Fossils and farmers

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The West Australian Museum is looking for fossil remains from the Pleistocene age, the period of geological time when Europe was covered with ice. Little is known of what the Australian continent was like at that time, and the Museum hopes, by collecting as many fossil remains as possible, to get a better picture of Australian conditions at that time. It is also hoped to discover more about the ancestors of our present marsupial fauna.

Farmers may be able to make a valuable contribution to the present knowledge of this period by forwarding suspected fossil remains to the Museum. Here the Museum's acting Curator of Palaeontology, Mr. D. Merrilees (B.Sc.) tells what to look for.

The first illustration in this article is a comparison between the lower jaw of a large extinct marsupial known as Nototherium and the lower jaw of a modern wombat. Although very different in size, and belonging to different families of the Australian group of marsupials, nevertheless Nototherium and the wombat seem to have been rather alike in their sturdy build, blunt noses and vegetarian diet.

It is the purpose of this article to show how past generations of farmers have made it possible to issue a statement like this with some confidence, and to ask the present generation of farmers to carry on the work of their predecessors.

The connection between fossils and farmers is that farmers are better placed than most other people to find fossils of the sort represented by Nototherium.

Nototherium belongs to that stretch of time known to geologists as Pleistocene time, or more familiarly, the Ice Age. It was during this time that great ice sheets spread out to cover much of the British Isles, Scandinavia, Canada and even into...
Most finds are only fragmentary, as shown by these fossil remains from Balladonia. At first glance these could be scraps of bone—but all are valuable fossils.

Top left: Part of jaw of an extinct relative of present Tasmania devil
Top right: Part of single molar tooth of Diprotodon, an extinct marsupial of elephantine proportions
Lower left: Part of jaw of large extinct kangaroo
Lower right: Complete tooth of wombat, similar to the existing species

the United States. Mountainous regions throughout the world, including Kosciusko and central Tasmania, which now may have only relatively small valley glaciers or even only intermittent snow, then were capped with more or less continuous thick sheets of ice.

Geologically speaking, the Ice Age began very recently, under a million years ago. Since this period of time was geologically so recent, the animals living in it have left remains that are only shallowly buried, and sometimes not buried at all. It is for this reason that farmers, dealing as they do with relatively shallow layers of soil, but extending their operations over wide areas, are likely to come across Ice Age fossils.

A "fossil marsupial" is simply a piece of bone, probably broken, a stray tooth, or exceptionally a whole lower jaw, teeth and all, or a skull. Practically never does anything survive of hide or hair.

How is the farmer to recognise this stray tooth or piece of bone as anything out of the ordinary?

How does one distinguish between a horse tooth and a Nototherium tooth? Or between a sheep's thigh bone and the thigh bone of a marsupial wolf?

Sometimes the distinction may be made easily, but frequently it is not; the Museum therefore asks any farmer who has the remotest suspicion that a bone or tooth he has unearthed belongs to something

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other than the ordinary domestic stock to send the specimen in for identification. By knowing what the specimen is and where it came from, we may discover new sites for known fossils, or even the remains of completely unknown animals.

At present, for the vast whole of Western Australia, we know of only a dozen or so places where Ice Age marsupial fossils have been found. There must be many more, and we appeal to farmers and to the rural community generally to help us find them.

Of the dozen or so sites at which Pleistocene marsupials have been found, some are in caves. Fortunately the Western Australian Naturalists' Club has an active cave exploration branch, and some very fine specimens have been brought in to the Museum in recent years by this group. Its activities have revealed, for example, that the present-day Tasmanian wolf and devil, now confined entirely to Tasmania, were once relatively common in our own South-West—and not so very long ago at that.

There are plenty of caves still to be investigated, and no doubt more good fossil deposits will be discovered in the future.

The remaining few fossils have been discovered by people sinking wells or making dams in various parts of the country. Such activities are always likely to unearth fossil deposits and the Museum must depend on individuals to report new discoveries.

Some very interesting finds have been made in recent years, and three of the best of these are worth mentioning for the light they throw on the general problem of collecting Pleistocene fossils.

First and most recently, a large bone unearthed by Mr. D. J. Moir, of Cape Riche, has defied the efforts of the combined Museum staff to name it or even to reach agreement on whether or not it came from a gigantic bird, quite unlike anything so far reported from Australia. Among other things, this example serves to point out the difficulties which even experienced people may have in dealing with fragmentary specimens from animals which may be both extinct and hitherto unknown.

Second, the Nototherium jaw illustrated (page 713) was discovered by Mr. H. White of Merkanooka in the bed of the Murchison River. Failing to recognise the animal involved, Mr. White and his companions went to the trouble of digging the specimen out and trying to find out what it was. As a result of their trouble, this Museum now houses what is surely one of the most complete and most perfectly preserved specimens of this interesting animal in the whole of Australia.

Furthermore, because Mr. White reported an exact locality for his find, expeditions from the Museum have been able to go straight to the site and collect further specimens.

Finally, there is the case of Balladonia. Early settlers in this area, clearing out soaks round the bases of granite outcrops, found considerable quantities of bone they did not recognise. Unfortunately they did not always take the trouble to send these to the Museum. Through the courtesy of Messrs. W. Ponton, J. W. W. Graham and J. Sharp many years ago, enough specimens were retrieved to make Balladonia one of the two places in Western Australia where we have a good representative sample of the animals living here during the Ice Age.

The Balladonia specimens are hard and clean (although discoloured) and obviously impregnated with some substance which has served to preserve them. Once again, they are fragmentary, but this does not lessen their value in the scientific worker's eyes.

May I conclude by asking farmers to send in specimens about which they feel any uncertainty, together with a precise statement of the locality, and preferably with notes about the surrounding rock, depth of burial of the specimen, whether other specimens may be expected to be found and so on.

Specimens marked as such, consigned to the Director, Western Australian Museum, Perth, will be carried free of charge by courtesy of the Railways Department.

One way to earn a modest but honourable perpetuity for one's name is to have it inscribed as the finder of a specimen which may be examined a century hence by some earnest student of the Australian marsupials.
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