rum diluted 1:10, 25 mg of total bacteria or cell walls were required, which corresponds to 50 mg of absorbing substance for 1 ml of undiluted serum. For complete absorption of all precipitins from 1 ml of a serum diluted 1:4 2.4 ml of disintegrated bacterial substance were required, which corresponds to 9.6 mg / 1 ml of undiluted serum.

Summary. Bacterial agglutinins were removed partly by intact bacteria or cell walls from brucella antisera and by absorption with heterologous antigens monospecific antisera were produced. Cell wall agglutination parallels almost completely the agglutination of intact bacteria, when cell wall suspensions of high density were employed. Precipitins for soluble bacterial antigens demonstrable by agar gel precipitation technic were nonspecific and were removed by relatively small amounts of absorbing antigens.

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Indirect Effect of X-Irradiation on I^{131} Uptake in Chick Embryos.* (24953)

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Changes found in metabolism of I^{131} by thyroid in various animal species following total or partial body exposures to ionizing radiations are attributed to possible systemic response to exposures(1-6), but the evidence offered in support of this idea is circumstantial in nature. The following data afford direct evidence that changes in I^{131} uptake by thyroid in chick embryos are indirectly mediated by a substance found in peripheral circulation shortly after exposure of embryos to ionizing radiations.

Materials and methods. Fertilized eggs of White Plymouth Rock strain were obtained from commercial supplier. All injections were made into the air sac. Exposures to 600 r of x-rays were made approximately one hour after injections. Factors were 250 kv, 15 ma, Al parabolic plus 0.5 mm Cu with a HVL of 2.15 mm Cu, 25 cm Target-skin distance, and output 20.3 r/min. Approximately 24 hours after exposures and/or injections, the neck sections containing the thyroid were dissected out and counted for one minute in scintillation type well counter. The following experimental procedures were done. In Exp. 1, 12 or 15-day-old eggs were injected with 5 μc or 2.5 μc of I^{131}, respectively, about one hour before exposure to 600 r of x-rays. Controls received I^{131} only. In Exp. 2, 5 μc of I^{131} and 0.1 ml of pooled sera obtained from 13½ and 14-day-old embryos that had been exposed to 600 r of x-rays on 13th day were injected into 14-day-old eggs. Controls were injected with 5 μc of I^{131} and 0.1 ml of normal saline. In Exp. 3, 2.5 μc of I^{131} and 0.1 ml of pooled sera obtained from 15½-day-old embryos that had been exposed to 600 r of x-rays at 15 days of age were injected into 15-day-old eggs. Controls were injected with 2.5 μc of I^{181} and 0.1 ml of pooled sera obtained from untreated 15½-day-old embryos.

Results. The data shown in Table I indicate that not only does exposure of embryos to 600 r of x-rays result in increased uptake of I^{131} by the thyroid, but that pooled sera obtained from embryos exposed to 600 r of x-rays and injected into untreated eggs results

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TABLE I. Effect of X-Irradiation and Pooled Sera from X-Irradiated Embryos on Uptake of I^{131}.

Exp. groups	Age in days	Sample size	Counts/min. (mean value)	p*
Control I	12–13	66	7,414 ± 591†	
I (600 r)	"	106	10,195 ± 438	.005
Control I	15–16	37	17,278 ± 1205	
I (600 r)	"	45	21,380 ± 1512	.05
Control II	14–15	9	17,903 ± 3879	
II (pooled sera)	"	15	31,417 ± 3848	.05
Control III	15–16	16	16,125 ± 1528	
III (pooled sera)	"	10	23,701 ± 2053	.01

* Significant level for difference between means of treated and control calculated by means of Student's "t" test.
† Stand. error of mean.

in a similar increase in thyroidal uptake of I^{131}.

Conclusion. This finding gives direct evidence that the change in uptake of I^{131} by the thyroid following exposure of chick embryos to x-rays is indirectly mediated *via* a substance found in plasma after exposure.

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Specificity of Anamnestic Response in Chickens.* (24954)

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The phenomenon of anamnesis, as originally recognized by Solomonsen and Madsen (1) in 1896, referred to the secondary response to diphtheria toxin of animals previously immunized with the same antigen. However, the term "Anamnestische Serum Reaktion" was coined to describe observations of Conradi and Bieling(2), in 1916, that soldiers previously vaccinated with typhoid vaccine had a sharp rise in typhoid antibody titer during the course of unrelated febrile diseases. Since these early observations numerous workers have reported increases in antibodies to a primary antigen following secondary stimulation with unrelated antigen [*Cf.* reviews by Wilson(3) and Freund(4)]. Others, however, have been unable to demonstrate such secondary non-specific responses(3-5). Recently, Dixon and Maurer(5), using quantitative technics, have shown that rabbits previously immunized with one antigen accelerate and magnify the immune response to primary injection of a heterologous antigen, only if the 2 antigens are related. Furthermore, the secondary non-specific responses occurred only if the primary and secondary antigens were related. In attempts to define the specificity of the anamnestic response, the common fowl has been but little employed as antibody producer, despite the fact that the fowl has the advantage of reacting rapidly to single small injections of a variety of antigenic substances and producing antibodies in a relatively higher titer, reaching a peak in 7 to 9 days(6-8). It

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