

TABLE III.

| Groups | I | II | III | IV |
|------------------|----------|----------|----------|----------|
| Serum | a. b. x. | b | a. c. x. | |
| Corpuscles | | A. C. X. | B | A. B. X. |

According to our present knowledge the constitution of the four blood groups, including the two new pairs of elements, may be represented as in Table III.

The possibility of this pair of isoagglutination elements being identical with that described by Guthrie and Huck must be considered. The study will be pursued and a detailed report will be made in the *Journal of Immunology*.

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A dangerous "universal donor" detected by the direct matching of bloods.

By PHILIP LEVINE and JENNIE MABEE (by invitation).

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In cases of transfusion where it is difficult to obtain a donor of the same group as the patient, a person of Group I (Jansky) has been considered suitable on account of the fact that the corpuscles of this group are inagglutinable by the isohemagglutinins. The fact that the plasma of a Group I individual contain isoagglutinins capable of clumping the corpuscles of the recipient has been ignored, because, under ordinary circumstances, the quantity of the plasma transfused is too small to affect the larger proportion (five to ten times) of the recipient's corpuscles.

In carrying out the method of direct matching of bloods described by Coca,¹ we found that the plasma of one of us (M., Group I) produced complete agglutination of ten volumes of the corpuscles of P. L. (Group II). Quantitative tests in the

¹ Ref. *Journal of Immunology*, 1918, 93-100.

test tube showed that moderate agglutination of P. L. corpuscles was produced by as little as 1/20 volume of the M. plasma.

This observation reveals a risk in using a member of the so-called "Universal Donor" group for the first time without making a rough quantitative examination of the agglutinating power of the individual's plasma. It is advisable, therefore, in carrying out the direct matching according to Coca, to include a mixture of equal parts of undiluted recipient's citrated blood with the donor's citrated blood, diluted 1 to 5.

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Application of the murexide test to *Amoeba verrucosa* and *Paramecium caudatum*.

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Observations made on the distended contractile vacuoles of *Amoeba verrucosa* subsequent to the application of the murexide test give no optical evidence of the presence of uric acid in the vacuolar fluid. This result is not in accord with the generally accepted conclusions of Griffiths¹ who reported the production of "prismatic crystals of murexide" on application of this test to *Amoeba proteus*, *Vorticella* and *Paramecium*. Mass cultures of *Amoeba verrucosa*, killed in 50 per cent. alcohol, show the contractile vacuoles fixed at partial or complete expansion in a large percentage of cases, but a critical examination of the fluid of the vacuoles has never revealed the presence of uric acid crystals precipitated there by this method. Dark field examination of such animals shows the fluid to be structureless. Treatment with nitric acid and ammonia in the manner described by Griffiths colors both cytoplasm and pellicle a lemon yellow. Furthermore, control slides, consisting of a small quantity of pure uric acid crystals in distilled water, when similarly treated, also give a negative result. Such controls give ammonium pur-

¹ A. B. Griffiths, *Proc. Soc. of Edinburgh*, 1888-89, xvi.