

ADELAIDE:
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OUR VANISHING MAMMALS.

To the general reader, for whom, rather than the scientist, it is intended, the second part of Professor Wood Jones's scholarly work, *The Mammals of South Australia*—made available to the public, by an appropriate coincidence, on the eve of the Science Congress, as one of the series of handbooks issued by the British Science Guild—will be an astonishing revelation of the number and variety of animals (several of them unexampled elsewhere) which once distinguished this State. The book, however, is a melancholy, as well as an enlightening, study. The Nature lover who, within its covers, first becomes acquainted with some of the most fascinating mammalian inhabitants of South Australia, will be shocked to discover how many of the wonderful creatures described by the author are either known to be extinct, obviously on the verge of extinction, or believed to have disappeared altogether from the State in which they once flourished. Their enemies have been, and still are, manifold—the settler, with dogs and gun, and the fox, and the cat; and even the rabbit, in the sense that it either "crowds them out" or "eats them out." Some of the vanishing forms have always been relatively rare, but in other cases rarity or disappearance has succeeded abundance. Of the short-nosed bandicoot, for example, Professor Wood Jones says it is a regrettable fact that this peculiar little animal is now extremely rare in South Australia. Not very many years ago it was common all over the State; to-day it is on the verge of extinction. It is remarkable, and greatly to be deplored, that an animal which was so familiar and abundant in the boyhood of the present generation of South Australians is likely to cease to exist at all on the South Australian mainland. The virtual extermination of the bandicoot is a blot on South Australia. There is no excuse to be offered, and a community which has sinned against Nature must accept the professorial rebuke. "Most lands," he says, "are fortunate in possessing some harmless animal, which is ready to accept a truce with man and assume the part of a friendly dependent. Australia has been blessed by possessing an unusual number of such animals; but it is Australia's distinction that almost all of them have been pressed to the very verge of extinction, and one of the most to be regretted is the little short-nosed bandicoot."

The rabbit bandicoot, or bilby, is another once numerous animal, which has been driven even further towards extinction than the harmless little creature already discussed. "Not more than 30 years since," says the Professor, "it was usual for rabbit trappers, even in the immediate neighbourhood of Adelaide, to take more bilbies of this type than rabbits in their traps." And of the genus in general he writes:—"By the early colonists, the bilby was not only regarded as an animal against which the methods of the exterminator need not be employed: it was even accorded a certain amount of protection, and was sometimes kept as a pet about the house. Unfortunately, this regard for the bilby seems to have been forgotten by a later generation, and in more recent years but little mercy has been shown them by any section of the community." If once common mammals have failed in their pitifully unequal struggle against the forces loosed against them by the colonization of South Aus-

tralia, how much less chance of survival has been offered the rarer forms? Many are now but a name. Particularly to be deplored, from a scientific point of view, as for reasons of sentiment, is the fact that, except for three skins and skulls in the British Museum, nought now remains of the plain rat kangaroo, an animal once peculiar to the northern areas of this State. No trace of this apparently extinct marsupial has been preserved in any scientific institution in Australia. No such almost total obliteration is to be apprehended for any South Australian mammal still surviving in considerable numbers. Scientific study of the existing forms will place them enduringly in the museums and in the zoological textbooks; in many cases, their actual extinction as living animals is still threatened. Even the koala, or native bear, is not assured of a living future. Professor Wood Jones says rightly that the complete extermination of the native bear would be a disgrace to Australia, and adds that "from its dependence upon a particular diet and particular mode of life, its tenure of continued existence must always be regarded as precarious." He performs a public service in directing attention to the fact—as evidence of the deplorable slaughter of native bears for their skins—that in 1920-21 no fewer than 205,679 koalas were killed for the fur market, and their pelts sold under the misleading name of "wombat." The native bear, he says, "is extremely tenacious of life, even when mortally wounded, and horrible cruelties have been committed and recounted by those who have slaughtered them wholesale for the sake of their pelts. Indeed, one may say on humanitarian grounds," adds the Professor, "that not only should the slaughter of the koala for the fur trade be prohibited, because the animal is eminently one to protect and not to exterminate, but it should be prohibited because, like the slaying of seals, it is the most butchering occupation that a human being can undertake." Although it is doubtful whether the native bear has retained its natural hold on any part of South Australia, Victorian animals have been liberated on Flinders Chase, Kangaroo Island.

Professor Wood Jones's work presents an unanswerable case for the careful maintenance of this island sanctuary. Again and again he mentions species whose only chance of survival is on Flinders Chase. It is interesting to learn that one of the most beautiful little animals of South Australia, the elegant dormouse opossum, occurs naturally on Kangaroo Island, and is assured of protection in the Chase. "This little creature," writes the Professor, "makes a most attractive pet. The food is held in the very mobile hands, as is the case with its larger relatives, and it thrives well on soft fruit, cakes, rose leaves, &c., in captivity. It drinks milk freely, and has a peculiar weakness for jam and for honey. It is extremely gentle, and soon becomes accustomed to handling." The comparative anatomist, it seems, is not responsive only to the charms of skulls and dried skins. Something more than science was concerned in the incident related of eight barred bandicoots, consigned to the Professor from Ooldea. "All eight were dead, and almost devoid of hair when they arrived in Adelaide. They had fought each other to the death on the railway journey. But, among the corpses, were four pouch young, which were uninjured. . . . These little animals were cold and apparently dead; but they were carefully warmed up and given artificial respiration, and, in the end, all recovered." Although Part II. of *The Mammals of South Australia* contains 270 pages, and is devoted wholly to the bandicoots and herbivorous marsupials, only one animal is mentioned as successfully adapting itself to modern conditions. This solitary exception to a deplorable rule is the common opossum, which, instead of fleeing before settle-

ment, has altered its habits and maintained its ground. But even the opossum is in danger of sacrifice to the fur trade. In 1920, the opossums of South Australia were removed from the protected list from June to September, and in that interval more than 100,000 were killed for their pelts. This would be bad enough; but Professor Wood Jones points out that the legalized "open" season coincides with the breeding season—"an anomaly in protective legislation which probably has no parallel." In this direction, at least, South Australia should be content to follow, rather than to lead.

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HEALTH AND LIFE.

A score of subjects of profound interest to Australians are receiving ventilation at the Science Congress this week, but as health considerations must always claim priority over others it is safe to assume that the papers in the section devoted to Sanitation and Hygiene will have the special attention merited by the importance of their subjects. The ravages of mosquitoes and flies, industrial diseases, the milk question, the dietary of young children, are not themes as to which too much can be heard from acknowledged experts. In opening the section yesterday Dr. J. S. Purdy, of New South Wales, in his presidential address, discoursed on the value of various articles of diet as measured by their richness in vitamins. It is only of late years that "vitamines" have come into the field of general discussion, and popular notions as to the meaning of the word are still very hazy. Nevertheless, the discovery of the food factors which it connotes represents an analytical achievement in modern science having a direct bearing not only on the relative utility of certain foods, but on the quantities necessary for nutrition, and to that extent, therefore, on the cost of living. During the war the British Government issued a pamphlet containing hints to housewives as to cheap but nutritious meals and their preparation. This pamphlet was based on all the knowledge available on the subject of dietetics, and not only indicated directions in which economies might be effected in the household budget, but demonstrated the closeness of the connection between health and food.

Dr. Purdy's address performs a similar service for Australians by emphasising the value, or rather necessity, of a mixed diet of animal and plant food. Time was when it might be said quite safely that the average Australian almost lived on meat and tea. That was before the world was inundated with a flood of literature embodying schemes, often named after their inventors, for promoting health and long life by revolutionary bills of fare; and before the public heard much about the presence of uric acid in the blood being a main factor in disease, and about the tendency of some foods as distinguished from others to produce that by-product. It was certainly before vitamins—whose precise chemical constitution still baffles research—obtruded themselves upon the attention of the savants through the mischief occasioned by their partial or complete absence from certain kinds of food. To that absence may be traced such diseases as scurvy, beri beri, rickets, and pellagra, and to their presence in prescribed quantities the cure of various maladies and the rehabilitation of systems undermined by excessive indulgence in cigarette smoking. No "food crank" is Dr. Purdy. He does not ask us to forswear either meat or tea; but he entreats us to include in our menus a much more liberal allowance of milk, fruit, and vegetables, and other fresh foods rich in vitamins and mineral salts. Until high prices compelled them to put a curb on their appetite for meat, Australians were noted as huge flesh-eaters, and the doctors and dentists were continually bearing testimony to the consequences. There is no reason to credit Bumble's theory about a close relationship between meat and vice, or Sir Andrew Agoocheek's about the harm his wit suffered from his partiality for beef.

But a too carnivorous diet has its perils, for incurring which Australians have no excuse, considering the abundance in which the best fruits and vegetables are to be found. On the much-voiced controversy over the rival merits of a carnivorous and a herbivorous diet there is no call for touching, except perhaps to say that there could not be a dispute more profitless. The circumstance that whole races flourish equally on meat and without it proves that both kinds of diet are suited to the human constitution. What seems to be established is that mankind can better afford to do without meat than without those products of the garden whose value, as Dr. Purdy justly complains, is too generally overlooked.

No health campaign would be complete that omitted reference to those perils of daily life, the housefly and the mosquito, to which Sir James Barrett drew attention in his interesting address to the Health Association, especially the former, of all our daily enemies the worst. The fly is the great germ carrier of the world. "Born in filth and feeding on corruption, it crawls over our food and drowns itself in our drink, leaving everywhere the microbes of death. Infantile diarrhoea, the dread enemy of child life, is almost wholly propagated by the housefly, which also conveys almost every imaginable infection to adults. Gorging to the extent of half its own weight, by preference on manure heaps of garbage, it vomits over food. The scavenging it does, and which constitutes its only defence, we could do much better for ourselves. To combat this foe of humankind it is necessary to wage war first on the uncleanness which provides it with infected material and next on the fly itself. Its existence during the winter months Sir James Barrett finds a mystery, but then, stupefied with cold, it may most easily be killed. It is from September to May that it constitutes a danger only to be met by a campaign of extermination by means of traps and spraying with Lotol or other poison. But it is no use trusting entirely to these. The enemy's citadel must be stormed, and it is in the stable yard and wherever manure or garbage accumulates that it is to be found. Mosquitoes, again, are known carriers of malaria, filariasis, and dengue fever. Hitherto malaria has kept a respectful distance from the southern portion of the continent, but Sir James Barrett warns us that the malarial mosquito has been found in the Murray Valley and even in Adelaide, so that it only awaits a "host" in patients suffering from malaria for the disease possibly to be as rife here as in the north. The efficacy of combative measures in the shape of draining stagnant pools, &c., has been proved by its success in Queensland, where the local branch of the Health Association has secured for the local authorities powers which, if rightly used, might suffice for their purpose. Unfortunately, divided control, and lack of intelligent co-operation and of adequate inspection, have left room for much still to be done towards securing the steady concentration of effort without which little real progress can be made. But the Health Association has not slept on such victories as it has gained in awakening the attention of the public, and through them of the authorities, to the mischief, and the probabilities are very great that it may before another year be able to report that it has the danger well in hand.

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University Council.

The Legislative Council yesterday elected the Hons. W. H. Harvey and T. Pascoe, to be members of the Council of the University of Adelaide.