million. The relation seems sharpest between iodine content of water and goiter. Soil iodine seems to accumulate some with organic matter and to be higher in soils of sea-bed origin. Baumann in 1895 found absence of iodine in plants affects thyroid. Aso in 1903 recommended seaweed as fertilizer, due to its iodine content.

According to a map of the United States prepared by Dr. J. F. McClendon there is a high incidence of goiter in certain areas, including much of the Pacific Northwest. Head lettuce and spinach are among the plants that contain relatively more iodine. Marine by-product fertilizers afford a source of iodine. Small-scale field trials are being made this season. If successful, potassium iodide might be added in irrigation water or large seed may absorb sufficient amounts for plant needs.

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RANGE PLANT NEWLY FOUND TO BE POISONOUS

WHILE searching for the cause of death of cattle in a small herd in northeastern Colorado, several native plants suspected of causing poisoning were fed. One of these plants, *Picradeniopsis oppositifolia* (Nutt.) Rydb. or *Bahia oppositifolia* A. Gray, was found to have poisonous properties, though hitherto unsuspected. The plant is a low-growing, gray-green perennial three to six inches tall with opposite, three to five divided leaves. It belongs to the thistle family and has small tight heads of yellow flowers.

Feeding experiments were conducted to determine its actual toxicity for cattle and sheep. Approximately six quarts of the finely ground plant was force-fed to a 650-pound steer by means of a stomach tube. Typical symptoms of HCN poisoning were produced, starting in about 30 minutes. Although the animal showed the accelerated respiration, trembling and muscular incoordination which are characteristic in HCN poisoning, these symptoms lasted for only about 30 minutes. Following this, although the animal had apparently recovered from the effects of the HCN, a marked depression was observed, which endured for more than three hours, but the eventual recovery was complete. Identical results were obtained when fed to guinea pigs.

A mature ewe was also force-fed, using 1½ quarts of the chopped-up plant. The chain of symptoms was very similar to those produced in the steer, but more severe. Again a period of depression was followed by complete recovery.

Bahia oppositifolia is not readily eaten by stock except when forage is scarce, and it is questionable if they ever eat enough to prove injurious.

However, since quantitative chemical analyses of the plant indicate an average HCN content of .03 per cent. it may be considered potentially dangerous to live stock.

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THE TRANSPORT OF WATER TO ANODE OR CATHODE THROUGH NON-AQUEOUS LIQUIDS

EXPERIMENTS have been reported recently by W. J. V. Osterhout and J. W. Murray in the May 13, 1938, issue of SCIENCE, page 430, and by H. E. Bent in the December 2, 1938, issue of SCIENCE, page 525, concerning the "Movement of Water from Concentrated to Dilute Solutions through Liquid Membranes."

The author has conducted experiments with non-aqueous liquid membranes, separating two equal portions of the same salt solution in water and has found that in some cases water is transported to the cathode solution, while in other cases water is transported to the anode solution, when platinum electrodes are dipped in the two salt solutions and connected to a source of direct current of 110 volts or more. With 110 volts the transport of water through an intervening membrane of benzaldehyde or of carbon tetrachloride is very slow, requiring several days or weeks before showing an appreciable change in the two volumes of aqueous solution. At voltages around 450 to 500 the transport of water is much more rapid, and a considerable difference in the two volumes may be observed within two days.

The apparatus in each experiment consisted of a U-tube with benzaldehyde or carbon tetrachloride filling the curved part of the tube with an equal volume of the saturated aqueous solution of the salt introduced into each arm of the tube above the liquid membrane simultaneously and carefully so that the solution would lie on top of the liquid membrane, with platinum wire electrodes dipping into the aqueous solutions and connecting to the direct current source, at first a 110 volt d.c. supply line, later a transformer-vacuum tube rectifier, which would furnish up to 500 volts and was designed to produce continuously up to 100 milliamperes. Much lower currents than this passed through the solutions separated by the liquid membranes.

When the electrolyte was ammonium oxalate, water was transported to the cathode side through benzaldehyde or through carbon tetrachloride. Likewise, when the electrolyte was sodium oxalate, water was transported to the cathode through benzaldehyde or through carbon tetrachloride. When the electrolyte was cupric nitrate, water was transported to the anode side through benzaldehyde and through carbon tetrachloride. These phenomena I have interpreted as indi-