

MEDICINE

More Effective "Shots"

New method with radioactive chemicals may increase the effectiveness of medicines given by hypodermic injections, according to results just revealed.

► **BETTER RESULTS** from medicines given by hypodermic injection may be had in the future as a result of studies with radioactive chemicals.

The studies, by Drs. Myron Prinzmetal, Eliot Corday, H. C. Bergman, Lois Schwartz and Ramon J. Spritzler of the Institute for Medical Research, Cedars of Lebanon Hospital, Los Angeles, are reported in the journal, *SCIENCE* (Sept. 24).

When they gave a "shot" of radioactive sodium into the muscles, half of it was absorbed in 30 minutes and almost 90% in one hour, they found. This period of time required for the chemical to be absorbed was much longer than would be expected from impressions gained in giving hypodermic injections to patients.

In the low blood pressure that follows shock from hemorrhage, absorption of radiosodium was slowed so that only about one-tenth as much of the chemical was absorbed in half an hour as was the case when blood pressure was normal.

The passage of radioactive chemicals through the chambers of the heart itself can also now be graphically recorded with

a specially constructed ink-writing Geiger-Muller counter, the scientists announce. It is this counter which gave the information about absorption times of hypodermically injected radiosodium.

In the heart studies, the radiosodium is injected into one of the veins of the fore-

PSYCHOLOGY

Pups Get "Mental" Tests

► **THE MOST IMPRESSIONABLE** time of a puppy's life is when he is from four to ten weeks old—just after he gets his eyes open and before he is weaned. It is then that his later relationship to humans is determined, Dr. J. P. Scott, of the Roscoe B. Jackson Memorial Laboratory, told the meeting of the American Psychological Association in Boston.

A schedule for puppy care and development like that worked out by baby doctors for human infants is now being perfected at the Jackson Memorial Laboratory.

The puppies are given regular "mental"

arm and the radiocardiogram is made with a carefully shielded Geiger-Muller tube placed over the chest above the heart.

Since radioactive sodium has a short half-life of 14.8 hours and is rapidly eliminated by the kidneys, tiny amounts may safely be injected into the blood stream and allowed to flow through the heart. The amount of radiation with the dose given is much less than that which patients receive during various diagnostic X-ray examinations. More than 250 persons have been given injections without any bad results during the last year and a half.

"Blue baby" hearts, enlarged and failing hearts and blood circulation time have been studied with the new method.

Science News Letter, October 2, 1948

tests of their activity and development and the way they behave toward their human associates. There are daily observations, weekly physical examinations, a standard system of feeding and veterinary care. Altogether 57 puppies have been studied intensively up to the age of 16 weeks and less intensively afterwards. The puppies belonged to 14 litters from seven pure breeds.

The Jackson Memorial scientists found five stages in the life of a dog, instead of the seven that Shakespeare credits to man.

1. The newborn—lasting from birth until the eyes open. This stage is two weeks and is spent in nursing.

2. From the opening of the eyes until leaving of the nest. It is then that the teeth erupt and the pups learn to walk. Special sense organs are used. Solid food is eaten and fighting play begins. This stage lasts from the second week until the fourth.

3. Leaving the nest until weaning—from the fourth week until the tenth. Now physical skill and activity increase. They indulge in playful fighting. There are great changes in relationships with human beings. Before and after this stage neither accident nor social training seems to have as much effect on how the dog turns out.

4. Weaning until sex maturity. This lasts from the age of ten weeks until eight to ten months. There may be gang attacks on one individual in play fights. The young dog is submissive to older dogs. They go hunting.

5. Maturity.

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MEDICINE

One Kind of TB Is Helped To Grow by Streptomycin

► **STREPTOMYCIN**, hailed as the best known drug for fighting tuberculosis, helps one kind of TB spread, instead of checking its growth.

Not only does one strain of the disease



ALL-WEATHER FIGHTER PLANE—This is the first flight photo of the Northrop XF-89, successor to the Black Widow F-61 night fighter. It has two jet engines, swept-up tail and wafer-thin wings and is capable of high speed. Radar-equipped, this glossy-black plane is capable of penetrating darkness, storm or fog. It is approximately 50 feet long and 15 feet high with a gross weight of over 30,000 pounds. It is manned by a pilot and radar observer.