tack, and so forth. In the necessary process of spiritual renewal and of humanization of social behavior, the scientist can and must accept a load as heavy as that which any other responsible citizen will bear. He will accept more than his share if he pauses to compare the spirit from which science originally sprung with the present threat of total scientific extermination. But he will be doing less if he harbors the notion that his human duty ends with professional achievement or with his gifts of technical results and inventions.

ROBERT BLOCH
Biological Abstracts,
University of Pennsylvania, Philadelphia
4 March 1955

I am convinced that one should consider the consequences of technical developments extremely seriously. On the other hand, the effect of these technical developments, and especially of these new weapons, is clear enough to every thinking person. Under these circumstances, there is no reason to believe that a scientist has more sound judgment in the evaluation of the impact of discoveries than any public-minded person. I am, of course, very much interested in the impact and the consequences of these discoveries, but I feel that there is a danger that whatever opinion I voice in this matter may be taken too seriously because of the accident that I happened to be a part of the development. In my article, I felt that it would be of most help to remind the reader of the confidence we should have in one another as human beings in solving such difficult problems.

EDWARD TELLER
Department of Physics,
University of California, Berkeley
1 August 1955

On "An Application of Statistics"

In a recent communication [*Science* **121,** 402 (1955)] Frederick Sargent reported a coefficient of simple linear correlation of -0.611 between the number of letters in the name of a month and the mean monthly precipitation at Chicago in that month. He states that "this association was significant at the 5-percent level," and gives a value of $0.05 < P < 0.025$. (Presumably the signs of inequality have been reversed through an error of typesetting.) He goes on to say that "these associations have proved to be useful teaching examples of what can be done by the application of statistics, for here are significant correlations without *a priori* or *a posteriori* bases."

The example is, indeed, a useful one, although the interpretation might differ from that implied. Sargent says that he has been "searching for a phenomenon that would illustrate" the truism that "the mere fact that two variables are significantly correlated by accepted statistical treatment of valid observations does not *ipso facto* prove that the correlation has any biological meaning." In his search, he turned up this example (and another that he describes as "suggestive but not statistically significant.")

If Sargent's search covered as many as 20 examples, we would expect, even though there was not correlation on an *a priori* or *a posteriori* basis, that one of the samples might be "significant at the 5-percent level." This means merely that the sample shows as much correlation as one would get one time in 20 from uncorrelated data.

Sargent's example does not in any way indicate that the statistical methods are wrong, or that "one can prove anything by statistics." It indicates merely that he had patience enough to look through a score or more of cases for a class illustration. His results are useful enough so that I shall be glad to use them with my own students.

ALBERT E. WAUGH
Department of Economics,
University of Connecticut, Storrs
19 August 1955

Proliferation of Mature Fruit Pericarp Tissue Slices in vitro

The comparatively high rate of metabolic activity of the avocado fruit (*1*) has suggested that an investigation of the developmental histology might offer an explanation of this rather unusual physiological behavior. Studies of the mitotic activity and cell enlargement in the mesocarp, which comprises the major portion of the rather homogeneous pericarp, have indicated that maximum cell volume is attained when the fruit reaches about half its ultimate size and that cell division in the pericarp continues throughout the fruit life on the tree (*2*). Most other fruits reported in the literature are characterized by a period of cell division that lasts from 2 to 4 weeks following pollination. Subsequent fruit-size increase then results almost entirely from cell enlargement.

The rather unusual mitosis-cell enlargement relationship within the avocado and the physiological behavior suggest the maintenance of a juvenile state throughout the fruit life or a continuous meristematic condition of the "otherwise mature" pericarp parenchyma. Attempts have been made to tissue-culture this pericarp wall, the cells of which contain large amounts of oil.

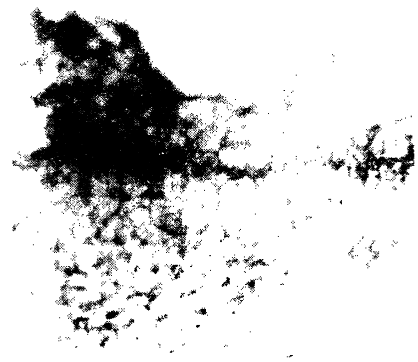

Fig. 1. Proliferation of tissue disks from mature avocado fruits grown on agar nutrient media.

Disks of tissue 8 mm in diameter and 1 mm thick from horticulturally mature fruit were planted on agar media, utilizing a general formula (*3*). Within 3 or 4 weeks cellular proliferation on the upper surfaces of the disks has been observed (Fig. 1). This has resulted in some cases from the development of a parenchymatous cell mass over the entire upper surface, giving rise to a "pad" six to eight or more cells thick. Some disks develop a meristematic layer parallel to, and three or four cells layers beneath, the exposed surface. A few disks have produced clusters of cells from isolated areas at apparent random points on the upper surface of the disk. There has been little indication of tissue differentiation under the limited environmental conditions studied. Attempts are now under way to investigate the environmental factors that affect these cultures and to make subcultures of these proliferating cell masses.

Although reports exist concerning culture of ovaries and other tissues of immature fruits, it is thought that proliferation *in vitro* of pericarp tissue from horticulturally mature fruit has not been demonstrated previously.

C. A. SCHROEDER
Department of Subtropical Horticulture,
University of California, Los Angeles

References

1. J. B. Biale, *Proc. Am. Soc. Hort. Sci.* 39, 137 (1941).
2. C. A. Schroeder, *Proc. Am. Soc. Hort. Sci.* **61,** 103 (1953).
3. J. Nitsch, *Am. J. Botany* 38, 566 (1951).

13 June 1955