normal skin site with a drop of the appropriate Penetrasols to which the powdered specific allergen had been added, produced whealing in over 99.5 per cent. of the tests with those allergens which regularly elicited wheal reactions when applied to the same patient by the ordinary scratch-test method. Every allergen was tested with Penetrasol A, B and C in every individual examination. In most instances, all three vehicles were found to be effective. An interesting finding was that Penetrasols A and B (more lipid-soluble) were superior in carrying pollen, silk, kapok and foods through the human skin; while the more hydrophile Penetrasol C was more effective in dealing with horny materials (*e.g.*, danders), as well as with house dust, cotton and woods.

The penetration of metallic salts and of sulfonamides into and through grossly intact human and animal skin was demonstrated by means of histologic studies and histochemical "indicators." In some instances, new methods were developed to facilitate demonstration of the route and the extent of the penetration. For example, a newly developed histochemical demonstration of sulfonamides employing a solution of 1 per cent. p.-dimethylaminobenzaldehyde in absolute ethylalcohol containing 5 per cent. concentrated hydrochloric acid, will be described in a subsequent, more detailed report.

To date, our histochemical studies have demonstrated the penetration of the intact human skin by: (1) iron (ferric chloride, and ferric ammon. citrate); (2) bismuth (Sobisminol); (3) sulfanilamide. Neither equally concentrated solutions in propylene glycol nor aqueous solutions nor dispersions in lanolin produced such demonstrable penetration into or through intact human or animal skin.

Still another method for demonstrating the penetration was employed in studying the absorption of various sulfonamides (sulfanilamide, sulfathiazole). Inunctions of areas of intact skin of 11 human volunteers were carried out with not more than 1 gram of the sulfonamide in a vehicle of type of Penetrasol A, and repeated in about two hours. Penetration was proved to have taken place by demonstration of the free drug, in the blood and urine. In general, the drugs were demonstrated by a modification of Werner's method. The maxima were reached within one half to three hours after the applications.

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ON HUMAN ANTI-RH SERA AND THEIR IMPORTANCE IN RACIAL STUDIES[1]

SOON after the importance of the Rh factor in erythroblastosis fetalis and in transfusion accidents was established,[2, 3] it was observed that various human anti-Rh sera do not exhibit identical specificities.[3-7] Until recently the three main varieties were identified by their characteristic percentages of positive reactions obtained in the white race, *i.e.*, 87 per cent., 85 per cent. and 73 per cent., respectively.[3-8] In agreement with Landsteiner and Wiener these antibodies may now be termed anti-$Rh_{1.2}$, anti-Rh_1 and anti-Rh_2, respectively. This terminology is based on the observation of Levine[8] that the anti-Rh serum which gives 87 per cent. reactions, in contrast to the others, contains more than one antibody. The anti-Rh_1 serum may be considered as standard since it has a specificity practically identical with that of the experimental serum of Landsteiner and Wiener.‡

From the point of view of diagnosis of erythroblastosis fetalis and the prevention of intra-group transfusion accidents, either one of the two varieties

TABLE 1

TESTS WITH ANTI-Rh_1 SERUM

Race	Number tested	Percentages +	Percentages −
White[a]	334	85	15
Colored[b]	264	95.5	4.5
Colored[c]	113	92	8
American Indians[d]	120	92.2	0.8
Chinese[e]	150	99.3	0.7

[a] Levine, Burnham, Katzin and Vogel.[3]
[b] Levine in this study.
[c] Landsteiner and Wiener.[6]
[d] Landsteiner, Wiener and Matson.[9]
[e] Levine and Wong.[10]

[1] Aided by grants from the Blood Transfusion Association in New York City and the National Committee on Maternal Health.

[2] P. Levine, E. M. Katzin and L. Burnham, *Jour. Am. Med. Asn.*, 116: 825, 1941.

[3] P. Levine, L. Burnham, E. M. Katzin and P. Vogel, *Am. Jour. Obst. and Gyn.*, 42: 925, 1941.

[4] A. S. Wiener, *Arch. Path.*, 32: 227, 1941.

[5] P. Levine, E. M. Katzin, P. Vogel and L. Burnham, Chapter XXXI in "Blood Substitutes and Blood Transfusions." C. C Thomas, Springfield, Ill.

[6] K. Landsteiner and A. S. Wiener, *Jour. Exp. Med.*, 74: 309, 1941.

[7] I. Davidsohn and B. Toharsky, *Am. Jour. Clin. Path.*, 12: 434, 1942.

[8] P. Levine, *New York State Jour. of Med.*, 42: 1928, 1942.

[9] K. Landsteiner, A. S. Wiener and G. A. Matson, *Jour. Exp. Med.*, 76: 73, 1942.

[10] P. Levine and H. Wong, *Am. J. Obst. and Gyn.* In press.

‡ Anti-Rh_2 sera were observed independently first by Wiener (*Arch. Path.*, 32: 227, 1941) and shortly thereafter by Levine.[3]

anti-$Rh_{1.2}$ or anti-Rh_1 is preferable to the anti-Rh_2 serum. The practical and theoretical significance of anti-Rh tests in racial studies is evident from the results shown in tables 1 and 2. These are based on tests with anti-Rh_1 and anti-Rh_2 sera.

TABLE 2

TESTS WITH ANTI-Rh_2 SERUM*

Race	Number tested	Percentages +	Percentages −
White[a]	334	73	27
Colored[b]	118	46	54
American Indians[d]	69	58	42
Chinese[e]	150	93	7

* The key to authors of these studies is identical with that given under Table 1.

Since the occurrence of erythroblastosis fetalis depends upon isoimmunization of the Rh- mother, the results in Table 1 indicate that a lower incidence of this condition can be expected in the colored, and that it should be extremely rare in the Chinese and the American Indians. In post-mortem studies of fetal and neonatal conditions, Potter[11] found that the incidence of erythroblastosis fetalis was 2.1 per cent. and 0.7 per cent. for the white and colored, respectively. These observations of Potter are confirmed in our recent study of a vast clinical material and by the results indicated in Table 1. So far as the Chinese are concerned, strong confirmation of the correlation of negative reactions with the anti-Rh_1 serum and the incidence of erythroblastosis fetalis will be presented elsewhere. However, it may be stated here that, as was to be expected on the basis of these results, erythroblastosis fetalis is actually exceedingly rare among Chinese infants. A similar low incidence should occur among American Indians, but clinical evidence to support this view is still to be provided.

Obviously, the observations recorded on the racial differences of the Rh reactions with the anti-Rh_2 serum are of considerable interest from an anthropological view-point. However, there is at present no proof of a relationship of these differences to clinical conditions in the new-born of various races.

The relationship of the anti-Rh_2 serum with another variety, termed anti-Hr, produced by an Rh+ mother of an erythroblastotic infant will be discussed elsewhere.

The author is indebted to Dr. E. M. Katzin for supplying blood specimens of white and colored individuals.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

A METHOD FOR THE IDENTIFICATION OF INDIVIDUAL FROGS

THE various books and articles that deal with the technique of animal experimentation give no satisfactory method for the identification of individual frogs. Some authors state that each frog under observation must be kept in a separate container, or at best suggest that various toes be amputated as a means of subsequent recognition. For several years our work has necessitated the examination of large numbers of frogs over a period of several months. An individual record of each animal was essential, but for practical purposes it was often desirable to keep 10 to 15 frogs in a single tank. This was achieved by making a sketch of the markings seen on the back of each animal. These pigment spots are sharply demarcated in the common laboratory frog, *Rana pipiens,* and are never identical in any two of these animals.

The markings on one of the frogs used in our experiments are shown in Fig. 1. A fold of skin extends from the posterior margin of each eye to the iliac crests at "X." The latter are very prominent and give the animal its normal humped appearance when at rest. Between these folds of skin there are characteristically two rows of pigment spots subject to considerable variation. It is with these markings that we are particularly concerned. The simplified diagram of the spots as used in our records is shown

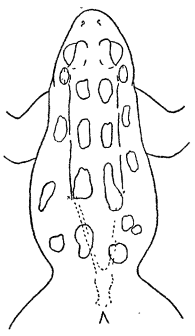

FIG. 1

in Fig. 2 A, where the posterior margin of each eye is indicated by the arc of a circle and each iliac crest by an "X." Figs. 2 B and 2 C portray two variations and the manner of recording them.

We have kept some of these animals for periods of nine to ten months at temperatures ranging from just

[11] E. Potter, *Jour. Am. Med. Asn.,* 115: 996, 1940.