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INDIVIDUAL DIFFERENCES IN HUMAN BLOOD[1]

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BECAUSE of the difficulties in working with substances of high molecular weight, one is as yet far from the goal of chemically characterizing the single proteins and determining the constitution of these substances, which rank as the most important components of living matter. Hence it was not the use of the ordinary chemical methods, but the application of serological reagents, which led to an important general discovery in protein chemistry, namely that the proteins in various animals and plants are different and are specific for each species. The multiformity is increased by the fact that also various organs contain particular proteins. It thus would appear that in the case of living organisms, special structural substances are required for each single form and function, in contrast to artificial machines, which, serving the most diverse purposes, may be constructed from a limited number of materials.

The discovery of biochemical species specificity prompted the question which formed the basis of the investigations about to be discussed, as to whether the specific differentiation goes beyond the limits of species, and whether also the individuals within a species show similar, though presumably slighter, differences. As no observations whatever were available pointing to such behavior, I chose the simplest amongst the possible plans of investigation, and that material which gave promise of useful application. Accordingly, the investigation consisted of allowing blood serum and red blood corpuscles of different human individuals to interact.

The results were only partially those that had been expected. In many tests, just as if the blood cells had been mixed with their own serum, no changes were

[1] Nobel Lecture read in German at Stockholm, December 11, 1930.