

BIOLOGY

Population Growth and Blood Groups

THE population explosion throughout the world is an important problem for governments and a topic much debated among demographers and economists. Any hint about the natural factors which might exercise control over population growth would seem to be worthy of further investigation by experts. The ranges of fertility in different communities vary and the variation would seem to be heritable. Mourant¹ states that "blood group studies are probably at present more valuable as a source of genetical information about human populations than studies of all other factors combined, and blood groups will surely remain for many years more important than any other class of factors".

Sperm counts in millions/ml.	Blood groups				Total
	O	A	B	AB	
> 40	57 48%	50 41%	10 8.3%	3 2.5%	120
20-40	13 53%	9 37.5%	2 8.3%	0 0%	24
0-20	10 35.7%	14 50%	3 10.7%	1 3.6%	28
Nil	15 37.5%	19 47.5%	6 15%	0 0%	40
Blood group (donors) distribution this area	50.7%	36.0%	10.3%	3.0%	212

As part of our clinical study of male infertility we record the blood groups of the patients. The results in 212 such subjects are set out in Table 1. The most striking feature is the relative increase of group A and the relative decrease of group O among the azoospermic and oligospermic men. (We use the term azoospermic to mean complete absence of sperms in the samples of semen examined.) Preliminary statistical examination of these data on the basis of the standard error of the difference when compared with the normal distribution for this area of Scotland (shown in the lowest line of Table 1) suggests that the excess of group A is just at the level of significance. The proportion of A and O in our series of patients has not changed appreciably in the present group of 212 compared with our analysis of the first 116 some time ago. In view of this observation, we wonder whether there is any correlation between the frequency of blood group A in a community and its rate of population growth. A superficial examination suggests that there is. For example, in India, which has a rapid growth of population, the frequency of blood group A is of the order of 25 per cent, whereas in Europe with a lower rate of population growth the frequency of blood group A is of the order of 40 per cent.

Perhaps an expert in population studies would like to comment on or pursue this point.

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Received May 23, 1967.

¹ Mourant, A. E., *Symp. Soc. for the Study of Human Biology*, 4, 13 (1961).

Westerly Extent of the Range of Three African Lorisoid Primates

IN 1958 Booth¹ reviewed the zoogeography of West African primates and followed Rosevear² in placing the Cross River as the western boundary to the range of three Central African lorisoids. These were the angwantibo, *Arctocebus calabarensis* (Smith), Allen's bushbaby, *Galago alleni* Waterhouse, and the needle-clawed bushbaby, *Euoticus elegantulus* (Le Conte). Schwarz^{3,4} and Hill⁵ had previously speculated on the Niger as the western

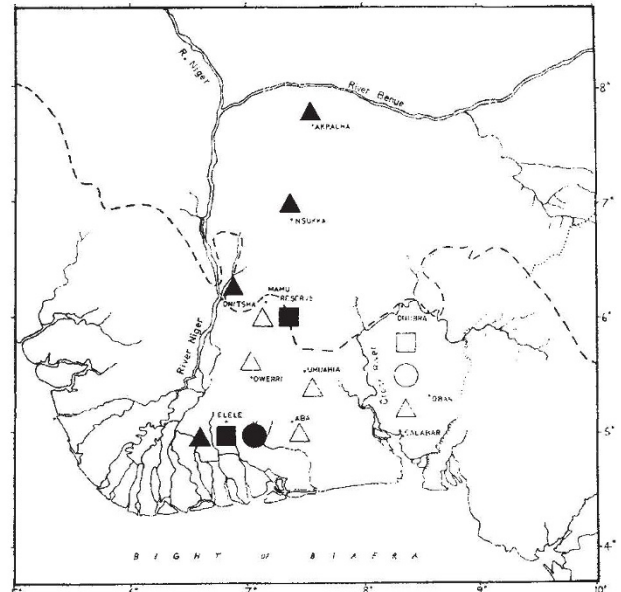


Fig. 1. Map of south-eastern Nigeria, showing new and past records of three lorisoid primates. Δ , Previous Nigerian record of *Arctocebus calabarensis*; \blacktriangle , new locality for *Arctocebus calabarensis*; \square , previous Nigerian record of *Euoticus elegantulus*; \blacksquare , new locality for *Euoticus elegantulus*; \circ , previous Nigerian record of *Galago alleni*; \bullet , new locality for *Galago alleni*. - - - - , Northern boundary of high forest zone, where it meets the Guinea savannah;, western border of Cameroun.

boundary, but Rosevear's knowledge of this particular area has given much weight to the theory of the Cross River as a faunal barrier. Apparently unknown to Booth, however, angwantibos had been recorded before 1958 (refs. 6 and 7) from Owerri, Umuhia and Aba, which lie far to the west of the Cross River, and Rosevear himself⁸ had recorded the animal in a collection brought to him from the Mamu Forest Reserve (see Fig. 1). Through field work in Eastern Nigeria* we have been able to produce new and positive evidence on the distribution of the angwantibo and the bushbabies.

During the course of many night walks with head-torches in Mamu Reserve we have seen eleven angwantibos, two of which were captured and examined. Angwantibos were recorded in field excursions to two other key points, Akpaka Forest Reserve on the left bank of the Niger near Onitsha ($6^{\circ} 11' N.$; $6^{\circ} 47' E.$) and Elele, further south ($5^{\circ} 6' N.$; $6^{\circ} 48' E.$). During three nights in Akpaka Reserve nine individuals were seen, one being captured and examined, and at Elele, close to the most easterly distributaries of the Niger Delta, six angwantibos were seen, two of which were captured and examined.

Nsukka, where the university is situated, has a northerly position ($6^{\circ} 51' N.$; $7^{\circ} 24' E.$) well inside the Guinea Savannah Zone. Here, during the past 8 months, twenty-four live angwantibos have been brought to the zoo by local natives. In a single expedition further north, to the village of Akpacha ($7^{\circ} 41' N.$; $7^{\circ} 34' E.$) in the Igala Division of Northern Nigeria, we made a certain identification of one angwantibo in secondary woodland near the village. This is the most northerly record for the species, and because it is only 23 miles south of the River Benue it seems probable that this large tributary of the Niger forms the northern boundary of the angwantibo's range.

Our records also indicate how abundant the angwantibo is, at least in Eastern Nigeria. The reputation it has of being "very rare"⁹⁻¹¹ is apparently based largely on the accounts of two expeditions to the Cameroons^{12,13}, and certainly is not upheld in our area.

* Note: On May 30, 1967, the former Eastern Region of Nigeria proclaimed itself the Republic of Biafra.