lightly with methylene blue, and resembles the large nucleolus of the spermatocyte, is not intimately related to the chromosomes: some cells have two smaller nucleoli. A densely staining structure intimately related to several chromosomes is usually evident. Variations in staining of the paired chromosomes appear to be identical in both strands. Satellites are sometimes seen and appear unrelated to any other structure. A small chromosome frequently lies at the periphery and could be the *Y*. If this peripheral localization is found in mitotic cells the possibility that selective loss of the *Y* chromosome might arise after fixation deserves consideration.

Diverse experimentation with this inexhaustible supply should provide techniques from which population investigations comparable with those conducted on *Drosophila* could be carried out.

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GENETICS

Incidence of Pseudocholinesterase Variants in Australian Aborigines

There are now known to be a number of genetically determined variants of the human serum enzyme pseudocholinesterase[1–5], of which the most frequent in Britain are the 'typical' and 'atypical' variants. Homozygotes for the 'typical' variant amount to about 96 per cent of the population, and heterozygotes to about 4 per cent. 'Atypical' homozygotes are only seen once among several thousands. The different pseudocholinesterase types are recognized by determining the degree of inhibition of the enzyme by dibucaine ('Nupercaine') following the method of Kalow and Genest[1], the percentage inhibition being called the dibucaine number. The other pseudocholinesterase variants are extremely rare and they are also discovered in the first instance by their less than normal inhibition by dibucaine, with one exception, the 'silent' variant[4] which in the homozygote results in complete absence of enzyme activity.

Table 1. Incidence of 'Atypical' Serum Pseudocholinesterase in Australian Aboriginals

Place	No. of sera examined*	No. of heterozygotes found
Yarrabah Mission	34 (39)	–
Coen	10	–
Mitchell River Mission	7	–
Normanton	7	–
Hopevale	5	–
Origin unknown	5	–
Lockhardt River	3 (4)	–
Mornington Island	3	–
Aurukun	2	–
Cooktown	2	–
Edward River	2	–
George	2	–
Herbeton	2	–
Kuranda	2	1
Bloomfield	1	–
Croydon	1	–
Georgetown	1	–
Innisfail	1	–
Laura	1	–
Mapoon	1	–
Marreba	1	–
Mona Mona	1	–
Weipa River	1	–
White Rock	1	–
Wrotham Park	1	–
Yorkeys Knob	1	–

* In parentheses: before correction for first degree relationship.

So far, the incidence of the typical/atypical heterozygote has been found remarkably alike in very different populations: Canadian[6], British[7], Greek[7], Portuguese[7], Moroccan (Jewish)[7], Berbers[7], Czechs[8] and Germans[8].

We have recently examined the sera from 104 Aboriginal Australians. Twelve were first-degree relatives and six were therefore taken out to obtain a less-selected sample. In the remaining 98, one heterozygote was found. This does not represent a striking difference from surveys made in other parts of the world, and 'atypical' pseudocholinesterase remains an inherited characteristic with remarkable uniformity of incidence in racially widely different populations.

Harris, Hopkinson, Robson and Whittaker[9] have recently described an isoenzyme of pseudocholinesterase which is recognized by electrophoresis at *p*H 6. It is genetically independent from the 'typical' pseudocholinesterase and its variants. It was found in 5 per cent of 248 unrelated British individuals. We have confirmed the occasional occurrence of this isoenzyme in Europeans, but have not found it in these 104 Australian samples.

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A Case of Somatic Polyploidy

Natural alterations in the number of chromosome sets appear to be uncommon among the somatic tissues of animals. Somatic haploidy has been claimed to occur in the micromeres of sea-urchin embryos[1], and in the tail mesenchyme of tadpoles[2]. The former case was quickly denied[3], while the latter is also better interpreted as the pairing of homologous chromosomes. Polyploidy is well known in mammalian liver and in various tumours, but rarely in other tissues.

In the course of an investigation of the frequency of nucleolar fusion during the development of *Xenopus laevis*[4], the following evidence was found of polyploid nuclei in the notochord. The notochord cells do not divide while differentiating at neurula stages to form a vacuolated syncytium. Mitosis is only resumed shortly before the time of hatching. The resulting interphase nuclei in the notochords of feeding tadpoles are more variable in size than is usual for one tissue. As many as six nucleoli have been seen in these nuclei, although a maximum of two nucleoli per nucleus is found in other tissues, and in the notochord itself of unhatched embryos. Such numbers of nucleoli could be explained theoretically as the result of polyploidy, or as the production of 'accessory nucleoli' by normally latent nucleolar organizers[5]. The nucleolar counts might thus be interpreted as indicating either some tetraploid and octoploid nuclei, or up to four accessory nucleoli. These explanations have been tested by the use of heterozygous mutants which form only one nucleolus in each of their nuclei[6]. The mutants are fully viable and possess the full diploid number of chromosomes[7]. The notochord nuclei of these mutants would be expected to contain up to three nucleoli