

Table 1. CROSSES BETWEEN REVERTANTS, EITHER YIELDING RECOMBINANTS (+) OR NOT (-)

	8	11	12	1	5	13	14	15	4	6	7	9	10	HaHb	Ha	3	2
8	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	-
11	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	-
12	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	-
1	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+
5	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+
13	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+
14	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+
15	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+
4	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-
6	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-
7	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-
9	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-
10	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-
HaHb	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-
Ha	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-
3	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	+	+	+	+	+	-	-	-	-	-	-	-	-	-

The work is being continued and details will be published later.

DIETRICH PFEIFER

Abteilung für Mikrobiologie,
Botanisches Institut der Universität Köln,
Gyrhofstr. 15, Germany.

- ¹ Tessman, I., *Virology*, 7, 263 (1959).
- ² Tessman, I., *Virology*, 9, 375 (1959).
- ³ Sinsheimer, R. L., *J. Mol. Biol.*, 1, 45 (1959).
- ⁴ Tessman, E., and Tessman, I., *Virology*, 7, 465 (1959).
- ⁵ Zahler, S. A., *J. Bact.*, 75, 310 (1958).
- ⁶ Streisinger, G., *Cold Spring Harbor Symp.*, 21, 103 (1956).
- ⁷ Bresch, C., and Trautner, T., *Z. Vererbbl.*, 87, 590 (1956).
- ⁸ Schuster, H., and Schramm, G., *Z. Naturf.*, 13, b, 697 (1958).
- Mundry, K. W., and Gierer, A., *Z. Vererbbl.*, 89, 614 (1958).

Australian Aborigines and Genetics

PROF. A. A. ABBIE's statements¹ concerning two of my papers^{2,3} on the genetics of the Australian aborigines cannot be allowed to pass unanswered. Prof. Abbie admits that he is not a geneticist, yet he throws doubt on genetical methods of racial study, even suggesting that nearly three months in Australia was insufficient time for me to obtain reliable results. He is unwilling to recognize that anatomy can only make *comparisons* between racial types, while genetical methods of family study in crosses give an *analysis* of racial differences and are thus of far greater significance. His thesis appears to be that the aboriginal population of the whole continent is a unit, and that all the evidence which shows the presence of mixed elements must be resisted or denied.

Prof. Abbie makes various comparisons of means and ranges in different local populations, for example, in stature, but he makes the long outmoded assumption that these are mere variations from a mean. He fails to see that measurements are of little value unless there is some understanding of the method of inheritance of the differences involved. Much evidence shows that stature in various races of mankind depends in part on multiple genes which are cumulative in effect, the number of such genes being probably a small one for each racial character. This applies both to stature and hair form.

Those who see the limitations of Prof. Abbie's anatomical methods should advocate the genetical approach to race studies; but unfortunately very few, at present, have the necessary combination of genetical and anthropological knowledge and experience.

As regards the Mongolian (better sacral) spot, one would be surprised to find it in the aborigines in view

of all their other racial characters, which are mainly archaic Caucasoid except the darker skin colour.

Regarding the dwarf element in certain tribes of Queensland, Prof. Abbie does not mention that my conclusions are a confirmation of those of Tindale and Birdsell⁴ that these people are a remnant of a Negritoid type which was pushed down into Tasmania (with a limited amount of crossing with Australian aborigines) when the latter entered Australia from the north and moved south. There are few cases of early racial migration for which the evidence to unprejudiced minds is so unequivocal. Yet Prof. Abbie not only denies it but says that this is "a fair example of ignoring facts to push a hypothesis". He achieves this by referring to the fact, stated by Tindale and Birdsell⁴ as well as myself², that some of the Queensland dwarfs have a yellowish skin colour. He is evidently unaware of the elementary fact that this is simply due to dilute melanin. The situation is similar regarding hair form, where a few multiple genes for curly hair will account for the dispersal of this character as an occasional occurrence through the continent of Australia.

Regarding head form, Prof. Abbie ignores the extensive genetic results of my work from the study of families of mixed descent (Aborigine × White) in three generations, mainly at Alice Springs and Darwin, which breaks new ground and shows the remarkable genetic nearness of these aborigines to the archaic Caucasoids of Europe.

R. RUGGLES GATES

46 Lincoln House,
Basil Street,
London, S.W.3.

- ¹ Abbie, A. A., *Nature*, 187, 375 (1960).
- ² Gates, R. Ruggles, *Acta Genet. Med. et Gemell.*, 9, 7 (1960).
- ³ Gates, R. Ruggles, *Z. Morph. Anthropol.*, 50, 150 (1960).
- ⁴ Tindale, N. B., and Birdsell, J. B., *Rec. S. Aust. Mus.*, 7, 1 (1941).

I WISH to make the following comments on Prof. Ruggles Gates's communication.

I freely admit to being an old-fashioned anatomist employing an archaic methodology; this, however, has the minor advantage of dealing in facts, some of them even measurable.

The close association of Australian aborigines with some basic 'Caucasoid' stock has long been widely accepted. I mentioned our failure to find a 'sacral spot' purely in passing, because some observers had previously claimed that it existed. Whether or not that had any relationship to presumed 'Caucasoid' affinities of the aborigines is beside the point.

I apologize to Prof. Ruggles Gates for any seeming discourtesy over his observation that the Queensland aborigines he examined have a yellowish skin, but I must point out that he laid himself open to adverse comment. He cites "a tendency toward yellowish brown skin colour" as characteristic of "Barrineans". I said that Prof. Ruggles Gates knew that in all aborigines the skin fades to a yellowish colour when protected from direct sunlight; this, of course, will occur in the rain forest of north-east Queensland. I am quite well aware that the yellowish colour is probably due to dilute melanin, as I had indicated in an earlier paragraph. But if any aborigine can fade to a yellowish colour, such colouring cannot be considered ethnically distinctive within Australia.

A. A. ABBIE

University of Adelaide.