About thirty miles north-northwest of the town of Delta, Millard County, near the Juab-Millard County line, there are several hot springs still flowing and forming bodies of tufaceous material like those found in Tule Valley. These active springs are at the edge of a recent flow of basaltic lava which is several square miles in area and varies in thickness from twenty to forty feet at its edge to perhaps three or four hundred feet near the cone from which it issued. It seems probable that these springs, as well as the springs in Tule Valley, are connected genetically with the igneous activity of which there are such abundant evidences in this part of the state.

MURRAY O. HAYES
HARRY N. EATON

PROVO, UTAH
SYRACUSE, N. Y.

THE EFFECT OF ETHYLENE UPON THE VITAMIN B CONTENT OF CELERY

THERE appeared in SCIENCE for September 30, 1927, an article entitled "Artificially Ripened Fruit" in which it was questioned whether the employment of ethylene gas to speed up the ripening process in fruits and vegetables might not result in a reduction in their food value. The following excerpt will refresh the reader's memory and express the problem:

> The food value of the tomato, ripened by the application of ethylene gas rather than through natural agencies, is under question by the American Medical Association. During the last three or four years the use of ethylene gas to ripen fruits and vegetables . . . has increased by leaps and bounds. . . . The American Medical Association points out that while this development is of vast importance commercially, the health phases of the question have as yet received little attention. Certain fruits and vegetables are recommended by physicians largely because of their vitamin content; whether or not this has been altered by ethylene has not been determined.

The results of recent experiments indicate that ethylene used in blanching celery may exert no effect upon its vitamin B content. Young rats of the same litter were paired closely as to weight and placed upon a standard vitamin-B-free ration. Ethylene and board-blanched celery, for comparison, were fed in known quantities apart from the basal ration, and check animals from each litter were maintained.

When the differences in the percentage increases in growth of paired rats were compared by Student's method, odds of 17.8:1 were found to exist in favor of the ethylene-blanched product. The odds being insignificant, it can not be concluded that either method of blanching is superior from the standpoint of conserving food value. It does indicate, however, that the treatment, under the conditions existing in this experiment, can not be considered injurious to the vitamin B content of celery.

M. F. BABB
UNIVERSITY OF MAINE

TUBERIZATION OF POTATOES INCREASED BY X-RAYS

INCREASE in the number of tubers per hill was obtained by irradiating potatoes with one very light dose of X-rays before planting. Early Ohio potatoes from certified "seed" were used, and care was taken to select comparable pieces for both the controls and the experimental material. The irradiated tubers and controls were planted in alternating rows in the same plots of soil, so that all were subjected to the same environmental conditions with the exception of the X-ray treatment.

When the crop was harvested, it was found that 95 per cent. of the irradiated tubers had produced plants. Those irradiated before sprouting produced 27 per cent. more tubers per hill than did the controls. The average weight of these tubers, however, was 18 per cent. less than that of the controls. Consequently the average total weight of tubers per hill was practically the same for controls and experimental plants. There was no evidence that irradiation would result in an increased weight for the total crop.

A number of sprouted tubers were irradiated with a light dose of X-rays before planting and these also produced plants having a greater number of tubers per hill than the controls, but with a smaller weight per tuber.

A more detailed account of this investigation together with the results obtained by irradiating tomatoes is being prepared for publication in a botanical journal.

EDNA LOUISE JOHNSON
UNIVERSITY OF COLORADO

THE ALUM QUESTION

I NOTE that the columns of SCIENCE have been opened to a discussion of the "alum" question. In view of the statements so frequently and widely made and the acrimonious disputings that have marked the discussion—suggesting the "war of the experts" so often seen in criminal trials—I would like to call attention to a serious neglect of correct terminology. In a recent letter in SCIENCE several statements are made in which "alum" is put for "aluminum." Thus, it is said on page 162 (August 17) that the chemists of the Department of Agriculture have found the quantities of alum in our agricultural food products "extremely minute." The quantities of "alum" in these foods will be represented by 0.0.

In these discussions which cover hundreds of pages and have cost in expert and lawyer fees thousands of

dollars, little, if any stress is laid on the fact that after the dough is made up, there is no "alum" in the mass. All baking powders have an excess of carbonate and the whole of the aluminum sulphate is converted into aluminum hydroxide. In the discussion of the wholesomeness of alum baking powders some attention might be given to the question of the comparatively large amount of sodium sulphate that is introduced into food by such use. The right of crystallized sodium aluminum sulphate to be called "sodium alum" is set forth in some detail in a paper published in the June issue of the *Bulletin* of the Wagner Free Institute of Science, of Philadelphia, and reprinted in *The American Journal of Pharmacy* for July, 1928.

HENRY LEFFMANN

AUGUST 20, 1928.

QUOTATIONS

MILLIONTH MAPS

THE geographers of the world assembled at Cambridge, England, have agreed that the mapping of the heavens is to be an international undertaking. They have also decided that an airman's map of the world shall be made on the scale of 1 in 200,000, which is just over three miles to the inch. This map is to show all landmarks that are prominent from the air, such as rivers, shores, railroads and forests. When the thirty nations that are cooperating in making this birdseye view of the world have finished their task, it will be possible for the aerial tourist to find his way without much more difficulty that he has in an automobile on land. For some reason best known to the geographers it has been decided to use Mercator's projection, which has taught the world an exaggerated idea of the area and shape of the northern portions of this hemisphere. An interesting innovation is the abandonment of the old system of reckoning latitude north and south of the equator and longitude east and west from Greenwich. In its place the new system is to be used of reckoning latitude from the South Pole 180 degrees to the North Pole, and of carrying longitude all the way round the globe from Greenwich.

One of the subjects which the geographers have been discussing is the work on the so-called "Millionth Map," which is to show the world and all that is upon it on a scale of 1 to 1,000,000, which means about sixteen miles to the inch. This project was first broached thirty years ago by the German geographer, Professor Penck. In 1909 at a meeting attended by representatives from various nations it was agreed that each nation should contribute maps of its own territories. A central bureau to supervise the work was established in Southampton and the European sections were at once begun.

Unfortunately, the United States has been slow in performing its part. As usual, the blame is laid to lack of funds. Of the forty-five sheets covering the United States only four have been completed, despite the efforts of the United States Geological Survey, which has charge of the work, to arouse public interest in order to bring pressure to bear on Congress to provide the money. In the meantime the American Geographical Society has been working on its "Millionth Map" of South America, and is turning out a piece of splendid workmanship. These maps may serve as part of the contribution of the Hispanic countries to the world map. Made with exceptional accuracy, they are examples of cartography which compare favorably with the work of the Swiss, German, French and English.

It may be the vast area of this country which has hampered American map-making. Compared to the maps made by any of the above-named European governments, the average American map is incomplete and unsatisfactory. In fairness to the United States Geological Survey, it must be said that the men directing the work and in the field are highly skilled and competent. But the failure of the government to improve its early surveys, and to revise the base maps at least every decade, has resulted in the maps being not only frequently misleading but also actually deficient in recording changes such as roads, railroads, bridges and shifting coast lines. It is time not only to hasten completion of the Millionth Map but also to make it possible for the Geological Survey to issue maps which will stand comparison with those of Europe.—*The New York Times.*

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A METHOD OF PROJECTION OF LOW POWER IMAGES

IN the laboratory one often wishes to draw an accurate outline of a somewhat large object. This can be done with an elaborate and often expensive drawing outfit which seldom is permitted to stand in a usable condition because of the space it takes.

I have used a simple lens with a camera lucida attached to it (very insecurely) and I have used a compound microscope with an objective of three-inch focus and the stage lowered because the rack and pinion was not long enough to permit focusing the lens on an object on the stage in its normal position. The objective may also be screwed to the end of the