(Exp. *B*). It is rather hard to be definite about this for the following reasons :

(1) The best preparation of avidin binds only about 1/120 of its weight of biotin, whereas many more times its weight of antibody is bound.

(2) The binding site of biotin may be only one of the several patches where antiavidin is bound. Loss of one of these loci may not affect the precipitin reaction to a significant extent. Also, at higher concentrations of antigen, the antigen–antibody complex will become more soluble.

However, as shown by our preliminary experiments, the ability of avidin to bind biotin was not lost by previous precipitation of this protein by its antibody. Our preparations of antisera did not cross-react with ovomucoid or lysozyme, but do show a certain amount of cross-reaction with ovalbumin. Further, it is interesting to speculate whether biotin might not act as a hapten if the avidin–biotin complex were used as the antigen and if this complex were not cleaved by the intact rabbit, when administered parenterally.

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Cortisone–Glucose Tolerance Test in Normal and Thyroxine-treated Rabbits

In hyperthyroidism a decreased glucose tolerance with a diabetic-like glycæmic curve has been found by some authors[1–3]. Some of them ascribe this change to the damage caused to the pancreas by the toxic effect of thyroxine on β-cells of Langerhans islets[4,5], others to the relative or absolute insulin deficiency[1]. However, Amatuzio *et al.*[6,7], in their studies on patients with hyperthyroidism, showed that both the rate of disappearance of glucose during the intravenous glucose tolerance test and the glucose tolerance are normal or increased. This observation has been confirmed by my own studies on patients and experimental animals[8]. Recently, Conn and Fajans[9,10] have suggested the use of the cortisone–glucose tolerance test for investigating the latent insufficiency of insulin secretion in the non-diabetic relatives of known diabetics. Since the rapid intravenous glucose tolerance test in animals with hyperthyroidism was within the normal range[8], the cortisone–glucose tolerance test was employed for ascertaining the latent damage to the pancreas.

Table 1. Values of the Assimilation Coefficient of Glucose in the Intravenous and Cortisone–Glucose Tolerance Test in Normal and Thyroxine-treated Rabbits

State	No.	Test	Assimilation coefficient	*P*
Normal	7	GTT*	1·16 ± 0·18	—
Thyroxine-treated	7	GTT*	1·29 ± 0·25	>0·1
Normal	7	C–GTT†	1·10 ± 0·16	>0·1
Thyroxine-treated	7	C–GTT†	2·01 ± 0·52	<0·01

* Intravenous glucose tolerance test. † Cortisone–glucose tolerance test.

In a group of normal rabbits and rabbits with experimental hyperthyroidism (induced by treatment with 0·25 mgm./kgm. body-weight thyroxine per day for 10 days) a rapid intravenous glucose tolerance test was performed and the tolerance was evaluated by determining the assimilation coefficient of glucose[11–13]. In the cortisone–glucose tolerance test 5 mgm. of cortisone acetate were administered intramuscularly 4 hr. before the intravenous glucose tolerance test. The results of our observation are given in Table 1. In normal rabbits the average value of the assimilation coefficient of glucose is 1·16 ± 0·18; after treatment with cortisone it was found to be slightly, though not significantly, decreased to 1·10 ± 0·16. In rabbits with hyperthyroidism it was 1·29 ± 0·25. This did not decrease even after administering cortisone (which would point to a latent insulin deficiency), but actually increased by a significant amount to 2·01 ± 0·52, which shows an accelerated rate of disappearance of glucose, increased rate of utilization of glucose and improved glucose tolerance. The exact nature of this change of assimilation coefficient of glucose cannot as yet be explained fully. It may occur in one of the following ways : either the organism of thyroxine-treated rabbits is in a state of excessive excitement[14], so that slight hyperglycæmia after the administration of cortisone causes an increased secretion of insulin which accelerates the rate of disappearance of glucose, or thyroxine affects the response of carbohydrate metabolism to cortisone.

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A Highly Sensitive Assay for Œstrogens

The accepted criterion of response in the intravaginal Allen–Doisy assay is cornification of the vaginal epithelium, which occurs 48–54 hr. after administration of an effective dose of œstrogen[1,2]. Cornification is the end-point of a lengthy chain of events involving cell multiplication and growth of the epithelium.

Biggers and Claringbold[3] have shown that, in the mouse, the earliest morphological response to the intravaginal administration of œstrone, is an increase in the mitotic rate of the vaginal epithelium. After a latent period of about 12 hr. the mitotic rate increases exponentially until 30–36 hr. after injection. Since it is probable that œstrogens act by stimulating cell division, without having any other effect on the