

# Much ado about very little: bat (*Miniopterus schreibersii*) guano mining at Naracoorte, South Australia

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## ABSTRACT

The mining of bat guano for agricultural purposes has occurred throughout Australia, and as a small localized industry has often been subject to considerable conflict. The history of this mining at Naracoorte, South Australia is outlined and demonstrates continuing conflict both within the local community and with the more distant state government. There are insufficient data to understand the impact of mining upon the bat population.

## INTRODUCTION

In Australia, the mining of bat guano has always been a very small and localized industry. It has occurred at Ashford, Molong, Wee Jasper, Wellington, Willi Willi and Yessabah in New South Wales, Lake Gilliear near Warrnambool and perhaps some other sites (McIvor 1887) in Victoria, Mt Etna near Rockhampton in Queensland, Naracoorte together with a multitude of sites in the Flinders Ranges in South Australia and the Jurien Bay area of Western Australia (Bridge *et al.* 1975).

One of the larger operations was at Mt Etna in Queensland, where mining had commenced by 1892 (Rands 1892) and continued at various sites and under various leasehold or other land tenure arrangements until the beginning of World War Two. Mt Etna Fertilisers Ltd, established by P. H. Ebbott in 1916, and operating under a variety of names and organizational structures, was probably the largest of the enterprises operating in this area (Mt Etna Fertilisers Ltd 1924). They owned the mining operation and a major mill at Mt Etna, a slaughter yard and a major fertiliser works at Murrarie near Brisbane, processing both guano and a wide range of animal by-products, and a number of small phosphate mines near Molong in New South Wales. However, it is clear that there was also a number of smaller enterprises in the Mt Etna region, and considerable conflict over land claims and the right to mine.

Similarly, in the Flinders Ranges of South Australia, there was a number of small or medium scale operations. These included Burr Well (Winton 1920), Arcoota (Winton 1922), Buckalowic (Winton 1922), Wooltana (Winton 1924), Blinman (*Adelaide Advertiser*, 21 June 1922, 5 August 1922), Oraparinna (Segnit 1933a), Good Friday Cave (Segnit 1933b) and Mt Sims. Of these, only that at

Wooltana spawned a significant and long-lasting company, while there is some ambiguity about the status of other operations. Wooltana is also well-known as the site from which Wood Jones (1925: 440–444) described mummified specimens of the Ghost Bat, *Macroderma gigas*. What is not so well known is that these desiccated bats were so numerous as to adversely effect the quality of the guano. This problem was resolved by the miners sieving the extracted material in order to separate out the bats and these were bagged separately (*Adelaide Register*, 21 March 1920).

Many of these mining operations were subject to rivalry and even conflict. I have been able to most fully document this in relation to Naracoorte, and as this conflict reflects wider issues, it is worthy of examination. At Naracoorte, much of the problem revolved around the extent to which local resident interests and sense of ownership in the resources of their own district were infringed by the actions of relatively remote government agencies. However, this was compounded by local rivalries and contests. Naracoorte is in South Australia, near the Victorian border, about 350 km from Adelaide and 500 km from Melbourne. Until 1924, the town name was spelled "Narracoorte" and where appropriate, I will use that spelling here.

## FIRST CLAIMS AT NARRACOORTE

The presence of the guano had probably been recognized soon after the discovery of the caves in about 1845, and doubtless some residents had taken out small amounts for their own use. Most early descriptions of the caves do not specifically refer to the Bat Cave, and so the first published description appears to be that of Ebenezer Ward (1869). On Ward's visit in March 1868, the licensee of the Commercial Hotel was already

conducting regular tours, having "had a waggonette built expressly for picnics to the caves". The Bat Cave was one of those shown to visitors and Ward described the guano deposits as being "knee-deep".

The first documented claim arose on 23 September 1867, when one Caleb Fidler, who was a partner in Fidler and Webb's stores in both Mount Gambier and Narracoorte and a member of the Southeast Roads Board, wrote to the Commissioner of Crown Lands seeking permission to remove the guano for "garden purposes". The Surveyor General, G. W. Goyder, recommended that the request be refused on the basis that "... it would not be provident to allow the deposit to be recovered except under supervision, and it would not pay to employ an officer for that purpose" (South Australian State Archives, GRG 5/1/1867/1082).

A further request on 13 March 1868 from Joseph Horwood, who was an Adelaide resident, argued: "... in one of them, known as the Bat Cave, I observed a large accumulation of bird [sic] manure when it occurred to me that the same might be utilized for agricultural purposes. I accordingly obtained a sample which I have since had analysed. The result is such as to make me desirous of practically testing its properties, and for this purpose, I am anxious to obtain a lease of the cave containing the deposit, with the privilege of removing the material as required" (GRG 35/1/1868/225).

This too was refused, but on 11 November 1869, Thomas Hinckley, the first selector in the region, wrote also seeking permission, and pointing out that the Bat Cave was not usually visited, but again was refused permission (GRG 35/2/1869/887). On 8 August 1870, he wrote once more: "As I am desirous of trying the effect of the bat dung in the caves I would be much obliged if you would grant me permission to take some for that purpose to be used on my farm. It will be necessary to make a small hole in the top of the cave of sufficient size to hoist a bag up" (GRG 35/2/1870/1672).

#### THE LICENSING PERIOD

Although Hinckley was again refused permission, some phrases in the letter suggests that it may have followed discussions with an officer, and its timing further suggests that it may have been related to planning for the promulgation of the 1871 regulations providing for the extraction of "stone, salt and manure" (*South Australian Government Gazette*, 16 February 1871, p. 230–31). These regulations provided for licensing and the payment of licence fees as well as demanding the licensing of drays used to

remove materials. A further notice in the *Gazette* (9 March 1871, p. 363) authorized the clerk of the local court at Narracoorte, amongst others, to issue licences. It has not been possible to trace any record of those authorised to take guano at this stage, but one was Hinckley. It is not clear whether he did or did not "make a hole in the top of the cave", but in view of later developments it seems likely that he did not do so. Dow (1874: 47–48) reported on Hinckley's success as a farmer, businessman, chairman of the district Council and a political activist. He noted that part of his agricultural success was due to his use of guano, and in particular, noted that his success had aroused an angry reaction from the squatters of the region, probably most particularly from Robertson, who had formerly controlled the land selected by Hinckley.

The next event in this story came when H. L. Sprigg, of Hynam, wrote to the *Narracoorte Herald* (14 December 1875) to complain that the Crown Lands Ranger, Mr Singleton, had seized the manure which had legitimately been raised from the caves. No further details have been found of the basis for this episode, but it indicates some conflict. Perhaps Robertson or other squatters, as men of considerable power and influence, had influenced Singleton, as a new appointee, to obstruct Hinckley's efforts. However, the seizure may also have related to the proclamation of the Cave Range Forest Reserve of 5 345 acres on 15 October 1875. This included the Caves, together with an extensive area of future plantation land.

The Narracoorte correspondent of the *Border Watch* (8 January 1876) commented: "The sale of guano raised out of the caves by private persons, as announced by order of the Government, is attracting considerable attention here at present. A leader in our local journal has been greatly admired for being so outspoken on the subject. It seems that four or five years ago, the Government issued licences to enable anyone wishing to do so to raise the guano out of the caves. Suddenly, however, the Crown Lands Ranger put the broad arrow on it, thus depriving some poor men of the value of many months work."

An editorial note (*Narracoorte Herald*, 1 February 1876), cited a translation from the *Australische Zeitung* (25 January 1876) of Adelaide, which reported upon the richness of the guano saying, "We were surprised at the richness of the manure; in many respects it is the best we have ever seen". The report then expresses concern that the Government "... does not allow the farmers to obtain the manure at a reasonable rate." Shortly

afterwards, the *Herald* (15 February 1876) quoted a more picturesque report by one Frank Skeffington: "The government, after having licensed a number of men to dig the guano, and allowing them to collect a few tons together, came down upon them like a Brahman kite on a dead Malay, and confiscated the lot."

An advertisement (*Narracoorte Herald*, 28 December 1875) noted that 300 tons of guano were to be auctioned, but it is not clear whether this was the seized material or some other. The strength of local concern over this matter is also indicated by the fact that when the Minister for Education visited the town to discuss schooling, a group of citizens waited upon him to convey their concern about the problem of guano mining and to seek his intercession with his colleagues (*Narracoorte Herald*, 29 February 1876).

There is also extensive correspondence in the archives with one Mrs Ann Renfrey seeking compensation for the taking of that part of the guano which was her property, but the papers are incomplete and although the Surveyor-General had been sympathetic to her request, the outcome of her request is not known.

#### THE FOREST BOARD

The Forest Board took control of the caves in 1876, and on 19 October 1876, called for tenders "... for the purchase of the whole of the guano in the Caves on the Cave Range Forest Reserve, Hundred of Joanna. Tenders must state expressly the sum offered for each ton of guano. Guano may be removed in lots to suit purchasers, but no lot is to be removed without a certificate of an officer appointed by the Board that the guano has been weighed and paid for. The raising and removing of the guano is to be entirely at the expense of the successful tenderer." (*Government Gazette*, 19 October 1876, p. 2168).

H. L. Sprigg, a highly regarded pastoralist from nearby Hynam, was then awarded a two-year lease as from 1 January 1877 at the rate of 14/6 (fourteen shillings and six pence) per ton (*Narracoorte Herald*, 13 February 1877, p. 2). Sprigg advertised for tenders for undertaking the work of removing 500 or more tons. He then, with other farmers, formed the Blanche Caves Guano Company (apparently a business name and not a corporation), and on 3 April, it was reported that they had raised 4 000 bags (between 350 and 400 tons) in three weeks of work, and 40 tons had already been forwarded to Port Adelaide for sale. (Editor's note: 12 pence = 1 shilling; 20 shillings = 1 pound (£) = \$2.00.)

However, it appears that the fortunes of the company were subject to continuing change as the Forest Board reported the following income from the sale of guano:

1877	£127/9/1
1878	£25/0/3
1879	£23/9/10
1880	£45/5/2

There is an unexplained discrepancy between the claim of 3 April that some 350 tons had been taken, and the actual royalty paid to the Forest Board.

Sprigg advertised the sale of guano in the *Narracoorte Herald* throughout February and early March of 1878, naming E. R. Peake as the company's *Narracoorte Agent*. Then Peake advertised (using the word "Urgent") through March to July, but advertising then ceased and a statement appears in the *Narracoorte Herald* of 18 February 1879 that "... there has been none [guano] removed for some time back, as the contractors find it not be a remunerative undertaking."

The Forest Board was abolished in 1882, and control of Forest operations transferred to the new Woods and Forests Department. The Department then devolved responsibility for the guano to the Narracoorte District Council and it was agreed that the Council would pay a royalty of five shillings a ton to the Crown Lands Office (Minutes Narracoorte District Council 13.3.83, 25.4.83). The Council then accepted a tender from H. C. Smith Jr to raise the guano at 6/9 per ton, appointed one Thomas Stuart as "caretaker", evidently to control sales, and fixed a price of thirty shillings per ton at the cave mouth (Minutes, 2.5.83). There is no record of the total amount raised, but it was later agreed that the royalty and any profit should be spent on improvement of the road to the caves, and in June 1883, a total of £235/19/9 was expended on road improvement (Minutes, 30.5.83, 27.6.83).

The major contractor was H. C. Smith Sr. Other payments included £17/13/4 to Stuart and £31/4/0 to H. C. Smith Jr (Minutes 11.7.83, 5.9.83, 3.10.83). Later in the year, it was found necessary to offer the guano which had been raised for sale by tender (Minutes, 3.10.83), and this being unsuccessful, the council resorted to an auction (Minutes 17.10.83) and finally, further sales were then offered at the reduced price of £1 per ton at the caves or £1/15/0 at the railway station (Minutes 14.11.83). This was followed by disputes about the costs of raising the guano and discrepancies in the weight of material sold (Minutes 4.12.83, 12.12.83,

9.1.84), and in March 1884 by a further auction (Minutes 7.3.84). Finally, in August of that year, the Council wrote to the Commissioner of Crown Lands again urging the appointment of a caretaker for the caves (Minutes 28.5.84), and no further action was taken by the Council in relation to the guano deposits.

On 3 February 1885, E. R. Peake advertised about 20 tons of cave guano in lots to suit buyers at a price of fifty shillings per ton of 11 bags (*Narracoorte Herald*, 3 February 1885), and this appears to have been the last of the guano raised by the Council in 1884. Following this, a lease for the purpose of extracting guano from the caves was issued by the Woods and Forests Department to H. L. Sprigg for a two-year period commencing 1 January 1887 (*Annual Progress Report of the Conservator of Forests, Parliamentary Paper 83* of 1879).

When William Reddan was appointed as caretaker in 1887, he was required to take responsibility for collecting payments due for any guano taken from the caves, but at least some local residents resisted Reddan's control by entering the caves at night and "poaching". On becoming aware of this, Reddan sat up one night to keep watch at the caves, and on seeing a wagon arrive, watched while the men with it collected, bagged, carried out of the caves and lifted onto the wagon a full load of guano. He then followed them to their farm before confronting them, and insisted that they not only return to the caves, but carry every one of the sacks back into the caves and empty them. Apparently the extent of "poaching" diminished abruptly. (A. Needham, pers. comm., 1956)

The Annual Reports of the Woods and Forests Department showed the following amounts as having been raised from the sale of guano:

1887	£68/8/0
1888	£87/14/2
1889	£229/18/0
1890	£341/8/2
1892	£800/4/6
1893	£788/1/3
1894	£78/3/3
1895	£183/9/0
1896	£213/2/4
1897	£5/16/0

The reports argued that the dramatic increase in sales during 1892–1893 was due to the publicity of a very favourable chemical analysis (*Border Watch*, 24 October 1888). This boost in sales was certainly furthered by

Reddan's strict on-site management and also by the proactive marketing of Holloway Bros who had apparently secured the rights to the guano. Their 1888 advertisements read "Holloway Bros., having sunk a shaft into the celebrated Bat Cave, are now prepared to supply the valuable deposit of guano therefrom to the farmers and gardeners of Mount Gambier and its vicinity". The price was quoted at £4 per ton at the cave or £4/10/0 delivered (*Border Watch*, 24 October 1888).

By 1893, fears were being expressed that the supply of guano might be exhausted. The parliament of the day determined that a grant should be made to enable a search for further caves in the region. No further significant guano deposits were found, and in due course, the mining came to an end, probably more because of declining demand and profitability than any shortage of guano, although Reddan's attention to the newly discovered Victoria Cave (in 1896) may also have played a part in the decline.

#### WHAT OF THE BATS?

Strangely, the bats (*Miniopterus schreibersii*) themselves are ignored in virtually all of the numerous accounts by visitors to the caves. Even the species present was not identified until reported in a paper by Leche (1884). Given the scale of the population and the spectacular exit flight during summer, this is quite remarkable.

The level of mining activity over a protracted period must have occasioned considerable disturbance to the bat population, yet the bats survived this. In fact, the "high-water mark" on the cave walls indicates that, at the time mining commenced, the bat cave would have been almost closed by the accumulation of guano, and so mining has probably served to further the long-run survival of the species at Naracoorte. A shaft can be seen in the roof of the major roosting chamber of the Bat Cave, and it is clear that this was dug, probably in 1888, in order to facilitate the extraction of guano. A small galvanised iron shed, which probably housed winding gear was erected adjacent to the shaft, reputedly by Reddan, then it was filled and closed at some stage, but collapsed in the early 1920's and was reblocked by caretakers Carthy and Leitch (Mrs C. Fogarty, pers. comm., 1987).

The lack of any recognition of the bats in contemporary accounts means that we have absolutely no consistent evidence of the ways in which the mining impacted upon the population. Mining had continued, with

some interruptions, from 1871 until 1897. Then the shaft, which would have destroyed the integrity of the maternity site, was apparently sunk in 1888, and remained open until at least the cessation of mining in 1897. It is certainly possible that the bats abandoned the main Bat Cave and moved to another of the several sites in the region which might have served the population as an alternative maternity site. Cornelius Proud, who visited the caves in about August 1880, reported that no bats were present, but this may simply have been due to the annual movement pattern of the species. If they did abandon the site, they must then have returned soon after the cessation of mining as they were certainly in residence in the Bat Cave during the earlier years of the present century (A. Needham, pers. comm., 1956)

However, as social history, the story provides a small window on the struggle between central and local interests and the contest between various local interests. The people of Narracoorte obviously felt a sense of ownership over the caves and their contents, and argued at length with the State Government over the responsibility for the caves and the way in which this might best be exercised. Singleton's seizure of guano appears to demonstrate a lack of communication and understanding between the government of the day and the Narracoorte community. This seems to have been echoed in respect to cave management and guano mining at various locations, particularly in the late 19th and early 20th centuries.

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