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Transmission of Reagin Through the Placenta.

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Placental permeability to foreign proteins was first demonstrated by Ascoli[1] who recovered, by precipitin reactions, from the rabbit fetal circulation egg white and horse serum that had been injected parenterally into the mother. Later, passage of anaphylactic antibodies through the guinea pig placenta was demonstrated by Rosenau and Anderson[2] and by Otto.[3] Subsequently transmission of diphtheria and tetanus antitoxin from mother to child was shown to occur in humans.[4, 5]

Insofar as we know, no one has demonstrated placental transmission of the reagin from hypersensitive mother to her offspring. Bell and Eriksson were unable to demonstrate specific reagins in newly born infants of allergic mothers.[6] Since the multitude of factors concerned in this process necessarily makes control of the experiment difficult, it was decided to attempt the procedure in the Rhesus monkey.

A *Macacus rhesus* monkey whose sex cycle had been completely studied by the vaginal smear method was impregnated. The exact time of exposure being known, the expected date of delivery was calculated as 166 days later. Ten days prior to delivery the mother's skin did not react in sites locally sensitized with pea-wheat-rye reaginic serum from a hypersensitive patient. Seven days before delivery 20 cc of the pea-wheat-rye reaginic serum was injected subcutaneously and the injection was repeated daily. After having had 80 cc of the serum, positive skin tests to pea and wheat appeared and just before delivery when 140 cc had been administered large wheals could be produced with pea and wheat and a test to

* The expense of this investigation was borne in part by a grant from Parke, Davis and Company.

1 Ascoli, A. Z., *Phys. Chem.*, 1902, **36**, 498.

2 Rosenau, J. J., and Anderson, J. F., *Hyg. Lab. Bull.*, 1906, 29, U. S. P. H. Service.

3 Otto, R., *Münch. med. Woch.*, 1907, **54**, 1665.

4 Polano, O., *Z. f. Geburtsch. u. Gynäk.*, 1904, **53**, 456.

5 Ten Broeck, C., and Bauer, J. H., PROC. SOC. EXP. BIOL. AND MED., 1923, **20**, 399.

6 Bell, S. D., and Eriksson, Z., *J. Immunol.*, 1931, **20**, 447.

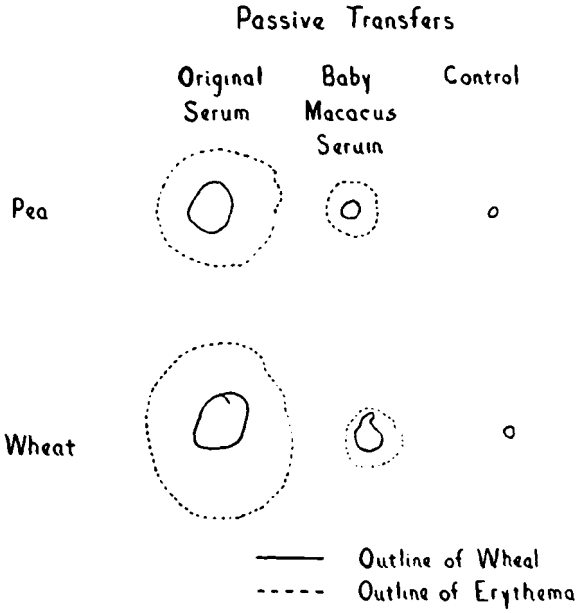

FIG. 1.

rye could also be demonstrated. After delivery the baby was bled and tested with the same antigens. Direct tests were all negative, Passive transfer of the baby's serum to human skin gave positive reactions to pea and wheat.

We have been able to transfer the reagin of hypersensitive man through the placenta of the *Macacus rhesus* monkey. Since the *Macacus rhesus* monkey accepts passive transfer like man,[7] there is a possibility that this mechanism of transfer exists in man.

[7] Strauss, H. W., *J. Immunol.*, 1937, **32**, 251.