elevated areas within 24 hours, averaging ¾-1 cm. in diameter. Likewise, with 1:2:4 dinitro-chlorbenzene* distinctly increased reactions, noticeable even after less than 10 injections, were observed in most of the guinea pigs after daily intracutaneous injections of the substance. In a preliminary experiment with suberanilic-resorcine dye,[6] 2 out of 6 animals treated in the manner described showed definite reactions, so that one may assume that sensitization is possible with this substance, also. White guinea pigs were used throughout. Intracutaneous injections of 1/50 mg. of the compounds in 0.1 cc. saline were used for the tests as well as for sensitization except in the case of dinitro-chlorbenzene, where doses of 1/400 mg. were injected. Normal animals used as controls showed no definite or much weaker reactions than those described.

In a limited number of specificity tests with the substances named, in animals that gave marked homologous reactions there was, as a rule, no difficulty in recognizing reactions with the homologous compound by their greater intensity. The guinea pigs sensitive to p-phenylene diamine, in addition to the homologous reaction, gave a smaller but distinct reaction with nitroso-dimethylaniline.

Injections of aminoazobenzene, aminoazobenzene disulphonic acid, and the carbohydrate dextran have, so far, yielded negative results.

7321 P

Relationship Between Complement and Prothrombin.

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Bordet was the first to recognize a relationship between thrombin and complement. Fuchs[1] has recently claimed that the *mid-piece* of complement is identical with prothrombin. Since the complement content of plasma and serum are apparently the same, the change of prothrombin to thrombin does not seem to influence complement. A close association of prothrombin and thrombin with complement is indicated by:

* The experiments with this substance were suggested to us by Prof. Zangger in Zürich. See Wedroff, N. S., *Arch. Gewerbepath. u. Gewerbehyg.*, 1932, **3**, 509.

[6] Landsteiner, K., and van der Scheer, J., *J. Exp. Med.*, 1932, **56**, 399.

[1] Fuchs, H. J., *Z. f. Immunitatsfor.*, 1929, **62**, 107.

TABLE I.

Volume of anticomplement	0.4	0.3	0.2	0.1	.09	.08	.07	.06	.05	.04	.03	.02
Serum heated to 56° C.	n.c.	c	c	c	—	—	—	—	—	—	—	—
Plasma " " " "	—	0+	+	++	+++	n.c.	c	c	—	—	—	—
Serum treated with $Mg(OH)_2$	—	—	—	0+	++	n.c.	c	c	—	—	—	—
Plasma " " "	—	—	—	—	—	0	+	++	n.c.	c	c	c
Heparine (0.1% solution)	0	+	++	n.c.	c	c	—	—	—	—	—	—
Calcium chloride (M/10)	—	—	—	—	—	0	++	+++	n.c.	c	c	—

Each system consisted of 0.1 cc. of complement (1 unit)
0.4 cc. 2 x sensitized sheep cells
physiological saline q.s. 1.0 cc.

c = complete hemolysis
n.c. = nearly complete

A { 0.1 cc. oxalated plasma / 0.1 cc. calcium chloride (M/40) } clot in 105 sec.
A + 0.05 cc. heated (56° C.) serum " " 120 "
A + 0.05 cc. " " " plasma " " 120 "
A + 0.05 cc. serum treated with $Mg(OH)_2$ " " 135 "

A + 0.05 cc. plasma treated with $Mg(OH)_2$ clot in 170 sec.
A + 0.10 cc. heparine (0.1% sol.) " " 180 "
0.1 cc. plasma treated with $Al(OH)_3$ } " " 300 "
0.1 cc. calcium chloride M/40 }

Plasma treated with $Al(OH)_3$ has the same content of complement as untreated plasma.

Treating serum or plasma with magnesium hydroxide or aluminium hydroxide consisted in mixing 0.5 cc. of the serum or plasma with 0.05 cc. of the reagent incubating at 37° C. for 15 min., and centrifuging.

1. Both complement and thrombin are non-specific. Complement obtained from one animal will react with the amboceptor and antigen of another species. Thrombin from various animals will clot fibrinogen irrespective of its source.

2. Both thrombin and complement, particularly the *mid-piece,* are associated with the globulin fraction of the serum proteins.

3. Prothrombin, thrombin, and complement are inactivated at 56°C., and the resulting serum or plasma becomes antithrombic and distinctly anticomplementary (the plasma more than the serum).

4. Serum or plasma treated with an emulsion of magnesium hydroxide becomes antithrombic (anti-clotting), and anticomplementary, with the effect more pronounced in the plasma than in the serum.

5. Heparine inactivates both complement and thrombin.

6. Calcium inhibits both complement and clotting. For the reactivation of prothrombin in oxalated plasma, there is an optimal concentration of calcium, below and above which clotting is retarded. Absence of calcium does not inhibit complement.

That prothrombin is not identical with complement is indicated by: 1. Alumina cream will remove prothrombin from plasma but will not alter the complement content. 2. Patients have been found whose plasma is anticomplementary, but have a normal clotting time.

Conclusion. Although a close association exists between prothrombin and complement, evidence is against the assumption that the former and the *mid-piece* of complement are identical.

7322 C

Globulin Extract of Immune Adult Serum in Prophylaxis of Measles.*

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It is widely appreciated that the majority of infants up to 3 months of age and frequently longer possess immunity to certain diseases, such as measles, diphtheria, scarlet fever, and poliomyelitis. Explanations for these facts have been varied. Most of the

* This work was aided by a grant from Miss Emilie Fries.