receive such infusion. Of the 11 dogs which received Ringer's solution 6 died on the table and 2 died a few days later. Of the 10 animals which did not receive Ringer's solution, 7 survived, two died on the table and one died about 12 hours later. While when using ether the intravenous infusion was a definite favorable factor, it proved to be definitely unfavorable when chloroform was employed. Finally in nearly all the chloroform cases the autopsy revealed pathological conditions, either of the lungs or of the kidneys or of both. The acute deaths were brought about by pulmonary disorders accompanied mostly by pulmonary œdema.

When using the intratracheal insufflation there is no doubt that ether is a safer method than chloroform, at least in the treatment of strychnine poisoning.

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A demonstration of osmotic pressure exerted by fat.

By **JACOB ROSENBLOOM** and **WILLIAM J. GIES.**

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In the first of two demonstrations, the authors lowered a cylindrical *rubber* bag, one and one half inches in diameter and eight inches long, into an oiled *muslin* bag of about the same dimensions. The rubber bag was then filled to overflowing with olive oil. The rubber bag expanded, as the oil filled it, to the full length and width of the muslin sheath. The sheath prevented further extension of the rubber bag and imparted rigidity to the osmometer that was ultimately constructed. The full double bag, with its mouth wide open, was then raised so as to enclose about an inch of the lower end of a long glass tube which was firmly supported vertically above the demonstration table. The glass tube was 5 feet long and its bore was 4 mm. in diameter. Ligatures were tightly secured around the neck of the double bag against the immersed lower end of the vertical tube. The bag then hung directly from the end of the tube. The bag and its sheath were in a tightly distended condition and a station-

ary column of oil an inch high in the tube was visible above the protruding edge of the sheath. The tube and bag were then lowered into a salt mouth liter bottle on the table until the bag almost touched the bottom of the bottle. The height of the bottle and the length of the bag were nearly equal. The tube was then marked with a label on the plane of the oil meniscus just above the neck of the bag, and enough ether was poured into the bottle to provide immersion for the bag to the depth of an inch. For a moment no change in the volume of oil was apparent, and the lateral pressure of the ether was obviously without mechanical effect. But in a minute or two diffusion currents were visible along the surface of the bag and oil rose rapidly in the tube.

After the initial effects of the ether had been shown, the bottle was filled with ether containing Sudan III, and a 5-foot vertical extension of the same bore was added to the upright glass tube. In a moment the upward movement of the liquid was accelerated. The demonstration was started at about 9 p.m. At 10 p.m. the osmotic pressure had carried the column of oily fluid to the top of the 10-foot tube, and liquid continued to run rapidly from the upper orifice until the apparatus was dismantled after the adjournment of the meeting, at about 11:30 p.m.

During the progress of the demonstration, Sudan III diffused rapidly from the exterior, through the rubber, to the very top of the rising column of fluid, before any of the liquid passed out of the upper opening. Oil diffused rapidly through the rubber into the ether.

The second demonstration was essentially the same in principle and technic as the first. Instead of a 10-foot upright tube, however, the authors substituted an L tube with an inside diameter of 6 mm. The vertical extension of the tube was 17 in., the horizontal extension was only 3 inches. The latter extension was drawn out to a narrow bore in an inclined plane, to facilitate direct delivery of any liquid that might pass through that end of the tube.

When partial immersion of the bag first occurred there was no visible response, but, in a minute or two, oil began to rise in the tube. The bag was then completely covered with ether. The upward movement proceeded rapidly and in about an hour nearly

200 c.c. of liquid passed through the upper orifice into a graduated cylinder which was supported underneath it to catch the overflow.

The authors are engaged in a study of various relationships that are suggested by the demonstrated phenomena.

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A demonstration of the diffusion of pigments from fat through rubber into fat.

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The author has found that many fat-soluble pigments, such as Sudan III and Scarlet R, readily diffuse from solid and liquid fats through rubber into various solid and liquid media, among them both solid fat and oil. Thus, when Sudan III is dissolved in melted lard, the red liquid poured into a rubber bag, the bag supported in melted lard in a bottle, and the apparatus promptly immersed in ice water—the fatty matter will congeal before any sign of pigmentary diffusion occurs, but, in a few hours, a reddish tinge will develop outside of the bag, and on each successive day for several weeks further extension of the pigmented matter may be witnessed, until the whole of the external lard is deeply suffused with red. This process takes place quite rapidly when the lard and apparatus are kept in a thermostat at 40° C.

The demonstrations were intended to exhibit a few instances of such pigmentary diffusions as occur speedily enough at room temperature to yield positive results within an hour. The appended

	Contents of the Rubber Bag.		Nature of the Liquid in which the Bag was Suspended.	Result.
	Oil.	Pigment.		
1	Olive oil.	Scarlet R.	Olive oil	Visible diffusion of the pigment occurred promptly.
2	Cocoanut oil.	Scarlet R.	Cocoanut oil.	Visible diffusion of the pigment occurred promptly.
3	Lard oil.	Sudan III.	Lard oil.	Visible diffusion of the pigment occurred promptly.
4	Paraffin oil.	Sudan III.	Paraffin oil.	Visible diffusion of the pigment occurred promptly.
5	Olive oil.	Sudan III.	Ether.	Visible diffusion of the pigment occurred *almost immediately.*