A frog's leg was tied tightly and amputated above the ligature. The second leg of the same frog was skinned and the skin filled with a 0.7 per cent. NaCl solution and tied at the same level as the first leg. The two legs were weighed, placed in water, and weighed at intervals to determine the water absorbed. The leg filled with NaCl solution absorbed water more rapidly than the other leg.

An amputated and ligatured leg was placed in 0.7 per cent. NaCl. Its weight remained constant.

The ratio of the skin areas of a whole frog except the head, to the hind legs below the knees, was found to be about 3.5. Two frogs of the same size were selected. The hind legs of one were tied just above the knees and amputated above the ligatures and placed in water. The other frog was put in a harness that kept the head out of water, and a canula with rubber bag attached was inserted into the cloaca. This experiment was repeated a large number of times. The water absorbed by the whole frog within 6 hours was always more than 3.5 times as much as that absorbed by the two hind legs. The water absorption for longer periods of time is being studied.

Conclusion.—The swelling of frog's legs, in which the circulation of the blood is stopped, may be accounted for by osmotic pressure.

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The dynamics of a model of cell division.

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A low beaker is half filled with distilled water and a funnel inserted so that the stem extends to the bottom. A saturated solution of NaCl is slowly poured into the funnel and forms a layer beneath the pure water. About 1 c.c. of a mixture of 2 parts chloroform and 3 parts rancid olive oil is sucked up into a pipette and injected into the beaker so that it forms a drop suspended between the NaCl solution and the pure water. Two pipettes with capillary openings are filled with 1/10 normal NaOH solution and inserted into the beaker. The NaOH solution is allowed to flow onto opposite poles of the drop at the same time and rate. The drop quickly elongates toward the pipettes, *i. e.*, toward the poles, and constricts along the equator, and sometimes divides into two. The smaller the drop, the more certain the division, provided the operator has sufficient skill.

The alkali forms soap which reduces the surface tension on the polar areas, and the hydrostatic pressure within the drop causes these areas to bulge, whereas the relatively higher surface tension of the equatorial region causes it to constrict until a barrel-shaped figure is formed, which rapidly becomes hour-glass shaped. The equatorial surface film contracts and the polar surface film spreads, causing vortex movements. The enlargement of the polar fields spreads the soap over larger areas, and the area of unaltered surface tension is reduced to a narrow equatorial band. This band, being partially released by reduction of tension at its edges, acts as a sphincter and constricts until it cuts the oil drop into two. This constriction of the oil drop may be considered as a rough model of cell division.

T. B. Robertson in a recent paper[1] claims that exactly the opposite changes take place in cell division. He divided the oil dropp by lacing on it a linen thread 0.4 mm. in diameter, previously soaked in the alkali. If the drop is not more than 1/10 c.c. in volume the thread cuts it in two. This is due to gravitation of the thread, the alkali merely lessening the resistance to the cutting. I found that better results were obtained by adding a little alkali to the water instead of soaking the thread in it.

The various points in Robertson's argument cannot be considered here, and the reader is referred to his paper. The most striking fallacy is that in Fig. 2, p. 699, M_1 and M_2 are not the same distance below the curved line *alsmd*.

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[1] *Arch. f. Entwicklungsmech.*, 1913, XXXV, p. 692.