A STUDY OF THE RELATION OF CICATRIZATION TO EVAPORATION FROM LEAVES OF *BRYOPHYLLUM*

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The leaves of *Bryophyllum calycinum* are known for their ability to retain their moisture after they have been removed from the plant. While leaves were drying in the laboratory, the weights of an uninjured leaf and a leaf that had one square centimeter of the upper epidermis removed were compared. Little difference was found due to the loss of water from the two leaves even though the injured leaf had a new wound inflicted at the end of each week until a total of ten square centimeters of the surface had been removed. Since such a little difference was seen, an investigation of the wound and the healing of the wound was made.

Wounds were made at the end of the petiole, along the margin of the leaf, and in the center of the leaf blade. After four hours the cells, four or five rows wide, along the cut surface had collapsed to the extent that the cell walls could no longer be recognized and the epidermal cells had rolled inward over the exposed tissues.

After four days these collapsed cells had decomposed and the next two or three layers of cells had lost their cytoplasm. These two layers make up the pseudocicatrice which took a characteristic light stain. The cicatrice formed below the pseudocicatrice by the division of the first layer of living cells. The living cells divided for as many as twelve times. The layer of cicatrice is as thick at the end of the first week as it will become.

The cells of the cicatrice became suberized soon after they were produced. The endermost wall of the living cells show a suberin test in a chlor-zinc-iodine solution. Suberization of the cicatrice continues until all the cells are suberized. This complete suberization took about ten weeks, until there were no living cells in the tissue produced by the wound meristem.

No direct correlation was made between the evaporation from the leaf and the cicatrization of the leaf of *Bryophyllum*. The pseudocicatrice and the cicatrice do undoubtedly play an important part in the reduction of evaporation from a wounded leaf. The fact that the leaf will produce a cicatrice after it is removed from the plant is a very striking one.