

Thyroid from normal dog		Thyroid after hemithyroidectomy, unipolar ligation and iodine administration
Exp No.		
19 Normal or slightly hyperplastic	after 23 days	Normal
20 Slightly hyperplastic	7 "	Normal or slightly hyperplastic
22 No specimen	?	Normal
25 Normal or slightly hyperplastic	?	No specimen
32 No specimen	?	Normal
33 Slight hyperplasia	?	Normal
35 Slight hyperplasia	7 "	Normal
37 No specimen	10 "	Normal
38 Hyperplasia	?	Hyperplasia (less)
40 Normal	?	Normal
46 Hyperplasia	5 "	Hyperplasia
51 No specimen	5 "	Normal or slightly hyperplastic
52 Normal or slightly hyperplastic	38 "	Normal or slightly hyperplastic
60 Slightly hyperplastic	31 "	Normal or slightly hyperplastic

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Comparison of non-irradiated and irradiated cholesterol to inhibit the hemolytic action of digitonin.

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As is well known, digitonin exerts a hemolytic action on red blood corpuscles, and cholesterol has the power to inhibit this activity. In view of the fact that our experiments have shown that the chemical properties of cholesterol are altered in various ways as the result of irradiation with ultra-violet light, it seemed worth investigating whether its property of inhibiting the action of digitonin remained unchanged after irradiation.

A comparison was made of the effect, in relation to hemolysis, of ordinary cholesterol with that of cholesterol which had been irradiated for periods of 1/2, 2 and 10 hours with the radiation of a mercury vapor lamp, set at a distance of 1 foot. For this purpose a suspension of 1 per cent ethereal solution of cholesterol and 0.1 per cent digitonin was tested on the red cells of the dog and of the sheep. Without going into detail at this time, it may

be stated that it was found that the rate of speed with which the cholesterol bound the digitonin had been altered as the result of irradiation—that the irradiated cholesterol bound digitonin more readily than ordinary cholesterol, and brought about a comparative delay in its hemolytic action. For example, whereas under controlled and constant conditions ordinary cholesterol allowed complete hemolysis to take place immediately, when cholesterol was used which had been irradiated for 2 hours, complete hemolysis did not occur until after an interval of $1\frac{1}{2}$ to 3 minutes. The sterol-digitonin was incubated for 3 hours before it was added to the red cells. When, however, the cholesterol was irradiated for a prolonged period, for 10 hours, this delay did not take place and complete hemolysis occurred immediately. In this connection it is of interest to note that the various other characteristics acquired through irradiation, for example its antirachitic potency, are lost when the raying is continued for 10 hours, or even a shorter period.

In these experiments the sterol-digitonin mixtures were incubated for 3 to 9 hours. When the incubation was carried out for 9 hours, it was found that the distinction between ordinary and irradiated cholesterol was lost, except in regard to that which had been rayed for 10 hours, which as a rule continued to allow complete hemolysis to take place immediately.

These experiments once more indicate that cholesterol is altered in its chemical constitution as the result of irradiation with ultra-violet rays, and confirm previous experiments in which this phenomenon has been demonstrated by other methods.¹

¹ Hess, A. F., et al, PROC. SOC. EXP. BIOL. AND MED., 1925, xxii, 227; PROC. SOC. EXP. BIOL. AND MED., 1925, xxii, 319; *J. Biol. Chem.*, 1925, lxiii, 305; *J. Biol. Chem.*, 1925, lxiv, 181; *J. Biol. Chem.*, 1925, lxiv, 193.