being mostly spring-sown, have suffered like the spring wheat. Oats, next in importance to wheat among small grains, is a short crop over practically the entire grain belt.

A note of tragic irony was injected into the drought situation, by losses sustained by the Arkansas rice crop. This water-needing grain suffered not from drought, but from too much water, that burst the dikes around the fields and ruined many acres.

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PHYSIOLOGY

Certain Cells of Body Not Only Eat But Also Drink

This Bibulous Type Has Outer Edge Which Flattens To Resemble a Ruffle and Traps Liquid in Its Folds

MOVING pictures of life under the microscope show that certain cells of the body drink as well as eat, using a ruffle for their drinking.

This discovery was made by Dr. Warren H. Lewis, of the department of embryology of the Carnegie Institution of Washington and the Johns Hopkins Medical School. For this bibulous type of cell activity he has used the Greek word, pinocytosis, meaning "drinking by cells." Since seeing it in studying moving pictures of cell life Dr. Lewis has been able to observe it directly by watching the cells through the microscope without the aid of the camera.

The outer edge of these drinking cells flattens out into a thin membrane which looks like a ruffle. In the films it is seen to be constantly waving about, often projecting out for some distance from the body of the cell. Globules of fluid in the medium in which the cells live can be seen floating into a fold of the ruffled edge of the cell and being surrounded by part of the ruffle. Trapped within its folds, which probably fuse around the globules and completely enclose them, they move rapidly on into the interior of the cell and within from one to five minutes may be seen with other globules that surround the cell nucleus. Once within the cell they are apparently digested by digestive fluids produced by part of the cell.

Some of these cells are pretty heavy drinkers, it appears, for Dr. Lewis reports that under certain conditions they take in a relatively enormous amount of fluid. In the course of an hour the total may amount to one-third of the volume of the cell. As though a human toper were to down six or eight gallons in the same length of time. It is not only the macrophages which are drinking cells. Dr. Lewis has seen cancer cells drinking and also has observed the phenomenon in cells from part of the stomach tissue of rats. It may be that all cells drink.

This cell drinking indicates a new way in which cells can get nourishment and a new mechanism for filtration or purification of body fluids. It also seems to confirm the theory that these macrophage cells are the chief battle sites in the body's war against disease germs.

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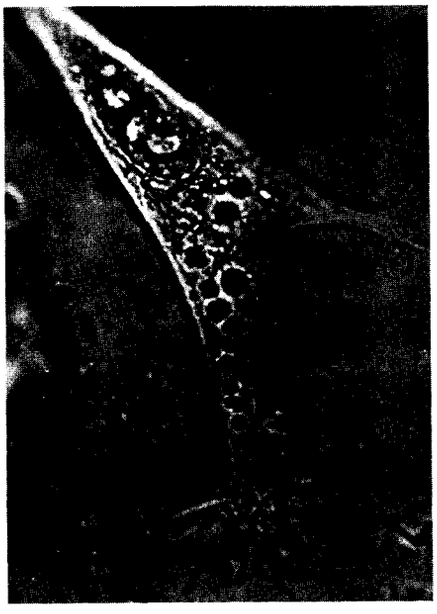

IT DRINKS

This sarcoma cell, highly magnified, is drinking through the semi-circular ruffle at its bottom edge. Note the small, dark globules of fluid that the cell has already drunk, on their way up to the center of the cell where they will be digested.

CHEMISTRY-PHARMACY

Sun Preserves Drug Better Than Chemical

SUNLIGHT is a better and more permanent preservative of a commonly used tonic, syrup of ferrous iodide, than the chemicals ordinarily employed to keep the medicine, it appears from the report of Prof. H. V. Arny and his associate, Dr. W. C. Mende of Columbia University to the American Association for the Advancement of Science.

Syrup of ferrous iodide when freshly prepared is "of an attractive green color," but when allowed to stand in a dark place or in diffused light for a few weeks it turns brown. This is due to liberation of free iodine.

"Such darkened syrup of ferrous iodide is dangerously irritating when taken internally and must not be dispensed by the pharmacist in such shape," it was pointed out.

Sun Restored Color

"Old time apothecaries found that the brown syrup returned to its original green color by the simple expedient of exposing it for a few hours to direct sunlight."

Since 1876 chemical preservatives have been added to the syrup but with little effect. The best of them kept the syrup green for only six months. Turning back to the notion of the old-time apothecaries, Dr. Arny again tried the effect of sunlight. He found that by keeping the syrup alternately in the sun and in the dark, making about five or six exposures to sunlight, he finally obtained a syrup of ferrous iodide which had a permanent green color.

The sunlight brings about this effect by converting the ordinary cane sugar of the syrup to "invert" sugar, a mixture of dextrose and levulose. When the inversion is completed by sufficiently long exposure to sunlight, the quantity of levulose present is sufficient to preserve the ferrous iodide permanently.

Boiling Also Effective

Immersion of the brown syrup in boiling water for an hour is as effective as sunlight in bleaching the color. Their research, Drs. Arny and Mende suggest, indicates the possibility of manufacturing definitely permanent syrup of ferrous iodide. It also shows that physicists investigating the influence of light on chemicals may do as much in this field for medicine as they have for photography.

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