

*HUMAN BLOOD GROUPS AND THEIR BEARING ON RACIAL RELATIONSHIPS*

BY LAURENCE H. SNYDER

GENETICS LABORATORY, N. C. STATE COLLEGE

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A comparative study of the literature shows that in any race there seems to be a definite proportion, characteristic of that race, of the four human blood groups; and that the differences between various races in the proportions of the groups are of such nature as to warrant the assumption that the variations in group proportions may constitute a valuable method of studying racial relationships. Contrary to some of the statements found in the literature, the recessive agglutinins appear to be the primitive condition, from which the dominant agglutinogens arose by mutation. These dominant agglutinogens appear to have arisen separately, in different regions, and to have been brought together by mutual infiltration of the races bearing them.

Various races in all parts of the world have been studied for their blood group proportions by many investigators, but little or no attempt has been made to correlate these observations. There are very many races as yet unstudied, but enough work has been done to suggest that the varying degree of occurrence of the two factors concerned may indicate something of the racial relationships.

Studies are now being made by the writer of the blood groups of races whose group percentages are unknown or imperfectly known. These studies are yielding results which may be expected to indicate something of the comparative value of the blood groups in studying the relationships of races. Results already obtained confirm the writer's belief that the so-called "biochemical index" of Hirschfeld and Hirschfeld is not a satisfactory criterion for studying this question. Too many authors have been willing to use the biochemical index as the main thing necessary to know about a race from the standpoint of its blood group characteristics. This is far from being the case, however, as can readily be shown. Two races, each having an equal proportion of agglutinogens *A* and *B*, and thus having the same "intermediate" index, might differ in that one had, for instance, 40% *A* and 40% *B*, with a small proportion of group I, while the other had only 3% *A* and 3% *B*, with a correspondingly large proportion of group I. In the first case, both agglutinogens are well-developed racial characteristics, while in the second case, neither is well developed. In both cases, however, the index would be the same. Likewise a race might have the factor *A* twice as abundant as *B*, its index thus placing it in Hirschfeld's "European" type, and yet if neither factor constituted a very large proportion of the total, this would be misleading.

The American Indians now being studied by the writer are an excellent example, their biochemical index putting them into the "European" type, but their very large proportion of group I being entirely different from typical European races. Any classification of races based on the blood groups must take these facts into account.

The question is a complicated one, and must be approached with extreme caution. Few if any pure races are now found, due to the endless migrations, displacements and interminglings to which mankind has been subject, together with the normal power of cross-fertility between all races. Moreover, it must be remembered that in general, racial characters are blending in inheritance, and are not sharply defined in succeeding generations. The blood group factors, however, being unit factors with complete dominance, are injected into a race "in toto," as it were, by crossing. They are there to stay. Consequently a little crossing, while not changing the obvious racial characters much, may modify to a noticeable extent the proportions of the groups. And while succeeding generations tend to cover up and blend the alien physical characters, the introduced agglutinogens retain their identity and become definite units in the hereditary complex of the race.

To throw light on the comparative value of the blood groups in solving this problem, it is desirable to examine compound races, made up of separate elements, each of whose blood group proportions is known. The study now being carried on by the writer on the group proportions of negroes, Indians and whites, and the hybrids of negro-white, negro-Indian, and Indian-white, is of such a nature.

The problem of the origin and relationships of races is not an easy one, and it is not certain that the blood groups will be able to play a very important part in its solution. The results so far obtained by independent investigators, however, when viewed together, seem to indicate that in general the blood group data conform remarkably well to the known anthropological facts. By approaching the problem with a clear understanding of its difficulties, bearing in mind the precautions outlined in this paper, a step may be gained by means of the blood groups towards the ultimate solution.