

Proceedings of the Iowa Academy of Science

Volume 6 | Annual Issue

Article 20

1898

A Simple Incubator

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Recommended Citation

Ross, L. S. (1898) "A Simple Incubator," *Proceedings of the Iowa Academy of Science*, 6(1), 116-117.
Available at: <https://scholarworks.uni.edu/pias/vol6/iss1/20>

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Order RICCIACEÆ.

Riccia frostii Aust. Not common on mud-flats on Muscatine island in Louisa county.

R. lutescens Schwein. Very common on mud-flats on the Mississippi bottoms below Davenport, and on Muscatine island in Louisa county.

R. fluitans L. Common in ponds and on mud at Cedar Rapids, Forest City, near Davenport, and on Muscatine island in Louisa county. Also in Emmet county (*R. I. Cratty*).

A SIMPLE INCUBATOR.

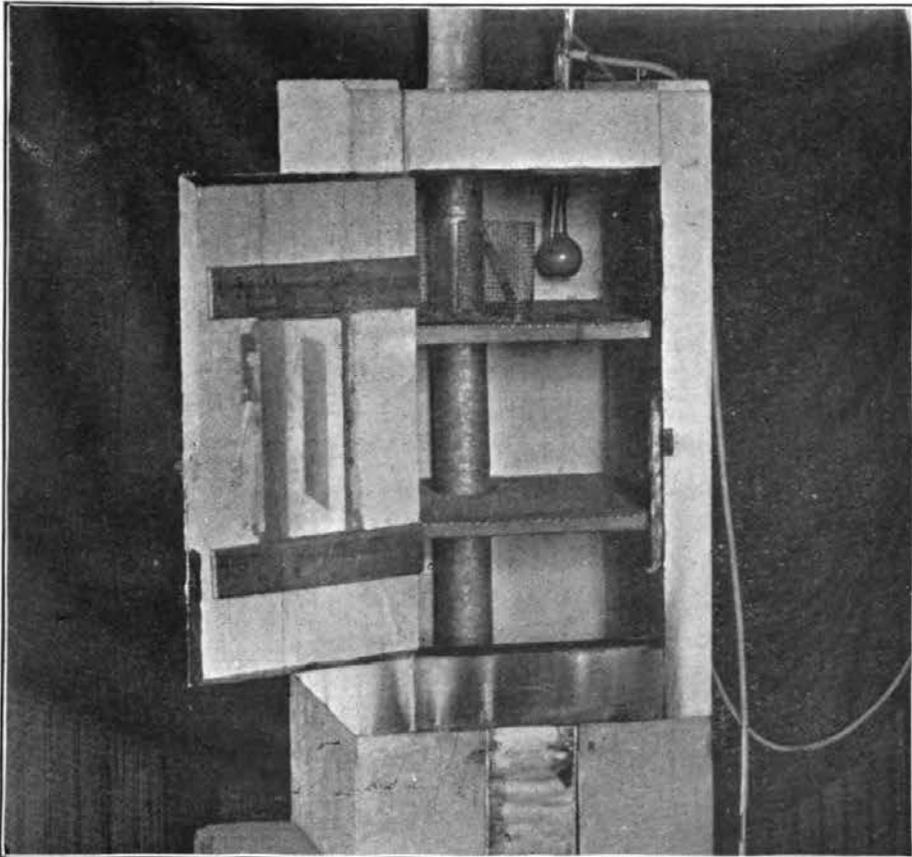
BY L. S. ROSS.

No claim of originality is made in the presentation of the description of the simple apparatus used by me as an incubator. The idea, so far as I know, originated in the mind of Mr. W. D. Frost, assistant instructor in bacteriology in the University of Wisconsin.

The incubator consists of a drygoods box, lined inside and out with asbestos paper, set on a galvanized iron base, and divided by wire netting into a convenient number of shelves. Heat is obtained from a rose burner, and is regulated by a thermostat made in the laboratory. The box I used is thirty-three inches long, nineteen inches wide and twenty-six inches from front to back. The cracks were stopped with rags and then the asbestos paper was pasted on the wood. A door was cut in the front, a window in one side and one in the door. The door is 25x13 inches; the side window is 9x8 inches, and the one in the door is 12x6 inches. A galvanized iron pipe, three inches in diameter, open at the lower end and closed or opened at the top by a circular cut-off, passes through the box from the base and projects six inches above the top. A hole, three and one-half inches in diameter, is cut through the center of the lower end of the box and the iron base, leaving only one thickness of asbestos paper between the chamber containing the burner and the lower compartment of the incubator. This hole may be closed by a galvanized iron slide. The incubator is divided into three compartments, the lower two of which are

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PLATE IV.



A Simple Incubator.

each ten inches high and the top one eleven inches, the shelves being of one-fourth inch mesh galvanized iron wire netting.

In the top compartment is the heat regulator, which consists of a 100 cc. flask for a bulb, and a one-fourth inch glass tube with a double bend, to contain liquid and to receive the gas. One end of the tube passes through a rubber stopper into the flask, while the other end receives a smaller tube, reaching down toward the mercury in the lower curve. On the side of the small tube is a capillary opening, cut with a file, to permit a flow of gas when the opening at the end of the tube is closed by the rising mercury. The liquid used in the bulb is a solution of calcium chloride, and in the bend of the tube is mercury. Other liquids may be used.

The incubator was used last spring in class work in bacteriology and gave good satisfaction. The greatest variation in temperature observed was not over $2\frac{1}{2}$ degrees, and this only when the room became quite cold. The usual variation was not over $1\frac{1}{2}$ degrees. Experiment shows that the temperature in the incubator increases from the lowest shelf to the highest, if the burner is placed under the opening of the pipe, or near it; but if the burner is near the front of the incubator, or under the opening in the center, the temperature is nearly equable throughout.

BURIED LOESS IN STORY COUNTY.

BY S. W. BEYER.

The Iowan till is not known to be present in Story county. The trend of its southwestern margin which crosses Johnson, Iowa, Tama and Marshall into Hardin county, if maintained with reasonable constancy, would carry it safely beyond the confines of the county. The loess, the silty apron of the Iowan, although suspected to be present on account of the geographic position of the area and of certain topographic contours which are decidedly loess-like in character, was not recognized certainly until during the present field season. The loess is now known to appear at numerous points along the flanks of the deeper cuts in Indian Creek and Collins townships, in the