season gave indications, as determined by weekly sweepings by means of the insect net, of promising control of psyllids, tuber flea beetles, and leaf hoppers.

In studying a new approach to the control of the European elm scale, *Gossyparia spuria* (Modeer), it was found that Colorado 9 was definitely lethal to this insect.

The insecticide DDT, when used on leguminous plants at high concentrations, has a definite depressing effect on the bacterial nodules (*1*). In agricultural crop rotation where legumes are grown for increasing the soil nitrogen, this was a distinct disadvantage for DDT. Colorado 9 has the advantage of having no depressing effect at high concentrations on bacterial nodules of legumes when used as an insecticide (*2, 3*). Extensive field investigation indicates that there was no injurious effect when insecticidal preparations using this compound were sprayed on plants.

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Lesions of the Pancreatic Islets Produced in Cats by Administration of Glucose

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Previous studies (*1*) have suggested that an elevated level of blood glucose may, under certain circumstances, result in lesions of the islands of Langerhans. Thus, in animals with subtotal pancreatectomy or in those treated with anterior pituitary extract, a period of hyperglycemia precedes hydropic degeneration of the beta cells. Furthermore, measures which lower the blood glucose (e.g. diet, insulin, or phlorizin) will prevent or reverse such changes during the early stages. The literature concerning the effect of the administration of glucose upon the pancreatic islets reveals either failure to secure prolonged hyperglycemia in dogs or the occurrence of only minor changes in granulation of the beta cells of other species.

It has been found possible to elevate the level of blood glucose in cats by means of repeated intraperitoneal injections of glucose. Twenty per cent glucose in physiological saline was given at approximately 8-hour intervals, the amount injected being gradually increased from 50 to as much as 140 ml./dose (150–420 ml. daily). The amount of food eaten and the urine glucose excreted were determined daily. Extra vitamins, particularly thiamine, were administered in large amounts. Blood glucose determinations were made at frequent intervals, usually just before the intraperitoneal injection of the glucose-saline solution. Normal cats and four cats from which approximately half to two-thirds of the pancreas had been removed were employed. These were observed for several weeks before starting the glucose injections and were known to have normal blood glucose concentrations.

After a few days of injections some of the cats exhibited a syndrome of marked weakness of the hind legs, ataxia, anorexia, occasional convulsions, and death—an effect noted by others in dogs and cats. However, some of the cats did not develop this syndrome, or recovered from it so that injections could be continued for weeks.

TABLE 1

No. of cats*	Total period of glucose injections		Days of hyperglycemia‡	Hydropic degeneration of beta cells
	Days	Avg. blood sugar† (mg./100 ml.)		
4	14–27	209–326	9–19	Marked
4	6–16	133–296	0– 5	None

* Each group consisted of two normal and two partially depancreatized cats.

† Average of all blood glucose determinations made just before injections of glucose.

‡ Morning hyperglycemia indicates a blood glucose concentration of greater than 149 mg. per cent prior to the 8:00 A. M. injection of glucose.

To date, sections of the pancreas of 8 animals have been examined, and the histological changes in the islands of Langerhans have been related to the degree and duration of hyperglycemia (Table 1). The morning preinjection blood glucose value has been selected as a criterion because more observations were made at this time and, in the great majority of instances, it was the lowest preinjection value in the 24 hours. This was due to the fact that this sample of blood was usually obtained at a somewhat longer interval after the previous injection of glucose.

In addition to these animals, a normal cat was maintained hyperglycemic for a period of 39 days by means of glucose injections. When these were stopped, the cat remained severely diabetic. It was sacrificed while in diabetic acidosis 22 days after the last injection. Prior to death it had excreted approximately 100 per cent of the available glucose of the meat diet and had developed acetonuria. Terminal blood samples showed greatly increased concentrations of glucose and fatty acids, and the serum CO_2 was 11 vols. per cent.

Summary. Hydropic degeneration of the islands of Langerhans and permanent severe diabetes mellitus have followed the prolonged injection of intraperitoneal glucose-saline solution in normal as well as in partially depancreatized cats. Positive results were associated with prolonged hyperglycemia. These findings add further evidence in support of the hypothesis that a sustained elevation of blood glucose may, under certain conditions, lead to the production of damage to the islands of Langerhans in this species. Besides hyperglycemia, other disturbances which might be responsible wholly or in part for the island lesions are under study.

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