

In addition to the complex three phase response described, some of the units which we examined yielded on stimulation only an early excitatory phase of 1-7 action potentials, with no discernible following inhibition and no late third phase response. This type of unit response represented about 20 per cent of our total population and is of the short, high frequency, burst type which has been previously reported as typical of primary somatosensory cortex¹⁻⁴.

The peripheral fields of the cortical cells were tested by the manual application of a nylon monofilament to the skin and in almost all cases the fields proved to be small and contralateral, but when the same units were observed under conditions of electrical stimulation of the skin it was found, in agreement with the observations of Towe *et al.* on the cat, that most of the units responded to ipsilateral as well as contralateral inputs^{10,11}. This was true of the neurones situated both pre- and post-centrally. The unit discharge pattern to ipsilateral forepaw (IFP) stimulation was also complex in nature, sometimes showing a three phase response similar to that described for CFP stimulation. We consider that the wider fields observed with electrical stimulation compared with those observed with natural stimulation may be attributable to greater synchrony of afferent input produced by a brief electrical pulse.

Our results indicate that the amount of information available at the cortical level in the form of the action potential patterns evoked by simple somatic stimuli is greater than had been previously realized. The patterns of discharge are at once longer and more complex, suggesting that neural coding of sensory information at the level of the primary sensorimotor cortex may involve processes more elaborate than hitherto suggested.

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X-linked Blood Groups, Xg, in Australian Aborigines and New Guineans

SINCE the discovery of the X-linked blood groups Xg by Mann *et al.*¹, the results of many important genetic studies on these unique blood groups have been reported. Race and Sanger² tabulated the Xg^a frequencies for different racial groups and noted that Chinese and Negroes have a lower Xg^a frequency than other peoples tested, and that Navajo Indians have the highest frequency, just slightly higher than that for Sardinians. In each

study reported, the blood samples had been collected from unrelated individuals.

The number of individuals tested are shown in parentheses, and the Xg^a frequencies reported were: North European extraction (5,388) 0.66; Sardinians (322) 0.76; Israelis, non-Ashkenazi (201) 0.68; Indians, Bombay (100) 0.65; Chinese, Singapore (64) 0.46; Chinese, mainland (171) 0.60; Chinese, Taiwan (178) 0.53; Chinese, Hakka (136) 0.53; Taiwan aborigines (164) 0.38; Mariana Islands, Chamorros (109) 0.65; Negroes, New York and Jamaica (219) 0.55; and Navajo Indians (308) 0.77.

Thus in the six years after the discovery of the Xg blood groups only nine different peoples were tested, and this, no doubt, was because of the need to conserve the original Xg^a antiserum for more important genetic studies. Through the generous gifts of anti-Xg^a serum in 1967 and 1968 from Miss Dorothy Henaman of the Hyland Laboratories, Los Angeles, and from Dr F. H. Allen, jun., of the New York Blood Center, New York, it has been possible to test progressively blood samples obtained from Australian aborigines of Central Australia, and New Guineans from the north coast and some central areas. In each of these series the blood samples came from men, women and children, and individuals in the separate Australian tribes and the New Guinea villages would be, in many instances, from related families. In this respect our two series differ from those previously reported. In a check made on some family results there were no exceptions to the expected Xg inheritance.

Table 1. Xg^a FREQUENCIES FOUND IN AUSTRALIAN ABORIGINES AND NEW GUINEANS IN A SAMPLE OF MEN, WOMEN AND CHILDREN*

Australian aborigines						
Total tested	Males	Xg(a+)	Xg(a-)	Females	Xg(a+)	Xg(a-)
352	163	139	24	189	175	14
		85 per cent 15 per cent			93 per cent 7 per cent	
		Xg ^a =0.79		Xg=0.21		
New Guineans						
Total tested	Males	Xg(a+)	Xg(a-)	Females	Xg(a+)	Xg(a-)
263	173	146	27	90	88	2
		84 per cent 16 per cent			98 per cent 2 per cent	
		Xg ^a =0.85		Xg=0.15		
		χ ² for 1 d.f.				
			Males	Females		
Australian aborigine			3.546	4.494		
New Guineans			0.0015	0.012		

* The complete tribal and village details for each of these Xg studies will be published elsewhere.

The Xg findings for 352 Australian Aborigines and 263 New Guineans together with χ² for males and females in each series are presented in Table 1. The Xg^a frequency calculated for Australian Aborigines was 0.79, and for New Guineans was 0.85, and these frequencies are higher than any Xg^a frequency previously reported for other races of Man.

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¹ Mann, J. D., Cahan, A., Gelb, A. G., Fisher, N., Hamper, J., Tippett, P., Sanger, R., and Race, R. R., *Lancet*, **1**, 8 (1962).

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Effects of Anaesthetics on Luminous Bacteria

LUMINOUS bacteria have been used extensively to study drug action¹, although studies of general anaesthetics in such systems have been limited to the effects of pressure on the inhibition of luminescence by ether and chloroform². The luminescent intensity, which is relatively easy