the mesoblastic, the hepatic and the medullary period. Perhaps these three periods relieve one another—in sequence as mentioned—corresponding to the appearance of the three types of hæmoglobin. Provided that there are really correlations, one must distribute one of the hæmoglobin types to each of the three periods of fœtal hæmopoiesis.

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Blood Group Antigens Mi^a and Vw and their Relation to the MNSs System

The blood group antigen Mi^a was discovered by Levine, Stock, Kuhmichel and Bronikovsky[1] in 1951. Anti-Mi^a, the antibody necessary for the identification of the antigen, was made by a mother in response to immunization by her Mi(a+) fœtus which, as a result, had severe hæmolytic disease. The antigen was shown to be inherited as a dominant character. The antigen was evidently rare, for no example was found in testing 425 random people.

The blood group antigen Vw was discovered by van der Hart, Bosman and van Loghem[2] in 1954. The antibody, anti-Vw, was made by a mother in response to immunization by her fœtus. The father had the antigen and so had several members of his family. The antigen was not present in 740 blood samples from random Dutch people. The antigen was shown to be inherited as a dominant character. Sanger, studying the pedigree, noticed that the gene *Vw* was linked to the *MNSs* locus and was travelling with *Ns*: there were 12 non-cross-overs and no cross-overs.

It was then found[3] that those members of the Dutch family who were Vw+ were also Mi(a+), so it was naturally assumed that Vw was identical with the antigen Mi^a, discovered several years before.

We find that the antigens Mi^a and Vw, though related, are not the same: about half Mi(a+) people are Vw+ and about half are Vw−. No Mi(a−) Vw+ person has been found in several thousand tests on white people.

Though the antigens are rare (the combined incidence of the two phenotypes is one in about a thousand white people) the antibody anti-Mi^a is relatively common and, rather surprisingly, can be present in the serum of people who have not been exposed to either antigen by pregnancy or by transfusion.

From tests on families it has become clear that the gene or genes responsible for both phenotypes, Mi(a+) Vw+ and Mi(a+) Vw−, are linked to the *MNSs* locus. The linkage is of the extremely close type found between the *CDE* genes and between the *MNSs* genes: this was suggested by the absence of cross-overs in the families and confirmed by the observation that in all chromosomes so far analysed the gene or genes responsible for the Mi(a+) Vw+ reaction are accompanied by *N* and *s*, while those responsible for the Mi(a+) Vw− reaction are accompanied by *M* and *S*.

Because of the rarity of the two phenotypes it may be some time before their precise genetic background is established. We can think of three possibilities. The genes responsible could be alleles: they would fit the CC^w behaviour in the Rh system. (The antigen Mi^a could be like C and the antigen Vw like C^w; anti-Mi^a could be like anti-C, which reacts with Cc and with C^{w}c, and anti-Vw could be like anti-C^w, which reacts only with C^w.) On the other hand, the genes may be representatives of adjacent loci like *D* and *C* in the Rh system. (The antigen Mi^a could be like D and the antigen Vw like C; anti-Mi^a could be like anti-D+C and anti-Vw like anti-C.) The available genetical and serological details would fit either arrangement; they would not fit so well the third possibility that one gene alone is responsible and that the difference between Mi(a+) Vw+ and Mi(a+) Vw− reflects a position effect exerted by the *Ns* and by the *MS* genes respectively.

The antigens Mi^a and Vw, together with the antigens Hu and He, are demonstrating the complexity of the region of chromosome responsible for the MNSs blood groups and it now appears that at least four loci must be involved.

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The Diego Blood Factor in Negroid Populations

A great number of the Negroes brought to South American shores during Colonial times came from West Africa (Gold Coast, Guinea, Dahomey, Nigeria, etc.)[1]. These Negroes mixed in large proportion with Indians and Caucasoids, mainly Spaniards and Portuguese. The racial intermixture was so intense that to-day it is almost impossible to find a pure Negro population in any South American country, including Venezuela. Indian admixture was assumed by Layrisse and Arends[2] as an explanation of the eleven Diego-positive cases found in 150 random