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**Disappearance of Radioactive Phosphorus from Heart Blood  
of *Limulus polyphemus*.**

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The disappearance of radioactive phosphorus ( $P^{32}$ ) from the heart blood of the horseshoe crab *Limulus polyphemus*, has been followed in 10 individuals, weighing from 94 to 245 g.

From 0.1 to 0.2 ml of 0.001 molar  $Na_2HPO_4$  solution was injected into the heart at the thoracic-abdominal junction. The amounts of radioactive phosphorus in the solutions and in the samples of blood withdrawn from the heart at frequent intervals following injection were measured with a Geiger-Müller counter, and were expressed as counts per minute per milliliter of solution or per milligram of dried blood. All counts were corrected for background and for decay. The amounts injected were calculated to give equal doses of radioactive phosphorus per gram of body weight, the average dose bearing  $3.5 \times 10^5$  counts per minute.

In every one of the 10 experiments, the logarithm of the concentration of radioactive phosphorus left in the blood was inversely proportional to time, the slope of the plot relating the two from zero time to 1 hour varying from  $-0.91$  to  $-3.06$ . At the beginning of the experiment the average number of counts per milligram of dried blood was 83, and at the end of 1 hour 97.6% of the radioactive phosphorus had disappeared from the blood. A few experiments with the lobster, *Homarus americanus*, gave essentially the same results except that the rate of disappearance was much slower.

These preliminary tests indicate that radioactive phosphorus will be useful in studying various problems in the physiology and biochemistry of the blood and tissues of *Limulus* and other invertebrates, just as it has been in the vertebrates. Several such problems are now being studied.