The Blood Groups and Serum Types of Australian Aborigines from the Western Desert.

The blood group distribution in Australian aborigines has been studied extensively over more than a quarter of a century. Birdsell and Boyd (1940) reviewed the earlier work, dealing almost exclusively with the distribution of the ABO blood groups in various parts of the Australian Continent. During the last-fifteen years however the discovery of new blood groups, ~~and the~~ systems or the further elaboration of already known ones has necessitated continual retesting of aboriginal populations to bring our knowledge of the distribution of genetically controlled characteristics in the blood up to date. Significant contributions have been made particularly by Simmons and Grayden and their colleagues in Melbourne, and Walsh and his colleagues in Sydney, together with more isolated studies by other workers. The more recent work has been reviewed by Kooptzoff and Walsh (1957), and Simmons, Grayden and Semple (1954). Simmons (1958) has presented in summary form

the results of surveys of Australian aboriginals and blood group systems covering the ABO, Rh, MNSs, ~~P, Le, Fy, K, Lu~~, ~~He & Di blood groups~~ and adding more detailed information for nearly 1,700 samples from Western Australia collected by the Birdsell Expedition 1952-54 and analysed by Simmons & for the ABO, Rh, MNSs, P, Le, Fy, K, Lu, He blood group systems. A portion of this material had been reported on earlier in part by Simmons Grayden and Birdsell (1953), but the detailed analysis of this very extensive survey is still unpublished.

~~Since~~ During the last few years a new sets of inherited characteristics demonstrable in human blood have been discovered and added to the list of ~~genetic~~ markers open to human population genetics. These relate to inherited differences in serum proteins which may be detected by either electrophoretic or serological techniques. Using electrophoresis in starch gel, two such systems may be demonstrated readily, the Haptoglobin (Hp) and transferrin (Tf) types. In addition special serological tests enable inherited differences in the gamma globulins (Gm ~~groups~~ types)

to be deleted.

We have recently started a survey of the distribution of these three serum type systems in various populations. Kirk, Lee and Hogben (1960) and Kirk, Lee, Mahmood and Saigh (1960) have published the distribution of the Hp types in White Australians and in the Malays, Chinese and Indians in Malaya, and at present work on the distribution of the Hp, Tf and Gc groups in Ceylon, India, Pakistan, Thailand and Malaya is in progress.

In August 1959 we had an opportunity to visit Kalgoorlie, Leonora and Laverton and Mt Margaret Mission and collect blood samples from Aborigines from the Western Desert. The sera were tested for the Hp, Tf and Gc types, and the cells were tested for the ABO, Rh, MNSs, P, Le, K, Fy, Di & Js blood group systems. The results of this survey are presented below.

Population and Methods

The Aborigines sampled in Leonora and Laverton were living in the semi-permanent camps on the outskirts of the towns, those at Mt Margaret Mission were employees at the Mission, whilst those and their families

at Kalgoorlie ~~who~~ were from Cundeelee and ~~who~~ had been sent to the Kalgoorlie General Hospital for observation. Adults only were sampled, and care was taken to include only non-related persons ~~individuals~~. Caste individuals ~~are~~ were excluded. Blood was drawn ~~into~~ from a suitable arm vein into 'Bayer' venules, ~~and~~ allowed to clot and stored at $4^\circ C$. Cells and serum were separated under sterile conditions within 48 hrs of collection.

ABO blood groups were determined using a slide method with standard anti-A, anti-B and anti A+B sera (Commonwealth Serum Laboratories). Rh tests were carried out using a modification of Lowe (1955) enzyme method using ficin instead of papain. ~~All~~ Cells were tested with anti-C, anti-D, anti-E, anti-c and anti-e (we are indebted to Dr P. Levine for the anti-e serum). Cells -ve with anti-D ~~but +ve with either anti-C or anti-E~~ were checked with an anti-D + Du serum using the I.D.C. technique. MN tests were carried out using specific anti-M and anti-N

London	SG	7
Law	SG	30
M'M	SG	6
Law	60	15
Lon	60	10