

## ON SOME FRAGMENTS OF EMU EGG-SHELL FROM AN ANCIENT CAMP-SITE ON KANGAROO ISLAND

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A brief reference was made by Tindale (1937) to the discovery by one of us of a few small pieces of Emu egg-shell on a former native camp-site on Kangaroo Island. Subsequent visits have added considerably to the number of fragments collected from the same locality, and as this find appears to be not only the first officially recorded occurrence of food remains associated with stone implements, but also the only record of Emu egg remains on the Island, it is thought that a short paper on the subject may be of interest.

It is assumed that the egg fragments are those of the Kangaroo Island Emu (*Dromaius diemenianus*), now extinct, although comparisons made with similar fragments of eggs of the mainland bird (*Dromaius novaehollandiae*) have not revealed any differences whatsoever. No evidence is available to show that the mainland bird ever occurred on the Island, and when Flinders' party went ashore at Nepean Bay in 1802 only *D. diemenianus* was met with. As far as is known there is only one complete egg of the Kangaroo Island Emu in existence. It has been described by Mason (1936), who remarked that in general form and shape it resembles that of the mainland bird, but in texture is very finely granulated, the granules being "in far less relief and closer than in the common species." It will be recalled, however, that there is a lot of variation in texture and size in eggs of the mainland bird; it would also seem that by abrasion, etc., the eggs become smoother and darker with advancing incubation.

The ancient native camp-site is situated approximately 200 yards inland from the cliffs of the South Coast and four miles east of Pennington Bay. Erosion, originating with the clearing of the surrounding scrub about 50 years ago, is already considerable and still extending, and the sand, driven inland by strong southerly winds, has already overwhelmed, in its travel, numerous bushes of *Olearia axillaris* and other vegetation, leaving an extensive denuded sandy

area, comprising an irregular series of small depressions and ridges, partly drifting and partly consolidated. These surfaces were examined during the course of several visits and over 70 small fragments of Emu egg-shell were collected in association with at least eight species of molluscan shells, including the Port Lincoln Oyster (*Ostrea sinuata*). Of these species, *Nerita (Melanerita) melanotragus* and *Austrocochlea concamerata* had been crushed in order to remove the animal content more readily. This procedure is similar to that observed on mainland coastal sites. Living specimens of all the shells found may be collected either in Pelican Lagoon or on the South Coast, which at this locality are separated by an isthmus about a mile in width.

All these food remains were scattered thickly on mounds showing traces of fire, together with considerable quantities of quartz flakes and also burnt hearthstones. In close proximity were hammerstones and stone implements, the latter mostly comprising characteristic examples of the Kangaroo Island large hand-chopper, which is almost invariably derived from a water-worn quartzite pebble. (Fig. 1.) This implement was first described by Tindale and Macgraith (1931) and later in its various forms by Cooper (1937). The skull of a Rat Kangaroo (*Potorous morgani*) named by Finlayson (1938) was also found amongst these food remains.

Regarding the former peoples of Kangaroo Island, nothing is yet known apart from stone implements, the Island being uninhabited at the time of Flinders' visit in 1802. Howchin (1903) appears to have been the first to record some hammerstones from the Island, and since that time the incidence of numerous stone implements, more especially at the eastern end of the Island perhaps indicates the existence of a considerable previous population. The occurrence of extensive camp-sites around inland lagoons and swamps and along creeks seems to suggest a permanent occupation

rather than one denoting temporary expeditions planned by visiting tribes, more especially since the large pebble chopper so typical of the Island is not found on adjacent mainland camp-sites.

According to legends handed down by certain tribes, Kangaroo Island was a place of "taboos" to them and the home of ghosts and the spirits of their forefathers, but it is not known whether such beliefs had any bearing on the avoidance by them of the Island either formerly or during a more recent period.

It is difficult to offer any sound explanation regarding the disappearance of the native population from a locality now favored with an admirable climate and abundance of fish, animal, and bird life.

Geologically, Kangaroo Island is composed of the same ancient rocks as occur in the Mount Lofty Horst, and of which it is regarded as structurally a part. There is much evidence to show that the continental land mass extended much further south at several periods in geological time, and there is little doubt that Kangaroo Island was then incorporated in such an extended land mass. It is not clear, however, when the Island was last connected to the mainland, although this occurred almost certainly in early Recent times. The most likely land-bridge was across the narrow Backstairs Passage (9 miles), but soundings to the south and east of Kangaroo Island suggest that this geologically unstable region may also have provided a connection where now the sea prevails.

That a high degree of endemism may be brought about by isolation in oceanic islands is well-known, and this prevails on Kangaroo Island. Not only is this very evident in the case of the flora (Wood, 1930), but also amongst the mammals, birds, reptiles and other forms of animal life. Foremost example amongst the birds is the Island Emu, which was exterminated probably by bush-fires between the years 1803 and 1836—(Morgan and Sutton, 1928.) From a re-examination of skeletal material in the South Australian Museum, it would appear that this bird was a relatively long-legged form; the head was also relatively slightly smaller than in the mainland bird. Other osteological features such as the domed cranium have already been noted by Morgan and

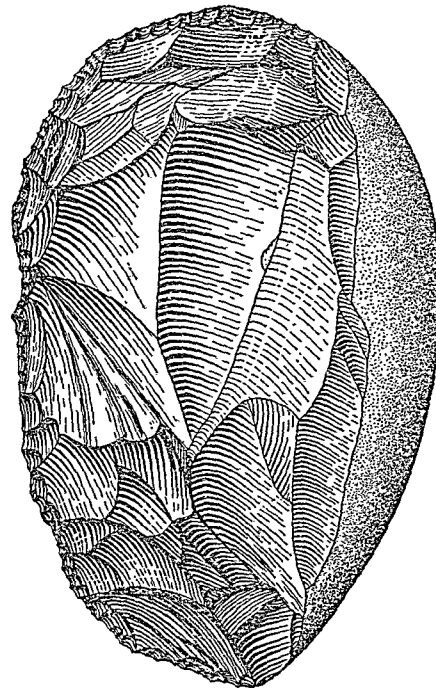


Fig 1.—*Typical Kangaroo Island Pebble Implement. Weight 47 ounces. Approx. X 2.*

Sutton. Pictures by Rothschild, Milne-Edwards and Oustalet purporting to show the bird as it was in life have certain anatomical defects, and for all its shortcomings we much prefer the illustration by Vieillot.

The question of the origin of the Kangaroo Island Emu cannot be considered in detail in the present paper, but the remarks of Morgan and Sutton (1928) may be recalled. They say . . . "there is no characteristic by means of which the Kangaroo Island Emu can be distinguished from the King Island Emu . . . The close resemblance between these two small Emus on such widely separated islands (430 miles apart) suggests to us that it was the original Australian Emu, the form of which has been preserved by isolation." We are thus presented with two alternatives. We may regard the Island Emu as an old endemic or relic of a previous fauna which found refuge, perhaps during the last great arid cycle of Recent times (perhaps 5,000 years ago, according to Crocker (1941) and others), not only in Kangaroo Island but also in King Island. On this assumption it would not have been impossible for a small population of the mainland bird to

have been an early contemporary with the dwarf form on the Island. The egg fragments referred to herein suggest that this may have been so.

On the other hand, if we regard the Kangaroo Island Emu as a young species or young endemic, it follows that the species must have evolved within the last 5-10,000 years, a possibility not to be overlooked in the case of a small, interbreeding population which is geographically isolated. The fact that it was totally exterminated after white settlement in a matter of 33 years indicates that the total Emu population at this time could not have been very large.

Flinders in 1802 found that all the animals on the island were singularly unafraid of humans, which suggests that it must have been a considerable time since any native population dwelt on the island. On the other hand we have evidence which shows that at one time an Emu living on the island was hunted by humans, and it is remarkable that it was not exterminated by this agency as in the case of the New Zealand Moas. It is well known that the mainland natives had little difficulty in capturing the common Emu, and often resorted to simple methods whereby the inherent curiosity of the birds contributed to their downfall.

Thus while at present it is impossible to determine the exact age of the egg shell fragments, food remains and stone implements, it is apparent that the remains are of considerable (historic) age. With the exception of a few implements which may be found in exposed rocky situations, the remainder are hidden until exposed by erosion or ploughing. The large pebble chopper, which has not been found on nearby mainland sites, may represent an early culture which persisted long after communication with the mainland ceased, or when access by way of a land bridge was cut off. The tribes inhabiting the lower Murray River and the Lakes are known to have used frail bark canoes, and although early vocabularies of the Adelaide and Yorke Peninsula natives contained words for canoe, it is not clear whether this was a result of the early European occupation or not. However, any communication using such means by way of Investigator Straits (25 miles) or Backstairs Passage (9 miles) would have been both hazardous and irregular. The

discovery of a small deposit of microlithic stone implements, similar to mainland types, on the cliffs near Cape Cassini on the north coast of the Island by one of us might possibly suggest in this instance a planned expedition or one caused by force of circumstances such as being blown out to sea by an off-shore wind.

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