organs. In April, 1859, upon the recommendation of Hofmeister, Sachs became assistant to Stöckhardt at Tharand. He was quickly advanced to take charge of the laboratory of experimental plant physiology. In 1861 he was elected head of the experiment station for plant physiology at Chemnitz, but went instead to a professorship in the Poppelsdorf Agricultural Academy of the University of Bonn. The six years at this academy were most fruitful for research, and here also was published his Handbook of Experimental Plant Physiology. In 1867 Sachs was called to Freiburg to the chair vacated by the resignation of DeBary, but one year later he succeeded Schenk at the University of Wurzburg. Here he had at his disposal a large building for his botanical institute. His laboratory became the center of plant physiological research although the number admitted at one time was limited to ten students. Sachs published in 1868 his Lehrbuch, in 1875 a History of Botany, and in 1882 his Lectures upon Plant Physiology, all books outstanding even to the present day. He died at Wurzburg on May 29, 1897.—R. B. Harvey, University of Minnesota.

AN INVADING POTATO SPROUT

When potatoes are grown in fields infested with Couch Grass (Agropyron repens), it is not uncommon to find some of the tubers transfixed by the hard, sharply pointed rhizomes of this persistent grass. A growth phenomenon similar to this in appearance, yet very different in nature, was recently observed by the writer; and as this phenomenon is apparently a very unusual one, it deserves to be included in our botanical records.

A sack of potatoes had been stored in a cellar during the winter months, and toward the close of this period as the days grew warmer and the general level of temperature began to rise, the buds of the tubers became active, and vigorous sprouts were formed. On one of these tubers a sprout was observed that had behaved in a most unusual manner. In its growth it encountered a neighboring tuber, in the side of which a small cavity about 5 or 6 mm. in depth had been made by a wire worm. The growing point of the sprout entered this cavity and then continued its growth into the storage tissue of the potato, until it finally emerged on the opposite side. When it was first discovered the sprout had attained a length of 6.5 centimeters, and a diameter of 8 mm.

The accompanying photograph, figure 1, shows the position of the sprout imbedded in the tuber just as it was found, except that a portion of the tissue has been removed so that the full length of the sprout may be seen. At no point was there any evidence of a coalescence of the cells of the sprout with those of the tuber through which it grew, but the turgid sprout fitted very closely into the tunnel it had made. The surface of the tuber tissue
surrounding the sprout was very smooth, and at the point of emergence there was not the slightest indication of a rupture of the tissues, as would probably have been the case had the expanding cells of the sprout broken through by the mechanical force of growth.

The general appearance of the tissue of the tuber suggested that the cells had been digested by the elongating sprout which was able in this way to excavate the tunnel through which it grew. This further suggests the possibility of a sprout arising on one potato being able to procure a part or all of its nutrition from an adjacent tuber—at least under such circumstances as those here recorded.—P. D. STRAUSBAUGH, West Virginia University.

![Image of potato tuber, with a sprout penetrating it from a neighboring tuber. The sprout apparently digested its way through the invaded tuber.](image)

**Fig. 1.** Potato tuber, penetrated by a sprout from a neighboring tuber. The sprout apparently digested its way through the invaded tuber.

**SCHLOESING’S EXPERIMENTS ON THE RELATION OF TRANSPERSION TO THE TRANSLOCATION OF MINERALS**

In the last fifteen years a number of papers have been published showing at least partial independence of transpiration and mineral absorption. HASSELMERING (2) found that tobacco grown under shade had as high ash content as plants grown in the open. MUENSCHER (3) found that doubling the transpiration of barley by decreasing the humidity had no effect on ash absorption. Doubling the transpiration by differences in light intensity nearly trebled the absorption of ash but the ratio of ash to dry matter was
Physical measurements of the winter wheat plant at various stages in its development .................................................. GEORGE JANSSSEN 477
Some effects of calcium deficiency on Pisum sativum............. DOROTHY DAY 493
The insoluble tyrosinase of the velvet bean seed coat. . EMERSON R. MILLER 507
The determination of nitrate in green tomato and lettuce tissues. E. M. EMMERT 519
Moisture fluctuations in extracted plant solutions and in leaf tissue. BASIL F. GILBERT AND WALDO L. ADAMS 529
The effect of pH value on the inactivation temperature of fruit oxidase. W. Y. FONG AND W. V. CRUESS 537
JOANNES BAPTISTA VAN HELMONT........................................ R. B. HARVEY 543
Notes .................................................................................... 547

Errata
First cover page, vol. 4, no. 1, in first title, for on, read in.
Page 136, first footnote to table, for Gingko, read Ginkgo.
Page 152, legend to figure, for FeSO₄, read K₂SO₄.
Page 157, line 13, for 1868, read 1865.
Page 160, citation 4, for sans, read sous.
Page 277, line 11 from bottom, for produces, read produce.
Page 278, line 13, for considerable, read considerably.
Page 279, citations 16 and 17, for chemiques, read chimiques.
Page 287, last line, for build, read built.
Page 302, footnote 1, for SAYBOLT, read SAYBOLDT.
Page 303, title of table II, for transportation, read transpiration.
Page 315, last column of table IV, sixth item, dele one word end.
Page 316, line 10 from bottom, for droppd, read dropped.
Page 403, line 12 from bottom, for $9.00, read $6.50.