Moss Grouping.	*Jansky Grouping.*	
Group I	Group IV	"Universal Recipient."
,, II	,, II	
,, III	,, III	
,, IV	,, I	"Universal Donor."

Groups II and IV (Moss) are by far the commonest met with, accounting for about 85 per cent. of all human groupings; group I is a comparative rarity. In practice it is found that bloods from persons belonging to others of the same group may exhibit a mild degree of agglutination; therefore the laboratory findings are always confirmed by a cross matching of the two bloods, the recipient's and the donor's, immediately before the transfusion is carried out.

This additional precaution not only guards against mild degrees of incompatibility, but obviates the danger of laboratory and clerical errors. In addition there is the possibility that in the course of time a grouped blood may change its characteristics.

Grouping Serum.

For the purpose of transfusion only groups II and III serum need be kept in stock. Upon the reactions obtained against these two serums any blood may be grouped. Several reputable commercial houses now supply grouping serum, or it may be collected and stored in glass capillary tubes from persons already grouped. It is, however, absolutely essential that the serum should be fairly fresh; six months is the absolute limit it is safe to keep it in stock, it must always be stored in the ice-box, and a fresh tube opened every time a grouping is carried out.

If these simple and necessary precautions are neglected, false results may occur. It is quite unnecessary to dwell upon the possible consequences of these.

Technique.

The hands of the person whose blood is to be grouped are well washed and a finger cleaned up with alcohol and ether in the usual manner before collecting blood. A small tube containing a few drops of 3.8 per cent. sodium citrate is placed ready to hand with a sharp needle (sterilised by flaming in alcohol, of course), the patient's finger is pricked, and a drop or two of blood allowed to fall into the sodium citrate solution. Blood should be collected until the proportion is roughly one of blood to four of sodium citrate; the tube must be vigorously shaken in order to be quite sure that all the blood is mixed. The purpose of the sodium citrate solution is to prevent coagulation of the blood.

When time and apparatus permit, the cells should be washed free of the sodium citrate solution, as its presence may interfere with the reaction. The technique of washing the blood cells is very simple, merely that the citrated blood mixture is spun in a machine called a centrifuge, which, revolving at a high rate of speed, rapidly deposits the cells at the bottom of the tube.

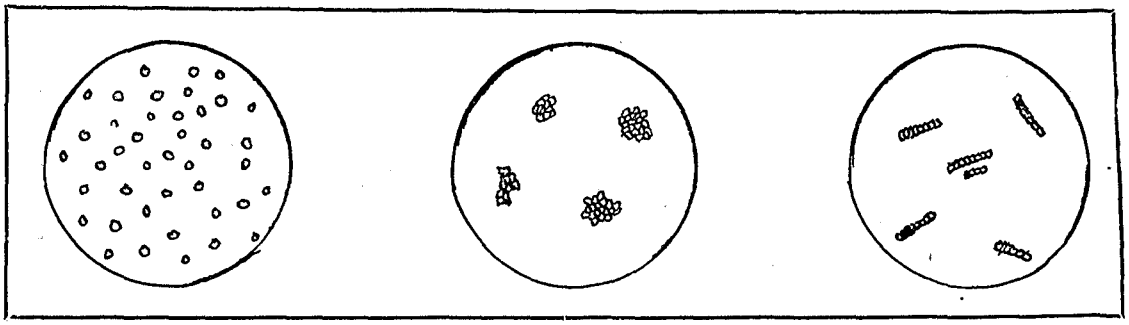
The fluid at the top is poured off and replaced with normal saline, the cells well mixed and the tube spun in the centrifuge again, this operation is usually repeated at least once.

Three microscope slides are prepared (perfectly clean and quite dry) and marked clearly with the following figures, II, III and C, respectively. A drop of the blood to be tested is placed on each slide and then a drop of group II serum is added to the blood on slide marked II and carefully mixed. Serum of test group III is then added in a like manner to slide III. No serum being added to the slide marked C, this acts as a control against spontaneous agglutination of the blood under test.

After the elapse of a few minutes the slides are examined under the low power of the microscope; as a matter of fact the results are usually quite clear to the unaided eye.

Agglutination.

Agglutination of the cells is shown by the clumping of the blood cells into irregular masses, usually within a very few minutes of the addition of the testing serum. As previously mentioned, slight degrees of incompatibility may be met, but a delayed result usually suggests a faulty technique. When no agglutination takes place the cells remain quite free and independent of each other.



No Agglutination. **Agglutination.** **Rouleaux Formation.**

AS SHOWN BY THE MICROSCOPE.

Grouping Table.

Blood Group.	*Serum II.*	*Serum III.*	*Control.*
Group I	Agg.	Agg.	N/A.
,, II	N/A.	Agg.	N/A.
,, III	Agg.	N/A.	N/A.
,, IV	N/A.	N/A	N/A.

The group to which a blood under test belongs may easily be deduced from the above table. Agg. signifies agglutination, and N/A. no agglutination.

For example, a blood which when mixed with group II serum agglutinated but was not agglutinated by group III, would be a group III blood. Or in other words this blood could be transfused into another group III individual, or the owner could receive from a group III donor. It will be seen that group I the "universal recipient" can receive from any group but can give to none, except his own. While at the other end of the table, group IV, the "universal donor" can give to any of the four groups, but may receive only from another "universal donor."

Cross Checking.

As a further precaution, a cross matching test of the recipient's serum and the recipient's cells from known groups II and III is very often carried out in addition to the ordinary grouping test. The greatest danger of blood transfusion is the agglutination of transfused cells (the donor's) by the recipient's serum; therefore the group from

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