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-

cating that the ammonium ions and sodium ions are hydrated to a greater extent than the oxalate ions and that the nitrate ions are hydrated to a greater extent than the cupric ions; that the transport of water is due to this greater hydration of the ammonium and sodium cations of the oxalates, thus causing transport of water to the cathode side, and to the greater hydration of the nitrate anion, thus causing transport of water to the anode side in the cupric nitrate experiments.

There are two possible paths by which the water may be transported. The hydrated ions may actually move through the body of the intervening liquid membrane or they may pass along the outer edge of the liquid between the liquid and the glass wall. The liquid membrane takes on a cloudy appearance both with the benzaldehyde and the carbon tetrachloride; but this might occur in either type of movement of the hydrated ions. In any event, by whatever path the ions are transported, there results an increase of acid in the anode side and an increase of base in the cathode side, indicating that the transport of water is accompanied by the transport of the cations to the cathode side and anions to the anode side of the liquid membrane, that it is not a simple case of electroendosmosis of the water but rather the movement of hydrated ions. Another point that would seem to rule out the idea of electroendosmosis is that in the experiments with ammonium oxalate in water over benzaldehyde, deposits of benzaldehyde were detected on the cathode, even though it had never been in direct contact with the benzaldehyde. No such deposit of benzaldehyde was found on the anode. This seems to indicate that the benzaldehyde bears a positive charge and tends to move toward the cathode. In electroendosmosis the water moves in a direction opposite to the direction in which a colloidal membrane tends to move. Therefore, water would be expected to move toward the anode if it moved essentially by electroendosmosis; whereas, water was actually transported to the cathode side in this experiment.

Preliminary quantitative determinations of the amounts of ammonium ion, oxalate ion and water transported indicate that in electrolyzing ammonium oxalate through benzaldehyde two oxalate ions migrate, while one ammonium ion migrates. This would seem to indicate a rather high degree of hydration of the ammonium ion producing a large, heavy, slow-moving ion. Though it appears rather high, preliminary determinations of the number of water molecules transported for each ammonium ion transported give a value of 892.

Other experiments of a similar nature are being conducted by the author in the hope that it may become possible to measure directly the degrees of hydration of the various ions, a subject of great importance to all who work with aqueous solutions.

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PROPOSING THE TERM, PREDATEE

FOR those working in ecology or fields of animal control there has developed a need for a term to designate animals preyed-upon, corresponding to "predator" for those which do the preying. The word "predatee" would be the logical one, and we propose it for the purpose.

The word predator has only comparatively recently been included in the dictionaries. It of course appeared as an answer to the need for a noun growing out of the word predatory. Now, as an outgrowth of ecological studies requiring an expression of both sides of this food relationship among animals, there comes the need for the other word, namely, predatee. Like the terms, employer and employee, the two terms are necessary to each other. One can not very well exist without the other. They express complementary parts of a single concept. Hence this proposal for recognition of the word.

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SOCIETIES AND MEETINGS

THE AMERICAN PHILOSOPHICAL SOCIETY

THE annual general meeting of the American Philosophical Society was held on April 20, 21 and 22 in its Hall on Independence Square, where its meetings have been held for almost one hundred and fifty years, for it was on November 13, 1789, that the society first met in the then newly finished building which has ever since been its home. The meeting this year was attended by about 200 members and invited guests, while approximately twice that number were present at the Penrose Memorial Lecture on Friday evening, which was given by Dr. Eduard Benes, formerly president of Czecho-Slovakia, who spoke in a notably calm and scholarly manner on "Politics as Science and Art." Thirty-five papers were presented in four half-day sessions; two of these papers were in mathematics, two in astronomy, six in physics, two in geology, six in botany and genetics, four in zoology and physiology, three in anthropology, three in modern history, three in ancient history and archeology, two in philology and literature and one in music. Several of these overlapped two or more fields and are therefore hard to classify.

The fact that the membership of the society includes all these fields of learning, as well as several others, tends to make the presentation of papers less technical and more generally intelligible than is the case in the meetings of more highly specialized societies. This is one of the peculiar charms of these general meetings