1409. Intra-cerebral injection of LSD-25 in the unanesthetized dog. THOMAS J. HALEY AND W. G. MCCORMICK.* *Dept. of Medicine, School of Medicine, Univ. of California at Los Angeles, Los Angeles.*

Using the implanted cannula, described previously (*Circ. Research* 3: 103: 1955), lysergic acid diethylamide (LSD-25) was injected into the 3rd cerebral ventricle of the unanesthetized dog. Doses of 1.6, 5 or 10 μg/kg produced the following symptoms: 1 min.—whining and shaking of the head; 2 min.—licking the chops, salivation and atoxia; 3 min.—retching, nausea, emesis, micturation and tachypnea; 5 min.—all above much exaggerated; 6 min.—mydriasis with reactive pupils; recovery occurred after 15–20 min. Throughout this period the animals appeared frightened, but there was no impairment of their ability to follow simple commands or perform simple tasks. The animals reverted from an adult behavior pattern to a puppy one resembling in part the changes observed in humans by Forrer and Goldner (*Arch. Neurol & Psychiat.* 65: 581: 1951). Much larger intravenous doses of LSD-25 are required to produce the pharmacological effects observed after intraventricular injection of the drug. The most striking effect is the personality change which occurs after intraventricular injection of LSD-25. The other symptoms are in part similar to those observed by Weinberg and Haley (*Circ. Research* 3: 103: 1955; *Proc. Soc. Exper. Biol. & Med.* 89: 345: 1955; *Arch. internat. pharmacodyn.* In press) in dogs receiving cardiac glycosides, quinidine, procaine amide or chlorpromazine or by Feldberg and Sherwood (*J. Physiol.* 123: 148: 1954) in cats receiving many chemically and pharmacologically related drugs. There can be no doubt that intraventricular injection of drugs in unanesthetized animals allows a better evaluation to be made of the central effects of drugs. (Supported by a grant from Ciba Pharmaceutical Products, Inc.)

1410. Some pharmacological properties of the quaternary oxazolium compounds. THOMAS J. HALEY, W. G. MCCORMICK* AND A. M. FLESHER.* *Div. of Pharmacology and Toxicology, Atomic Energy Project, School of Medicine, Univ. of California at Los Angeles, Los Angeles.*

Lushbaugh *et al.* (*J. Pharmacol. & Exper. Therap.* In press) observed that the quaternary oxazolium compounds had a poikilothermic effect in mice and rats and an antipyretic effect in rabbits. We have investigated the pharmacological effects of 2(1-naphthyl)-, 2-(4-methoxyphenyl)-, and 2-(4-methylphenyl)-3-methyl-5-phenyloxazolium-4-toluenesulfonate. All of these compounds produced a hypotension in chloralose or pentobarbitalized cats and the response was linear over the dosage range 0.5–5 mg/kg. There was no detectable change in heart rate with these doses, but at higher doses, cardiac anoxia was evident because there was an increase in the height of the T-wave of the ECG. Respiratory rate decreased slightly and death was the result of respiratory paralysis coupled with peripheral vascular collapse. None of these effects were modified by 2 mg/kg of atropine, 1 mg/kg of pyrilamine maleate or bilateral vagotomy. The oxazolium compounds had no ganglionic blocking or stimulating effects on the superior cervical ganglion. These compounds showed no spasmolytic or adrenergic blocking properties. However, they increased the tonus and amplitude of contraction of the cat intestine *in situ* and reduced the body temperature of these animals as much as 2°C. The oxazolium compounds did not produce chromoachryodynia in rats at doses as high as 500 mg/kg and they did not block such responses induced by methacholine. At concentrations of 1% these compounds had no effect on the rabbit eye. However, they prevented epinephrine toxicity in mice probably by peripheral vasodilatation rather than adrenergic blockade. Upon the basis of this investigation, it seems probable that these compounds could be applied in surgical cases requiring hypothermia. (This article is based on work performed under Contract No. At-04-1-GEN-12 between the Atomic Energy Commission and the Univ. of California at Los Angeles.)

1411. Effect of whole body x-irradiation on the free amino acid content of rat plasma. DUANE W. HALLESY* AND JOHN DOULL. *U. S. Air Force Radiation Lab. and Dept. of Pharmacology, Univ. of Chicago, Chicago, Ill.*

Recent studies by Kay and Entenman (*Federation Proc.* 13: 520, 1954) and Mefford and Martens (*Science* 122: 829, 1955) have demonstrated changes in the free amino acid excretion patterns of x-irradiated rats. The present study was carried out to determine the effect of x-irradiation on the free amino acid content of rat plasma using the ion-exchange method described by Moore and Stein (*J. Biol. Chem.* 192: 663, 1951) for the amino acid separation and ninhydrin for the quantitative estimation of the individual amino acids. Adult male Sprague Dawley rats were given 800 r of whole body x-irradiation (radiation factors: 250 KVP, 15 ma, target-skin distance 75 cm, dose rate 35–37 r/min). Blood was obtained by cardiac puncture at 1, 2, 3 and 5 days after the x-ray exposure. Both the control and the irradiated animals were fasted during the postirradiation period to eliminate the effects of the radiation-induced anorexia. The plasma content of serine, glutamic acid, valine, methionine, lysine, alanine, threonine, isoleucine and leucine was increased