TABLE I.
Poliomyelitis Virus in Throat Swabs.

Patient	Sex	Age	Type	Day of disease	Exp. result
Houde	♀	6	Non-paralytic	1	+
Johnson	♂	15	"	2	+
Broccoly	♀	11	"	2	+
Gronin	♂	10	"	1	—
Doer	♂	—	"	1	—
Gajewski	♀	12	"	2	—
Stowe	♂	11	Paralytic	2	+
Mari	♂	10	"	2	+
Stone	♀	6.5	"	2-3	—
Noa	♂	8	"	1	—
Shuman	♂	15	Bulbar	6	—
Morgan	♂	15	"	2	+
Lanette	♀	13	"	4-5	—
Hill	♂	13	Fatal Bulbar	1	+

justed at pH 6.[2] The throat swabs were accordingly eluted in phosphate buffer at pH 8, the fluid being pressed out of the cotton in a syringe. The eluate was then brought to pH 6 and treated with 20% ether in the ice box until sterile (usually 36 hours) at which time the ether was removed. In no case was more than 1.1 cc of inoculum obtained, which made it possible to give the entire specimen by intracerebral inoculation to a single monkey. Rhesus monkeys of 8-10 lb. were used. Under ether anaesthesia a trephine hole was made over the sagittal suture just posterior to the coronal sutures. It was thus possible through this single opening to place half of each inoculum into each lateral thalamus. This region was chosen because of its relatively high susceptibility and its deep position, which minimized regurgitation of the inoculum.

The 14 specimens tested were unselected from the larger series and are listed in Table I. Of this group, 7 (50%) produced typical poliomyelitis in the test rhesus monkeys. Six of the 7 animals were paralytic. Microscopic sections have shown characteristic lesions in each case and although virus studies have not been completed there seems little doubt regarding the nature of the infectious agent. The positive findings were equally distributed between paralytic and non-paralytic human cases.

Summary. Throat swabs were taken from 14 cases of human poliomyelitis during the first week of the disease. Seven of these (50%) were found to contain active virus.

[2] Wenner, H. A., unpublished.

14639

N. dibutyl Succinate as a Solvent for Parenteral Injection.

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Recently we have had occasion to test the toxicity of some water insoluble drugs. Lipschitz *et al.*[1] after extensive studies with various organic esters stated that *N. dibutyl* succinate showed a minimal toxicity when injected intramuscularly into rats and believed the agent suitable as a solvent for parenteral injections. This agent was selected for the solvent of our drug and was injected intra-

[1] Lipschitz, W. L., Upham, S. D., Hotchkiss, C. N., and Carlson, G. H., *J. Pharm. and Exp. Therap.*, 1942, **76**, 189.

peritoneally into rats.* Using constant amounts of the solvent with varying amounts of the drug to be tested, it was observed that all the rats behaved in a very peculiar manner, regardless of drug dosage. The solvent alone was tried by intraperitoneal injection and it was found that the solvent accounted for all the reactions observed.

A series of 20 albino rats weighing from 200 to 250 g were injected with the *N. dibutyl* succinate in graded amounts from 0.5 cc to 10 cc per kg intraperitoneally. The first effect observed was a tendency to gnaw the hind toes, then the rats assumed a somewhat flat crawling position, tending to drag the hind limbs. In a few minutes all the rats became sedated, and dropped off to sleep, with sudden rousing, dragging themselves about the cage and relapsing again into sleep. Respiration was quite markedly decreased. The minimal doses produced this effect lasting about one hour while the effects persisted for nearly 3 hours with the larger doses. All the animals recovered.

In view of the desirability of checking these observations with material from a different source, we obtained a second sample of the solvent from the Eastman Kodak Company. Twenty albino rats of about 200 to 250 g were selected and 10 were injected with the Eastman product and 10 with the original sample in doses of 0.5 cc to 5 cc per kg intraperitoneally. No consistent difference could be observed in the behavior of the rats with the different samples.

The toxicity of the *N. dibutyl* succinate was then extended to rabbits. Eight albino rabbits weighing from 2.8 to 3.4 kilos were injected intramuscularly with doses ranging from 0.33 cc to 2 cc per kg and 6 rabbits were injected intravenously in pairs with 0.5 cc, 0.75 cc and 1 cc per kg. No effects other than marked dilatation of the ear vessels could be observed in the rabbits injected intramuscularly. In the series of intravenous injection, dosages of 1 cc per kg caused the animals to give a loud cry in about 1½ minutes, had a slight convulsion and died of respiratory failure in a few minutes. The 0.75 cc per kg dosage produced slight convulsions in a few minutes, then considerable sedation and respiratory depression and death in 9 and 12 minutes respectively. The 0.5 cc per kg dose did not produce any convulsions, but the animals were sedated and respiration markedly depressed. They were returned to the stock cages after 2 hours in what appeared to be normal condition, but both were dead the next morning.

It is apparent that *N. dibutyl* succinate when rapidly absorbed is a toxic agent, and is not suitable as a parenteral solvent. When injected intramuscularly it shows little toxicity.

* The original sample of N dibutyl succinate was supplied by E. Bilhuber, Inc.

14640

A New Test (Blocking Test) for Rh Sensitization.*

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As was first shown by Wiener and Peters,[1] sensitization of Rh-negative individuals against the Rh factor can often be detected by *in vitro* tests for anti-Rh agglutinins in the individual's plasma. However, it was soon found[2,3] that there are many Rh-negative patients who are strongly sensitized to the

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1 Wiener, A. S., and Peters, H. R., *Ann. Int. Med.*, 1940, **13**, 2306.

2 Wiener, A. S., *Arch. Path.*, 1941, **32**, 227.

3 Levine, P., Burnham, L., Katzin, E. M., and Vogel, P., *Am. J. Obst. and Gyn.*, 1941, **42**, 925.