the exception of the catfish and eel, which are not ordinarily considered delicacies, all the "poisonous" fishes are inedible. Furthermore, all the fishes belonging to the toxic group underscored in the table possess either but rudimentary scales or none at all so that there seems to be some scientific basis for the ancient classification of edible and inedible fishes into two groups, namely, those which have scales and those which have not.[11]

Summary. (1) Extracts of muscle tissue prepared with physiological saline at room temperature were obtained from 65 varieties of fish and examined pharmacologically. (2) It was found that extracts of muscle tissue obtained from ten different sets of fishes were poisonous for seedlings of *Lupinus albus* and for mice while suspensions of the other fifty-five specimens exhibited little or no toxicity. (3) A comparative study of the chemical and pharmacological properties of the poisonous fish muscle extracts with those of certain snake venoms is now in progress.

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Effect of Repeated Administration of Delvinal Sodium [5-ethyl-5-(1-methyl-1-butenyl) barbituric acid] to Guinea Pigs.*

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Cope and Hancock[1] reported that the sodium salt of 5-ethyl-5-(1-methyl-1-butenyl) barbituric acid was an effective hypnotic with a high therapeutic ratio when administered either by stomach tube (oral) or by intraperitoneal injection. Hendrix[2] gave the same compound by stomach tube to both dogs and rats and stated that there was no indication of the development of tolerance to the drug in the case of dogs and that rats showed little or no tendency toward the development of tolerance.

In this paper, we wish to present the results of repeated intraperitoneal injections of delvinal sodium into 16 normal young guinea pigs.

11 Leviticus XI, 9-12.

* The delvinal sodium was kindly furnished by Sharp and Dohme, Inc., Philadelphia.

1 Cope, A. C., and Hancock, E. M., *J. Am. Chem. Soc.*, 1939, **61**, 776.

2 Hendrix, J. P., *J. Pharm. and Exp. Therap.*, 1940, **68**, 22.

The delvinal sodium was kept in a desiccator between weighings and a fresh aqueous solution (25 mg/1 cc) was prepared just previous to each series of injections. The dose (40 mg/kilo body weight) was selected, since it produced hypnosis that lasted about 3 hours in normal young guinea pigs. The drug was administered twice weekly, Tuesday and Saturday, by one of us (E.B.C.). As soon as the animals were recorded as asleep, they were placed in an incubator at about 90°F in order to avoid excessive loss of body heat and possible pneumonia. The injections were continued for 4 weeks. The guinea pigs were allowed dry hay, oats and water routinely up to the time of injecting the drug. Green vegetables were fed after each recovery from hypnosis and until about 15 hours previous to the administration of the drug.

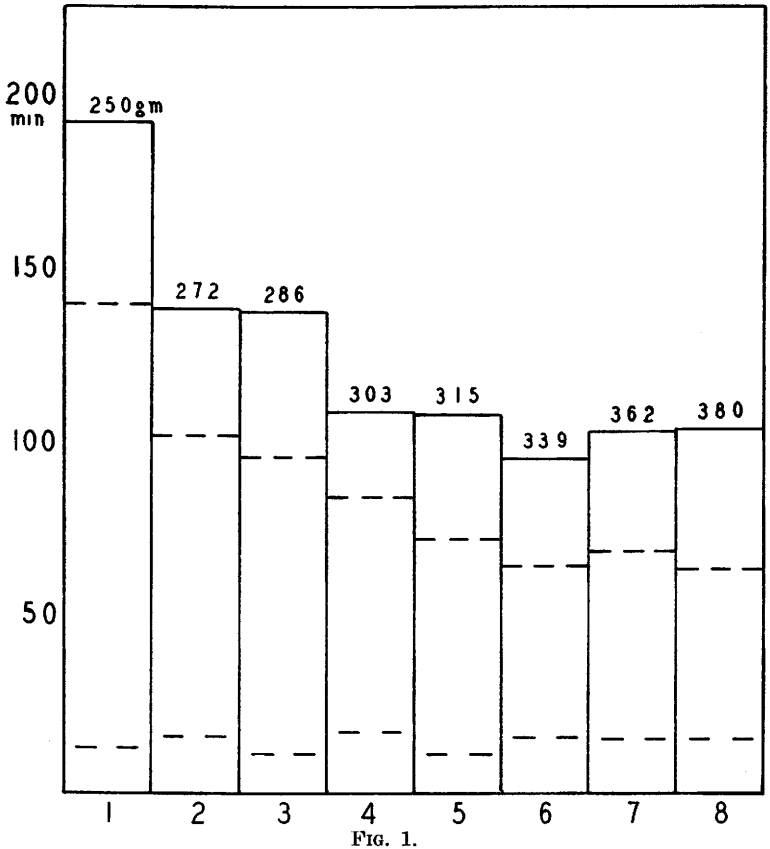

FIG. 1.

The graphs in Fig. 1 represent averages and each unit shows the results for a single day. The lower dotted line represents the time required to produce sleep and the upper dotted line represents the end of sleep. The average weight of the guinea pigs before each injection is given above the respective graph.

The periods of time required for the development of 3 stages in the hypnosis (anesthesia) were selected according to Carmichael and Posey[3, 4] in their studies with nembutal (pentobarbital sodium): (a) The time from the injection until the animal could not support and propel itself after stimulation by gently pulling the hair on the hips. This stage was considered the onset of sleep. (b) The time from the injection until the animal could be aroused sufficiently to walk forward after stimulation. This stage was considered the end of sleep. (c) The time from the injection until the animal could walk a distance of about a meter with a steady gait (without ataxia). This stage was considered the end of the hypnosis. Each animal was observed by this scheme after each injection and the data are illustrated in Fig. 1.

Summary. Guinea pigs were found to show a tolerance to delvinal sodium [5-ethyl-5-(1-methyl-1-butenyl) barbituric acid] on repeated administration of large doses of the drug. The average length of sleep dropped from 127.3 to 48.2 minutes following 8 semi-weekly injections of the drug, while the average length of hypnosis dropped from 191.9 to 104.1 minutes. The average weight of the guinea pigs increased from 250 to 380 g, which was more than a 50% increase in weight.

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An A.C. Induction Flow Meter for Measurement of Blood Flow in Intact Blood Vessels.

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The principle of the electro-magnetic flow meter[2] is based on the fact that an electromotive force is induced in the blood as it flows through a magnetic field (the direction of flow forming preferably a right angle with the magnetic lines of force).* The induced e.m.f.

[3] Carmichael, E. B., and Posey, L. C., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 1329.

[4] Carmichael, E. B., and Posey, L. C., *Anesthesia and Analgesia*, 1937, **16**, 199.

* Further reference to the application of electro-magnetic induction in liquids may be found in Nos. 1, 3-9 of the bibliography appearing in this article.