muscular effort, combine to increase blood lactic acid and blood sugar.

These convulsions, grand mal in character, cause a temporary but marked depression of cerebral functions as evidenced by amnesia, confusion, disorientation, and the elicitation of various abnormal reflexes, such as the Babinski and ankle clonus. This change in function may be attributed to the anoxemia.

The insulin therapy for schizophrenia also involves depression of cerebral functions. It is, therefore, interesting to compare the physiological mechanism of these two forms of treatment. Insulin hypoglycemia depresses cerebral metabolism by diminishing the food supply of the brain (blood sugar),[2] while metrazol achieves the same effect by decreasing the oxygen available for the combustion of this foodstuff. Thus, insulin therapy affects the brain specially, for that organ utilizes carbohydrate chiefly, while metrazol has a generalized effect on all the organs of the body, including the brain. The effect of insulin on the brain is more prolonged, while that of metrazol is more severe. However, in both cases, the depression of cerebral metabolism seems to favor the amelioration of schizophrenia.

9571 P

Chronic Adrenal Insufficiency and Pancreas Diabetes.*

J. F. FAZEKAS, H. E. HIMWICH AND S. J. MARTIN.

From the Department of Physiology and Pharmacology, Albany Medical College, Union University, Albany, New York.

Grollman and Firor[1] have demonstrated that chronic adrenal insufficiency, induced by various methods, is primarily a disturbance of pituitary origin. The syndrome which follows, cessation of growth, failure of reproductive activity and subnormal body temperature is, according to the above workers, relieved by administration of pituitary extracts and not by cortin. Long[2] has shown that acute adrenal insufficiency caused by the removal of the adrenal gland, though accompanied by injections of cortin, ameliorates ex-

2 Himwich, H. E., Bowman, K. M., Wortis, J., and Fazekas, J. F., *Science*, 1937, **86**, 271.

* This study was aided by a grant from the National Research Council.

1 Grollman, A., and Firor, W. M., *Am. J. Physiol.*, 1935, **112**, 310.

2 Long, C. N. H., *Am. J. Med. Sci.*, 1937, **191**, 741.

perimental pancreatic diabetes. The object of the present experiments is to determine the effects of chronic adrenal insufficiency on the course of experimental pancreatic diabetes.

Eight cats were anesthetized with sodium pentobarbital and both lumbo-adrenal veins were ligated distally and proximally to the gland. At the same time the entire pancreas was removed. The animals received neither insulin nor cortin. Fluid was given *ad lib.* along with a weighed amount of food (Bovex) each day. The periods of survival were 11, 11, 12, 15, 17, 18, 20, and 98 days. The life span of these animals was definitely prolonged by the ligation, for depancreatized cats usually succumb before 8 days. At the present time we shall present a brief description of the cat which survived for 98 days. After the operation the cat exhibited a profound glycosuria, but 2 weeks later the urine was free of sugar and remained so until death. There was a marked (50%) loss in body weight. At autopsy careful examination revealed no traces of pancreatic tissue. The adrenal glands appeared degenerated. The kidney cortex was white due to increased deposition of fat, 14.8% on analysis, although the liver was free of fatty infiltration and contained the normal amount of fat, 4.5%. Two large and several small ulcers were found on both sides of the pyloric orifice of the stomach. Histological sections of the adrenal and pituitary glands are being prepared.

Biochemical studies are in progress on several animals now under observation.

9572

Effect of Male Hormone upon Uterine Motility and the Uterus.*

S. L. LEONARD, V. SAGER AND J. B. HAMILTON.

From the Biology Department, Union University, Schenectady, N. Y., and the Anatomy Department, Yale School of Medicine, New Haven, Conn.

The discovery of the "progesterone-like" action of several male hormone compounds in the induction of morphological changes in the rabbit's uterus suggested the possibility that such compounds might also exert a similar effect upon uterine motility.[1] While we

* Aided by a grant from the Rockefeller Foundation.

1 Klein, M., and Parkes, A. S., *Proc. Roy. Soc. London*, 1937, **121**, 574.