On this hypothesis the genotype of Mrs. Mys. could be $P^{\wedge}p$ or $PkPk$. We have written $P^{\wedge}p$ rather than $PkPk$ for reasons of probability: it seems very likely, for reasons that we will not go into now, that the gene p though very rare is nevertheless more frequent than Pk .

Table IV shows the four P phenotypes defined by the three critical antisera now available. The genotypic interpretation is that used in fig. 1 ; if, however, the first hypothesis - that Pk is a straightforward recessive antigen - were correct the only change would be that $P^{\wedge}p$ would need moving down to join pp in the bottom category.

The final decision about the precise genetic background will have to await the testing of more families. Perhaps the incidence of the antigen within these families, or the evidence of cousins matings, will give the clue. If we had to find the families by testing random donors with anti- Pk the quest would be hopeless, for the antigen Pk may have a frequency of the order of one in a million. But this is not how more families will be found: attention will be drawn to them as to the Mys. family, by trouble arising from the presence of the antibody. The huge genetic net of the transfusion services will inevitably catch more examples of such a rarity, but they will have to be waited for.

Whatever its precise genetic background, and however infrequent the antigen may be, Pk has disclosed the existence of a common antibody, anti- Pk , and a glimpse is given of the complexity of a system which only three years ago appeared to consist of one antigen and one antibody.

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The Lutheran Blood Groups

T. J. Greenwalt and T. Sasaki
Milwaukee, Wisconsin, USA

Abstract

The second example of anti-Lub was found in a Milwaukee woman who had a mild atypical hemolytic transfusion reaction. The family study revealed an amazing pedigree. The parents of the proband represent a mating with an expected frequency of 0.0002. The properties of this anti-Lub and five examples of anti-Lua will be discussed. The results of a large population survey utilising these anti-sera will be presented. Eight examples of the rare genotype LuaLua have been found. Representative family studies will be included in the discussion.