44 (136). "**The toxicity of indol**": **A. N. RICHARDS** and **JOHN HOWLAND.**

Previous observers have shown the comparatively slight toxicity of indol, large amounts having been given to dogs with no resulting symptoms.

A series of experiments on rats, guinea pigs and rabbits have shown that if the capacity of the cells of utilizing oxygen is diminished, as by potassium cyanid, or chloroform, the intensity and duration of symptoms following the injection of definite doses of either indol or phenol are increased.

Experiments on dogs have shown that if potassium cyanid is given together with indol (0.25–0.5 gm.) by subcutaneous injection, a series of symptoms results which ends after a period of days with the death of the animal. The symptoms consist of stupor and delirium, loss of power over limbs, exaggerated reflexes with spasticity of hind limbs, hypersensitiveness in the lumbar region, especially the tail, loss of sight, constant nausea, feces diminished in amount and bloody, and emaciation. Autopsy showed marked congestion of the mucosa of the duodenum, ileum, and colon, blood in the intestinal contents, degenerative changes in the liver and intestinal mucosa, excessive cerebrospinal fluid, and softening of the brain-tissue.

Comparable results have been obtained when prolonged chloroform anesthesia or prolonged asphyxia has been substituted for the cyanid.

In one experiment an intestinal fistula of the Thiry-Vella type was established in a dog and complete recovery from the operation allowed. On poisoning with potassium cyanid and indol, the latter could not be detected in the urine but was found in the contents of the isolated intestinal loop. Urinary examinations in the various experiments showed that diminished oxidation lessens the intensity and prolongs the duration of the indican reaction in the urine.

The experiments were made as a part of a study of the etiologic factors in recurrent vomiting in children. At the beginning of these seizures there are signs of diminished oxidation (increased elimination of uric acid, neutral sulfur, lactic acid, acetone bodies) and an abnormally intense indican reaction. It is believed that failure to oxidize completely substances of the type of indol, may

result in the production of distinct mental symptoms and in the partial excretion of the substances into the gastrointestinal tract. The disturbance induced by such substances is capable of producing nausea and vomiting.

45 (137). **"The formation of urea": L. B. STOOKEY** and **A. S. GRANGER.** (Presented by **R. A. HATCHER.**)

Subcutaneous injection of liver-extracts (dog) was found to lead, in the dog, to an increased elaboration of nitrogenous end-products into urea. Liver extracts which had been heated to 55° C. failed to manifest this stimulative action. These results might indicate an enzymatic formation of urea. Further experiments are in progress.

46 (138). **"The effects on embryonic development of the Röntgen rays acting on the spermatozoa of the toad previous to fertilization": C. R. BARDEEN.** (Presented by **EUGENE L. OPIE.**)

Experiments have shown that spermatogenesis may be inhibited by exposure to the Röntgen rays or to radium. The direct action of the rays on the spermatozoa has not, apparently, been studied. It occurred to the author that it would be interesting to see if spermatozoa could be injured by the Röntgen rays and, if so, what the effect would be on the development of ova fertilized by spermatozoa thus affected. During the short breeding season of the toads in the vicinity of Madison, Wisconsin, the author collected daily several pairs of toads, separated the males from the females, and from the males got enough sperm to make a slightly cloudy suspension in water. This suspension was divided into two parts, one of which was kept for control purposes, while the other was exposed for from an hour and a half to two hours and a half to Röntgen rays. Several of the females were then opened, until, when possible, one was found in which the eggs seemed abundant and ready to be discharged. Two short strings of eggs were removed and each string was divided into two parts; one part was placed in the control dish, the other in that which had been exposed to the rays. After about fifteen minutes each string was placed in a separate dish of water.

Several of the experiments proved of negative value either be-