cient completely to cover the cloth within the prescribed area, leaving a narrow margin, and should be of such thickness that the fabric may be entirely obscured when the plaster is viewed through the light. On the other hand, mercury plaster, if desired for continuous application, may be spread on gauze, like the plaster mulls of Unna (see *Unguenta Extensa*, National Formulary), in order that evaporation may proceed freely through the pores of the fabric and thus maceration of the cuticle be prevented.

SUPPOSITORIES.

While since its introduction, first in the Pharmacopeia in 1870, theobroma oil leaves nothing to be desired as a vehicle for rectal suppositories, clinical experience suggests that a non-fatty vehicle is preferable for suppositories for urethral and vaginal use. Gelatin seems to be the most appropriate substance for this purpose, and in the form of gelatinum glycerinatum U. S. P., leaves nothing to be desired. This is a gelatinous mass of equal parts of gelatin and glycerin, practically anhydrous and non-hygroscopic it is perfectly stable and may be kept sterile if properly protected for any length of time.

The U. S. Pharmacopeia defines suppositories according to their shapes and weights as follows:

Rectal.—These suppositories should be cone-shaped or spindle-shaped and when made from oil of theobroma should weigh 2 gm., or 30 grains.

Urethral (Bougies).—These should be pencil-shaped, pointed at one extremity, and either *short*, 7 cm., 2 4/5 inches, in length, weighing about 2 gm., or 30 grains, or *long*, 14 cm., 5 3/5 inches, in length and weighing 4 gm., or 60 grains, when made with glycerinated gelatin. If prepared with oil of theobroma they should be about one-half these weights.

Vaginal (Globules).—These should be globular or oviform and weigh about 10 gm., or 150 grains, if made with glycerinated gelatin, and about 4 gm., or 60 grains, if made with oil of theobroma.

Rectal suppositories were defined as of 1 gm. weight, but this weight, being a reduction of one-half of former pharmacopeias (30 grains), was never adhered to. The molds of 30 grains (2 gm.) in weight continued to be in use, so that there has been practically no change.

The glycerinated gelatin is more than twice as heavy as theobroma oil, which accounts for the greater weights of the suppositories when made with glycerinated gelatin. The urethral suppositories are also of two lengths. The particular vehicle to be used for the three different kinds of suppositories is not directed in the Pharmacopeia, it being deemed preferable to leave the choice to the prescriber, although preference is indicated or rather suggested.

The only objection to the glycerinated gelatin vehicle is that the suppositories can not be made very well without the use of bisected molds, and these are expensive. The short urethral suppositories may be formed by pouring the melted mass on the cutting brasses of a pill-machine and pressing it in cylindrical lengths. Gelatin is not adapted to tannin, forming a hard, insoluble, leathery mass. While glycerinated gelatin being anhydrous is free from this objection, forming a homogenous mixture with tannin, it is apparent that when the suppository comes in contact with the water-secretions it will remain a hard insoluble mass.

Suppositories require, as a rule, 25 per cent. gelatin to insure their proper consistence, so that the mass from which the suppositories are molded is prepared

from one-half its weight of glycerinated gelatin, the other half its weight consisting of the medical agent and glycerin. Water-insoluble substances, such as iodoform, zinc oxid, bismuth compounds, etc., are levigated (trituated finely) with the glycerin and mixed with the melted glycerinated gelatin and poured into molds, thus:

R. Iodoformi	grs. xv	1
Glycerini	3ii 1/4	9
Gelatin glycerinati	3iiss	10
Fiant suppositoriae urethrales, No. x.		

Water-soluble substances are dissolved in the glycerin, or in a little water replacing as much glycerin, and then mixed with the previously melted glycerinated gelatin. If a firmer consistence is desired a portion of the glycerin may be substituted by as much acacia mucilage, thus:

R. Morphinae sulphatis	gr. ii	1
Zinci sulphatis	gr. iiss	2
Aquae sterilatae		
Mucilaginis acaciae, aa	3i	5
Gelatin glycerinati	3iiss	10
Fiant suppositoriae urethrales, No. x.		

The morphine sulphate and zinc sulphate are dissolved separately, each in one-half the water, mixed with the mucilage, and this mixture is incorporated with the melted glycerinated gelatin and poured into molds.

The above formulas also illustrate the use and great convenience of glycerinated gelatin for preparing the Glycero-gelatin of the National Formulary.

DISCUSSION.

DR. W. J. ROBINSON, New York City, said that in Germany the preparation of dermatologic products is a specialty. They do a tremendous business. Any pharmacist can prepare these preparations.

PROF. C. S. N. HALLBERG said that there is a great field in this line and pharmacists ought to take advantage of it. There is no reason why the pharmacist is not able to do the same thing that the German pharmacist does. These preparations have been further simplified in the National Formulary. The first article that attracted Professor Hallberg's attention to the subject, he said, was a paper by Dr. Thomas F. Reilly, New York, about eight years ago.

ISOAGGLUTINATION OF HUMAN CORPUSCLES

WITH RESPECT TO DEMONSTRATION OF OPSONIC INDEX AND TO TRANSFUSION OF BLOOD.*

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By isoagglutination of human corpuscles is meant clumping of the corpuscles of one person by the serum of another person. Its occurrence is demonstrated readily by incubating for one or two hours mixtures of defibrinated or citrated blood or of corpuscles and serum. It is often seen in opsonic work in which serum generally constitutes one-third of the mixtures. For purposes of demonstration, it is well to add serum, say 0.1 c.c., to 1 c.c. of a 2.5 or 5 per cent. suspension in salt solution of citrated or defibrinated blood. Clumping is here easily seen. When citrated or defibrinated bloods are mixed, agglutination may be obscured by the mass of corpuscles so as to be recognizable only under the microscope, hence dilutions are desirable.

Landsteiner and, following him, Descatello and Sturli,

*From the Memorial Institute for Infectious Diseases.

have shown that individuals may be separated into three groups by means of isoagglutination, namely: (1) Those whose corpuscles are not agglutinated by the sera of Groups II and III but whose sera agglutinate the corpuscles of Groups II and III; (2) those whose corpuscles are agglutinated by the sera of Group III (and Group I) and whose sera agglutinate the corpuscles of Group III; (3) those whose corpuscles are agglutinated by the sera of Group II (and Group I) and whose sera agglutinate the corpuscles of Group II (see table). Of 76 persons whose blood I have studied, 36 belonged to Group I, 26 to Group II, and 14 to Group III. Of the 14 in Group III 6 were without any agglutinin, hence it appears that about 90 per cent. of all individuals possess isoagglutinin of one kind or another. The blood of the 5 persons represented in the table has been examined at frequent intervals during several months and constantly with the results indicated, except that the serum of one of the persons in Group III gradually lost its agglutinin.

TABLE SHOWING ISOAGGLUTINATIVE GROUPING OF FIVE PERSONS.

		Corpuscles				
		I	II		III	
		1	2	3	4	5
Sera	I	O	+	+	+	+
	II	2	O	O	+	+
		3	O	O	+	+
	III	4	O	+	O	O
		5	O	+	O	O

EXPLANATION.—0.1 c.c. of each of the 5 sera were added to 1 c.c. of a 2.5 per cent. suspension of the corpuscles of each of the 5 persons, and the results recorded after placing the mixtures at 37° C. for 2 hours. O = no agglutination; + = agglutination.

There is no striking alteration in the agglutinative grouping of persons with various diseases, more particularly pneumonia, typhoid fever, scarlet fever and advanced pulmonary tuberculosis.

That human isoagglutinins are bodies with special affinities for the corpuscles on which they act is evident because corpuscles absorb only the agglutinins by which they are agglutinated. The corpuscles of Group I do not absorb any agglutinin—are not agglutinable—and corpuscles are immune to the agglutinins in their own serum. Three main agglutinins are distinguishable, the agglutinin of Group I for the corpuscles of Group II and III; the agglutinin of Group II for the corpuscles of Group III, and the agglutinin of Group III for the corpuscles of Group II. Others no doubt occur occasionally. Thus, in Group III there not infrequently is interagglutination.

The amount of agglutinin varies considerably in sera from different persons, and corpuscles of the same group vary in their agglutinability by the same serum; furthermore, sera of Group I may contain different amounts of agglutinins for Groups II and III.

Human agglutinins are stable bodies; they resist heating to 60° C. for thirty minutes, pass through porcelain filters, and persist for months in serum kept in the icebox. They are distinct from the isohemopsonins in human serum.

From the practical point of view isoagglutination of human corpuscles is of immediate interest in connection with the determination of the opsonic index and with transfusion of blood. All who have worked with the opsonic index are familiar with the fact that occasionally their mixtures show marked clumping of the erythrocytes which naturally interferes more or less with the desired accuracy. In order to avoid this annoyance the washed blood (leucocytes) should be secured from an individual of Group I, i. e., from one whose corpuscles are not agglutinable. Hence it is well to determine the isoagglutinative grouping of the regular frequenters of a laboratory that are likely to be asked to furnish blood for this purpose.

By means of a refined technic Crile† recently transfused blood from normal to diseased human beings, and with apparent success. The occurrence of isoagglutinins in human blood suggests that under special conditions homologous transfusion might prove dangerous by leading to erythrocytic agglutination within the vessels of the subject transfused. It has not been possible to conduct animal experiments on this point because of failure to demonstrate isoagglutinins in the serum of suitable animals. It may be pointed out, however, that the possible danger here indicated can be avoided by the selection of a donor whose corpuscles are not agglutinated by the serum of the recipient and whose serum does not agglutinate the corpuscles of the latter; that is to say, donor and recipient should belong to the same group and preferably to Group I or II. The actual isoagglutinative relation of the donor and the recipient are readily determinable in a short time in the manner already outlined.

DANGER SIGNALS FROM THE SKIN.*

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Unconsciously the skin receives a good deal of attention from the general practitioner in connection with many disordered or diseased conditions of the system, and yet when the skin itself becomes diseased many physicians seem to lose sight of its relation to the general system, and regard and treat it only locally; and this happens often, much to the detriment of the patient, and too frequently with unsatisfactory results in regard to the cutaneous affection.¹

One need only mention the exanthemata to suggest at once that phenomena on the skin may be only one evidence of disease, while the dry skin of fever and the sweating at a crisis and in tuberculosis show the important part which the skin has in the economy, and many such illustrations will occur to all.

Although we may not recognize it, nor be conscious of it, the skin eventually plays a most important part in health, especially in the direction of regulating the heat of the body. The every-day observation of the effects of a chilling of the surface, resulting in many internal diseases, emphasizes the importance of the skin as a vital organ, while the effects of extensive burns, producing profound shock and often attended with ulceration of the intestine and suppression of urine, and even

† THE JOURNAL A. M. A., Nov. 3, 1906, p. 1482.

* Read before the Medical Society of the State of New York, Jan. 29, 1907.

1. Relations of Diseases of the Skin to Internal Disorders, Reiman & Co., New York, 1906.