units per cc.) although toxin production could be conspicuously enhanced by the addition of larger amounts of this sugar and prolongation of the incubation period to 5 days. In no instance was it necessary to adjust the culture fluid since the pH never fell below 6.8. Toxins of unusually high Lf value were obtained within from 3 to 5 days in a medium which contained both sugars (0.15% glucose and 0.3% maltose), added in combination before inoculation. In experiments carried on in the summer months, filtrates titrating as high as 26.3 Lf units per cc. were harvested with this particular method within 5 days. At other times the filtrates always contained 17 to 20 units per cc. Such filtrates moreover flocculated within 20 minutes, indicating high antigenicity (Schmidt[9]). Both adjusted and unadjusted culture fluids gave approximately the same values.

In conclusion, it may be stated that while either glucose or maltose definitely enhanced toxin production, filtrates of highest potency are obtained in a medium containing both sugars (0.15% glucose 0.3% maltose = 0.45% total carbohydrates). It would seem that the latter method permits of a more rapid and a more abundant toxin production than is commonly known.‡

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## Passive Local Sensitization in Atopic Individuals.

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(Introduced by M. J. Shear.)

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The technic for studying the absorption of unaltered proteins in humans has been described.[1] A cutaneous site is passively and locally sensitized with a small amount of serum taken from an atopic patient who is extremely sensitive to the protein to be tested. On the following day, the specific protein is fed to the subject on an empty stomach. Within a few minutes to a few hours, a wheal forms at the sensitized site demonstrating roughly the rapidity and,

[9] Schmidt, S., *Ann. de l'Inst. Past.*, 1930, **45**, 357.

‡ We wish to express our thanks to Mr. Soo-Hoo of the Department of Practice of Medicine, Physicians and Surgeons, Columbia University, for his kind assistance on this work.

[1] Walzer, M., *J. Immunol.*, 1927, **14**, 159.

to a certain degree, the amount of unaltered protein absorption in that subject. The results of studies with various proteins and in different types of subjects have already been presented.[2, 3]

The technic may, however, fail completely or may show diminished reactions in atopic subjects. One of the factors which accounts for this is that atopic individuals do not accept passive local sensitization as well as normals. The evidence is submitted herewith.

The ability of atopics to accept passive local sensitization was determined by titrating on their skins the sensitizing power of certain atopic sera of known strength.

The titrations of these sera were performed according to the method of Coca and Grove[4]. Atopic and normal subjects were sensitized with the serum in a range of dilutions determined to be suitable for that serum by previous titration on normal subjects. Seven days after sensitization the sites were tested with a suitable dilution of the atopen for which the serum in question contained reagins. Control tests on normal skin sites were introduced at the same time. Readings were made according to the method used in the indirect method of testing[5]; *i. e.*, any definite excess of reaction, either in wheal or in erythema, on the sensitized site over that manifested on the control site was considered a positive transfer.

The results of 5 titrations of atopic sera on normal and atopic individuals are presented in the table. Only the highest dilution which succeeded in sensitizing the skin of each subject is recorded in the table. In every serum, the same sensitizing dilutions were tried on both the normal and the atopic subjects.

With each of the sera tested it can be seen that the atopic patients did not as a group accept passive local sensitization with the same regularity or to the same degree as the normals. This was particularly true of sera containing reagins for *Ascaris lumbricoides*. Some of the patients who failed to accept passive local sensitization with the latter sera could be sensitized with a rabbit epithelium serum. It would seem therefore that the nature of the sensitizing serum is also a factor to be reckoned with in passive local sensitization. Regardless of the sensitizing serum it may be definitely stated that atopic individuals do not accept passive local sensitiza-

[2] Brunner, M., and Walzer, M., *Arch. Int. Med.*, 1928, **42**, 172.

[3] Sussman, H., Davidson, A., and Walzer, M., *Arch. Int. Med.*, 1928, **42**, 409.

[4] Coca, A. F., and Grove, E. F., *J. Immunol.*, 1925, **10**, 445.

[5] Walzer, M., *J. Allergy*, 1930, **1**, 231.

TABLE I.

| Serum | Dilutions of Sensitizing Serum | | Failed to accept passive local sensitization in stated dilutions. | Accepted Passive Local Sensitization | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Subjects | Number Tested | % | 1:4 % | 1:10 % | 1:40 % | 1:80 % | 1:160 % | 1:320 % | 1:640 % |
| Rabbit Epithelium Serum "K" | Atopics | 15 | | | 6.6 | 33.3 | | 60 | | |
| | Normals | 8 | | | | | 12.5 | 87.5 | | |
| Rabbit Epithelium Serum "K" (Aged in icebox 3 months.) | Atopics | 9 | | | | 33.3 | | 66.6 | | |
| | Normals | 10 | | | | | | 100 | | |
| Ascaris Lumbricoides Serum "S" | Atopics | 23 | 30.4* | | | | 8.7 | 17.4 | 30.4 | 13 |
| | Normals | 13 | 7.7 | | | | | 30.7 | 23 | 38.4 |
| Ascaris Lumbricoides Serum "G" | Atopics | 10 | | 100 | | | | | | |
| | Normals | 9 | | 11.1 | | 88.8 | | | | |
| Timothy Pollen Serum "C" | Atopics | 22 | | | 4.5 | 9 | 50 | 36.3 | | |
| | Normals | 7 | | | | | 57 | 43 | | |

* Two of these 7 subjects were sensitized with the undiluted "S" serum and failed to demonstrate a transfer of reagins. A third accepted passive local sensitization in a dilution of 1:10. The remaining 4 atopics and the normal were not tested with a dilution of the serum below 1:40.

tion as well as normals. This fact must be taken into consideration in the interpretation of the results of the absorption phenomenon in atopic patients.