kangaroo-rat and then to attack a crawfish!

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NOVA ET VETERA.

THE INFLUENCE OF DIET IN CHINA ON NATIVES AND EUROPEANS.

Two interesting articles have appeared recently in the *Revue d'Hygiène* (Tome xxvii, Nos. 2 and 3, 1905) on dietary conditions in China and their influence on natives and Europeans. Their author, Dr. F. Brunet, who has travelled extensively and held official positions in many different parts of the country, writes with an exceptionally wide experience of his subject.

PECULIARITIES OF CHINESE FOOD.

The Chinese palate is distinctly peculiar according to Western notions. White worms, for example, locusts, sharks' fins, water-lily roots, swallows' nests, or stuffed dogs would not be appreciated as delicacies by most of us; nor should we care to have included in our cuisine the lungs, spleen, intestines, or mammary glands of our ordinary edible animals, the internal membrane of birds' gizzards or the eyes of fish. But in China luxury on the one hand and the exigencies of extreme poverty on the other have led to the adoption of an enormous number of articles of diet with which we are unacquainted, including the roots, leaves, and seeds of a great variety of plants, and also many insects, larvae, reptiles, and other forms of animal life. Whilst differences in national characteristics and the necessities of subsistence may account for many of these strange usages, it seems difficult for us to imagine how even a Chinaman can find enjoyment in the flavour produced by such a malodorous substance as sulphuretted hydrogen. This, however, appears to be the case with eggs, the value of which, we are told, increases in proportion to their age. "When they have become almost completely green, after several months' or several years' storage in lime or sawdust, they attain the price of our old wines or choice champagne." The flavour of these precious morsels—sulphurous and nauseating to a degree, according to our tastes—is regarded by the Chinese epicure as one of exquisite delicacy.

There is great variety of animal food, almost every sort of mammal, bird, fish, or shellfish being utilized for culinary purposes. But in many respects the Chinese idea of what is wholesome differs from the European. The most important of these differences is exhibited in the avoidance of milk. A Celestial never consumes a drop of milk after he is weaned from his mother or wet-nurse. Even sucklings, if they cannot obtain human milk, receive none at all; they are given sugar and water, an emulsion of meal, or "pap" (bouillie), but never animal milk. The Chinaman is convinced that animal's milk would exert a specific influence upon the suckling. To drink or suck cow's milk, for example, would not, according to his ideas, be partaking of food but would be equivalent to withdrawing something of a personal nature which would endow the infant with affinities to the bovine; such a practice would be at once repugnant, unseemly, and dangerous.

The articles of vegetable diet which are consumed would make an extremely long list. Dr. Brunet imagines the Chinese must have investigated the nutritive value of every vegetable which grows and retained in their dietary as many as they possibly can. With regard to rice, Dr. Brunet corrects a popular error. It is not the case that this cereal is the staple commodity throughout the greater part of the Chinese Empire. Cheap as it is, and notwithstanding the enormous production of it, the consumption of rice at each meal is a luxury which can only be afforded by families whose position is one of relative comfort. The majority of the population is too poor, and has to be satisfied with the substitution of cheaper grains, such as millet.

STIMULANTS, BEVERAGES AND NARCOTICS.

The consumption of alcohol is extremely small. The form of alcohol best known is that obtained from rice; but even of this, in spite of its low price, the Chinese drink very little. It

is placed on the table hot, almost to the boiling point, in small cups which hardly contain as much as a thimbleful, and is consumed about the middle of the meal as an aid to digestion. Drunkenness is unknown amongst the natives, except such as have been contaminated by close association with Europeans.

Nor is any other intoxicating drink employed as a substitute for alcohol. The one and only beverage is tea. This is always being consumed, except during meal times. It is always served hot, even in the street, and during the extreme heat of summer; and, since it is consumed fresh, without being allowed to stand, it contains the minimum amount of tannin or alkaloids. The Chinaman, unless compelled, never drinks plain water, particularly cold water. It is typical of the country to find at every turn in all the towns and villages persons selling hot water for the supply of persons who are too poor to keep the kettle constantly boiling in their own homes. This excellent usage is practically a hygienic necessity, owing to the filthy state of the water available for drinking purposes.

At the end of a meal a pipe of tobacco is smoked. The tobacco used is home-grown, and its mode of preparation, strength, and aroma are described by Dr. Brunet as "very variable." Every one smokes—even the poorest—and not excepting the women. In wealthy houses, after the first pipe of tobacco and the first cup of tea, opium smoking begins. This is the complement of the dinner, like the glass of liqueur with the French. Many Chinamen limit themselves to half a dozen pipes after each meal, and maintain this practice for many years. Restricted to these proportions, the habit appears to have no seriously deleterious effect on the health. But with opium smokers already in the stage of intoxication the opium pipe is a necessity, both before the meal, in order to regain a little appetite and the ability to eat, and also after the meal, in order to facilitate digestion. If, however, the degree of intoxication has advanced too far, the anorexia remains complete, and cannot be overcome by further smoking. This is a serious condition, indicating a high degree of saturation with the poison, and the prognosis is not good. There is a very important difference, which Europeans often fail to realize, between smoking opium merely as a mild gastric stimulant and aid to digestion, and employing the drug for the production of pleasurable sensations during the siesta or for the rest of the evening. When the latter object is pursued, frequent usage causes a diminution of the effect, the natural consequence being that a desire to reproduce the same pleasurable experience leads to constant augmentation of the dose, with inevitably pernicious results.

INFLUENCE OF DIET ON THE CHINAMAN.

The prejudice against the use of animal milk is disastrous in its consequences. When for any reason an infant cannot be breast-fed, its chances of survival on the barbarous diet which is provided as a substitute for natural food are obviously small. Apart from this contingency, the premature use of starchy food is apt to give the child a distended belly, a general puffy aspect, and a pale, flabby skin. Far too soon the child is put upon the same diet as its parents, with the natural sequel that intestinal disorders are frequent and often fatal. A further consequence of this treatment is that in adolescence growth is slow and development late, both physically and intellectually. The bony framework is in advance of the muscular development; and, of the mental faculties, memory is for a long time the only one which is even slightly developed; judgement, comparison, and the power of analytical and synthetic reasoning being slow to make their appearance, even amongst the intelligent orders who are well brought up.

At the same time these peculiarities of diet appear in some respects to exert a beneficial influence. There are very few lymphatic, scrofulous, or anaemic subjects, nor is bone disease common, thanks, no doubt, to the richness in phosphates and lime salts of the cereals of which the diet is to a very large extent composed. It is very rarely, too, that the closure of the fontanelles is delayed, or union of the epiphyses; and arrests of ossification, scoliosis, and delayed unions of fractures are equally uncommon.

To the absence of stimulants in the dietary of the Chinaman Dr. Brunet partly attributes the placidity and equanimity of the Celestial nervous system, and also the marked rarity of epilepsy, hysteria, and various forms of insanity. It is also noteworthy that arterio-sclerosis is rare. Three other diseases are also incidentally mentioned by Dr. Brunet as being extremely rare amongst the natives. These are appendicitis,