much information hitherto unpublished, mainly from Gould related correspondence. In the Royal College of Surgeons of England are letters from Dr. George Bennett of Sydney to Professor Richard Owens of London. (Photocopies were kindly supplied to me by E.H. Cornelius, Librarian).

A letter from Bennett to Owens dated 26 September 1837 is of interest with regard to Gould's "Synopsis" Part I being received by Dr. Bennett in Sydney. The pertinent extract follows: "My Dear Owen, ... Thanks to Gould for the *1st* Part of the Birds of Australia; there is an error however in the colouring of *Tropidorhynchus corniculatus*, the head & cheeks are not of a blue, but of a black color, it is known in the colony by the name of "Bald-headed Friar" & is common in all parts of Australia. I sent you specimens in spirit shot in the Botanic Garden at Sydney ... Gould's work is much admired, both King & M'Leay are much pleased with it. I consider some copies would sell here ... yours ever sincerely, George Bennett".

There is no further information in the letter when Gould's Part I was received. Since Dr. Bennett had already shown his copy to King (Phillip Parker King) and to M'Leay (undoubtedly Alexander Macleay), Bennett must have had it in his possession at least a few days or weeks earlier than September 26, 1987. The trivial point at least is that yes, Gould's first illustrated work on Australian birds did precede him to Australia, sometime before September 26, 1837. The naturalists on the *Beagle* also had a copy, or copies, of the "Synopsis" Part I & II when they arrived in Australia in December 1837.

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23 February 1982.

SUGGESTED NESTING ASSOCIATION BETWEEN LEADEN FLYCATCHERS AND NOISY FRIARBIRDS.

It has been noticed at Moruya, NSW, (Marchant 1979), Canberra (Lenz 1981; Anon 1981) and Armidale, NSW, (H.A.Ford *in litt.*) that Leaden Flycatchers *Myiagra rubecula*, when nesting, seem to associate with Noisy Friarbirds *Philemon corniculatus*. During the breeding season of 1981–2, when both species were more common than in the previous six years, I tried to investigate this matter in about 1 km² of forest and woodland along Maulbrooks Road, Moruya. Part of the area is not suitable breeding habitat for either species, as shown in Figure 1, because it has been cleared or damaged to the extent that there are few large trees with horizontal branches, spreading into small open spaces, or suppressed saplings of the right size, both of which Friarbirds seem to like for nesting, or large trees with the small dead branches chosen as nesting sites by the Flycatchers. Most of the rest of the area proved suitable for the nesting of both species in previous years.

All nests that I found in 1981 were inaccessible except one of each species and therefore results are less satisfactory than if I had been able to inspect the contents of each regularly and measure distances accurately. Yet, by watching the behaviour of adults at the nests I probably got a reasonable notion of the history of each. Distances measured on the ground were probably reliable to about a metre but vertical distances were certainly poorer approximations. None of the birds was individually marked so that I could not be sure that the same pair nested again after losing a nest or indeed whether a pair moved from one place to another. In all,

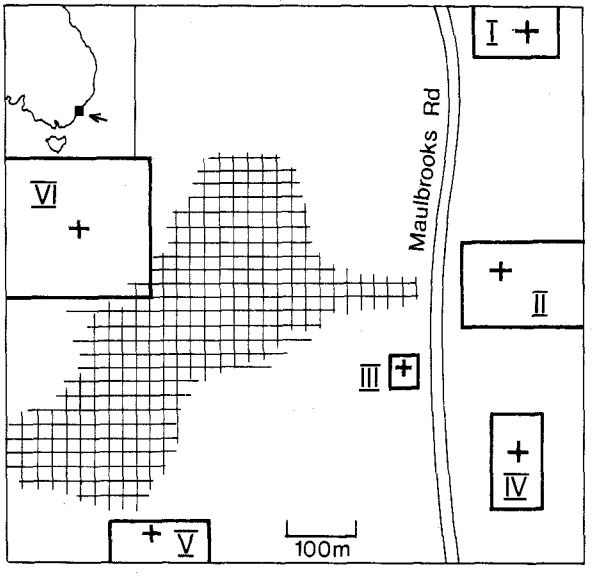

Figure 1. Sketch map of area at Maulbrooks Road, Moruya, showing approximate area of unsuitable habitat for Leaden Flycatchers and Noisy Friarbirds (cross-hatched) and localities (I–VI) where these species bred.

I found eight occupied nests of Noisy Friarbirds and three others that had been lost or finished, probably attributable to eight pairs of birds. I knew fifteen nests of Leaden Flycatchers, perhaps attributable to nine pairs.

I probably did not find all nests of each species in the area but do not think that I missed more than one or two of each. Figure 2 shows details of distribution of the nests and Figure 3 charts the history of most as an aid to understand what happened.

First, it may be noted that the nests of the Friarbirds were fairly widely and evenly distributed. The nearest nests (A–B, Fig. 2) were 66 m apart; otherwise the distances were 168 (C–E), 178 (D–E, G–H), 260 (C–D) and 380 (D–F, F–G). In contrast, nests of Leaden Flycatchers tended to be in clusters (Groups I, II and VI) or widely scattered. The least distance between any pair or group of pairs was about 200 m (Groups II-III, III-IV); other distances ranged from 350 to 700 m.

Next, Nests 5-8 and Nest 15 of the Leaden Flycatchers had no connexion with nests of Noisy Friarbirds because Nest C of the Friarbirds was finished before any of the Flycatchers' Nests 5–8 were started and was in any case more than 100 m from the nearest and because Nest 15 was started after the neighbouring nests (G or

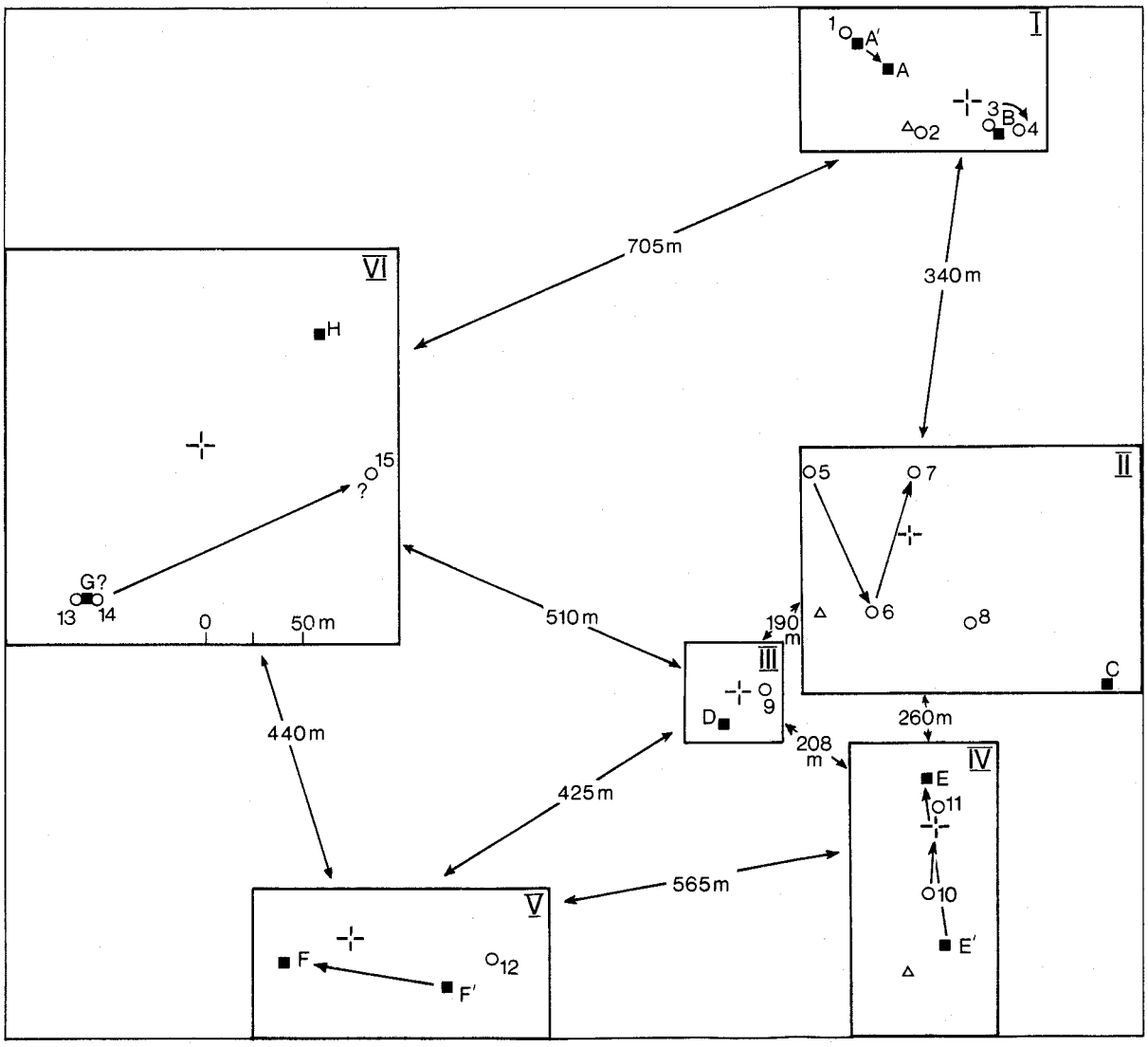

Figure 2. Detailed distribution of nests of Noisy Friarbirds (solid squares), Olive-backed Orioles (triangles) and Leaden Flycatchers (circles) in six groups (Fig. 1). Arrows indicate nests possibly made by the same pair. Scale for each rectangular area shown in that for Group VI. Crosses are reference points to relate to Figure 1.

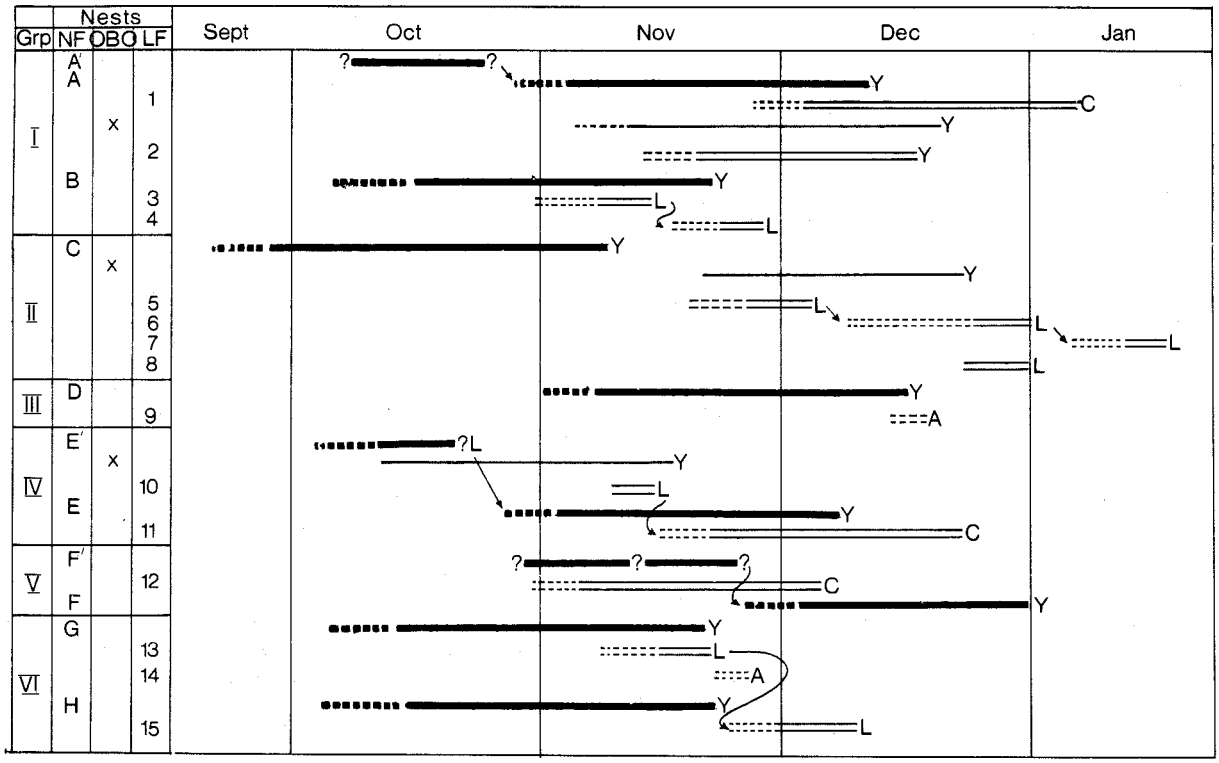

Figure 3. Chart of nests of Noisy Friarbirds, Olive-backed Orioles and Leaden Flycatchers, to show when they were occupied and their results. Broken lines = period of building; solid lines = laying, incubation and nestling periods. Results shown as: Y = young fledged; C = young Cuckoo fledged; L = lost before completion; A = abandoned, probably before laying. Arrows indicate possible second nests by same pair.

H) of Friarbirds were finished. For the rest, it is hard to decide what constitutes proximity. Flycatchers' Nests 3, 4, 11, 13 and 14 were 6.5, 11, 15, 10 and 7 m directly distant from a Friarbird's; Nests 1, 2, 9, 10 and 12 were 31, 38, 28, 28 and 27 m distant but Nests 10 and 12 were measured thus from Friarbirds' nests that were not occupied when I found them. Nest 1 was even nearer (11.5 m) to another unoccupied Friarbird's nest, which, however, had probably been lost or finished at least three weeks before the Flycatchers began to build. Because in previous years I had found nests of both species throughout the forest east of Maulbrooks Road and have noted both species throughout the rest of the woodland west of the road, I assume that the whole area of suitable habitat could have had nests of both species and am inclined to think that the sort of clustering noted in 1981 suggests some sort of association, even up to distances of 40 m between the nests of Flycatchers and Friarbirds.

The following observations support this idea. Flycatchers' Nests 3 and 4 may be reasonably attributed to the same pair and both were decidedly close to Friarbird's Nest B while it was still occupied. Nest 9 was started not far from Nest D just before its young fledged but was abandoned probably before laying and soon after the young Friarbirds fledged. Nests 10 and 11 quite probably belonged to the same pair because I saw the adults taking material from Nest 10 for Nest 11; if so and if Nests E and E' belonged to the same pair of Friarbirds, as is likely, it seems that the Flycatchers followed the Friarbirds when replacing their nest. Nests 13 and 14 were not only very close to Nest G but to one another (12 m), the pair that started Nest 14 arriving and starting to build only about the day that the young Friarbirds fledged about a week after the pair of Nest 13 had started to incubate; Nest 13 was abandoned for unknown reasons at that time; Nest 14 probably never received eggs (cf. Nest 9) and the pair soon disappeared; one of these pairs, probably that of Nest 13, is likely to have then built Nest 15, not associated with Friarbirds.

Nests 9 and 14 (perhaps even 13) were particularly interesting because both were abandoned during building or soon after they had been built, when the nearby young Friarbirds fledged. The most likely explanation

of a nesting association between the two species is that the Flycatchers seek protection from the Friarbirds and thus an obvious experiment to test this would be to remove the nests of Friarbirds during suspected associations. The course of events with Nests 9 and 14 perhaps achieved this naturally. Though Friarbirds are undoubtedly aggressive, I have almost no evidence that they drive away predators, probably because day-time predators seems uncommon where I make observations. However, during a watch from 05:30 to noon a pair that was feeding almost fledged young persistently and noisily mobbed a Southern Boobook *Ninox novaeseelandiae*, roosting nearby among the leafy twigs of a eucalyptus.

Nevertheless, it cannot be suggested that the two pairs of Flycatchers that made Nests 5–8 were influenced at all by Friarbirds but all these nests were started after about 20 November, by which time the Friarbirds had mostly finished breeding.

This raises the question whether 1981 was an unusual year for breeding. In the previous six years I have not known Friarbirds' nests started before 1 November. In 1981 Nests A, B, C, G, H, by inference A' and E' and possibly F' were started between 21 September and 20 October, two to six weeks earlier than in other years. Indeed, Nest C was being built before I recorded the first Leaden Flycatcher of the season. This meant that, when the Flycatchers began their nests as usual in the first two weeks of November, the first nests of Friarbirds, if they had survived so long, were well advanced with young and were completed fairly soon (e.g. Nest D v. Nest 9; Nest G v. Nest 14). Perhaps the Flycatchers lose interest in their nests if they are not advanced enough by the time the young Friarbirds fledge.

Breeding success is another point to be considered that might throw light on the matter because, if there is a deliberate association on the part of the Flycatchers, which seem to be the partners that seek it, nests near those of Friarbirds might be more successful than others. Unfortunately data are few. Leaving aside the two nests of 1981 that probably never received eggs, from 1975 to 1981 I found twenty-three nests of the Flycatchers, fourteen associated with those of Friarbirds (< 40 m) and nine unassociated; I knew or was reasonably sure of the outcome of them all, though I cannot say why any of them failed. Three of these were parasitized by Brush Cuckoos *Cuculus variolosus* successfully and a fourth was also parasitized, probably successfully; all four were associated with Friarbirds' nests and for present purposes can be regarded as successful nests. Eight (60%) of the associated nests produced flying young and six failed; all nine unassociated nests failed (significant at the 95% level, $\chi^2 = 7.88$). In total, from the point of view of the Flycatchers, i.e. without the four successfully parasitized nests, rate of success was low (17%). This contrasts with a rate of about 72% for the twenty-two nests of Friarbirds that I have known in the same period (16 successes out of 22).

Possibly another connexion may occur, between Leaden Flycatchers and Olive-backed Orioles *Oriolus sagittatus*. This last species has some similarity to Friarbirds in size, nest, nesting site and aggressive behaviour. Orioles were particularly aggressive after their young had hatched, swooping determinedly at me whenever I passed by or inspected their nests. The Flycatchers reacted in the same way to Friarbirds and Orioles, swooping at them repeatedly with scolding alarm calls and trying to drive them from their perches. From Figure 2 it can be seen that Flycatchers' Nests 2, 6 and even 10 were near those of Orioles (21.5, 25 and 40 m respectively). However, I was less sure that I found most Orioles' nests in the area in 1981 than I was that I did so with Flycatchers and Friarbirds, suspecting Orioles' nests near Nests 13 and 14 (Group VI), in or near Group V and between Groups I and II. This still leaves Flycatchers' nests 5, 7, 8 and 15 unassociated with either species. Clearly this matter needs more study.

To conclude, it seems that Leaden Flycatchers may associate with Noisy Friarbirds when nesting, specially for their first nests in a season, and that the Flycatchers may benefit from the association. However, the matter needs much more study over several years and in different places before such as association can be regarded as widespread, regular or close.

I am grateful to Dr H.A. Ford and Prof. J.M. Diamond for criticism and suggestions for improving the original draft and to Mr F. Knight for drawing the figures.

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11 February 1982