Then, after the plane has changed its angle for landing, the fuselage is tilted upward by perhaps 15 degrees. One's intelligence therefore tells him that the ground is still horizontal, and that it is the window lines that have tilted upward. But the illusion takes charge and remains in charge. The window lines, which had been horizontal, continue to seem horizontal; the ground takes the blame, and seems to slope. The effect remains until the plane stops, or makes a turn at the end of the runway.

For the passenger, this is just another curious psychological experience; but it is conceivable that for the pilot, it might on occasion mean disaster. In landing by instruments, instruments can fail; and a daylight visual landing might have to be made. What then? It may be that with all plane designs ever produced up to now, the pilot can remain free from the effect. But some new design, perhaps combined with incidental shutting off of forward vision by frost or oil on the windshield, might place the pilot under the necessary conditions. Resulting confusion could have serious results.

Until some one makes tests, it would seem that to avoid the trouble, cockpit windows should have curved frames, rather than rectangular. This suggestion grows out of what one sees from the left-side window of the incident described. In addition to seeing the ground, a large part of my visual field was filled with a view of the wing and the nacelle. Obviously, these parts did not cause disorientation, even though they, like the right-hand window frames, had changed angle with respect to the ground. These parts present only curved outlines. Therefore, it may be that with all frame-of-reference lines curved, the disorientation would not occur.

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FROST RINGS IN LONGLEAF PINE

"FROST rings," abnormal zones of parenchymatous wood resulting from freezing temperatures during the growing season, are of common occurrence in northern and western trees.[1] To the writer's knowledge, however, their occurrence in longleaf pine (*Pinus palustris* Mill.) has not been previously reported.

Increment cores from second-growth stands of this species in southern Mississippi frequently have a conspicuous yellow- to tan-colored zone in the springwood of the 1932 ring. Microscopic examination shows the laterally displaced rays, distorted xylem elements and short-celled parenchyma that characterize frost injury. Weather Bureau records for Mississippi report the February of 1932 as the "warmest February in the records of this section beginning in 1888." The mean monthly temperature was 59.1° F., nearly 10 degrees higher than normal. This exceptionally warm period was followed by temperatures of 20° to 24° throughout southern Mississippi on March 9 and 10.[2]

Generally the injury is found in the beginning of the second or third ring from the pith, since usually only the 1- or 2-year-old shoots were affected. From 0 to 12 rows of normal springwood cells may intervene between the end of the 1931 growth and the frost ring, indicating the extent of growth previous to the period of freezing weather.

The malformation is present at breast height in most of the trees small enough to have been affected. Since second-growth longleaf is often marked by "false" rings and extremely narrow rings resulting from fire, the presence of a distinctive ring caused some years ago has been of service in growth measurements.

EARL L. STONE, JR.

SOUTHERN FOREST EXPERIMENT STATION

[1] A. S. Rhoads, *U. S. Dept. Agr. Bull.* 1131. 1923.

[2] U. S. Weather Bureau, Climatological Data, Mississippi Section, February, March, 1932.

THE SUPERVISION OF PUBLICATION

DR. ATHERTON SEIDELL, writing in SCIENCE,[1] finds some fault with the distribution of scientific contributions among scientific workers in view of the difficulty and expense to which the worker is put in obtaining for his study the articles in which he is interested.

Dr. Seidell tries to criticize constructively, for he offers a recommendation for the solution of the problem:

> It is evident [he states] that a complete reorganization of the present system of publishing the results of scientific investigation is needed. Toward this end an advisory council on publication should be organized in each country for the purpose of studying the existing periodicals and defining more precisely the character of the contributions to be published in each. A system of routing the original communications in accordance with the field covered by each journal should also be established. The more highly specialized periodicals produced in this manner would enable the subscribers to receive more papers in which they are interested and fewer on subjects with which they are not concerned. The individual research worker would find it to his advantage to subscribe to them, and the cost of their publication would thus be distributed to an increasing extent among those for whose special benefit they are produced. *The supervision of publication by a central agency in each country would probably result in the elimination of some journals* [italics mine *sic*] and avoidance of the many changes in character, policy, title, size, price, etc., in others which now so greatly complicate the collection and maintenance of complete sets of periodicals by libraries and the task of making bibliographic searches in them.

Dr. Seidell, now with the U. S. Public Health Ser-

[1] SCIENCE, 92: 345, 1940.

vice, and for forty years on the payroll of the government, describes the scheme one would expect of a Totalitarian State or the U. S. S. R. What is the country coming to when its servants in high places propose "central agencies" for sorting and distributing the "contributions of the workers" and "eliminating some journals" for the "advancement of science and the public welfare"? How about the public welfare being served by individual enterprise and the freedom of the press? Give me the horse-and-buggy days, and leave for Europe the advancement of State Socialism.

RICHARD L. SUTTON, JR.

KANSAS CITY, MO.

THE PLANNING COMMITTEE OF THE VIRGINIA ACADEMY OF SCIENCE

THE Virginia Academy of Science, with its thousand members from all fields of science and from prominent lay groups in the state, is to have a long-range planning committee to help make its usefulness to the state and nation more effective in these defense times and in the future. In addition, this committee will have a group of prominent Virginians as consultants, their names to be announced later.

The personnel of the long-range planning committee appointed by Wortley F. Rudd, president of the academy, follows:

Arthur Bevan, state geologist; L. C. Bird, president of Phipps and Bird, Inc.; Raymond B. Bottom, publisher of the *Daily Press* and *Newport News Times Herald*; Dr. Julian A. Burruss, president of the Virginia Polytechnic Institute; Francis S. Chase, executive secretary of the Virginia Education Association; Justus H. Cline, chairman, board of directors of the Virginia Wildlife Association; Virginius Dabney, editor of the *Richmond Times-Dispatch*; Dr. Frank A. Geldard, professor of psychology, University of Virginia; Dr. Meta Glass, president of Sweet Briar College; Dr. Sidney B. Hall, state superintendent of public instruction; Dr. William R. Harlan, assistant director of research, American Tobacco Company; Dr. J. Shelton Horsley, surgeon; W. Catesby Jones, chief chemist, State Department of Agriculture; Dr. Ivey F. Lewis, dean of the University of Virginia; H. K. McConnell, vice-president, Tobacco By-Products and Chemical Corporation; Robert F. Nelson, publicity director for the Virgina State Chamber of Commerce; Dr. Garnett Ryland, head of the department of chemistry, University of Richmond; R. M. Sanford, assistant director of the State Planning Board; Dr. I. A. Updike, head of the department of chemistry, Randolph-Macon College, with other officers of the academy besides Dean Rudd and E. C. L. Miller as *ex-officio* members; Dr. George W. Jeffers, president-elect and professor of biology at Farmville State Teachers College, and Dr. Sidney S. Negus, head of the department of chemistry, Medical College of Virginia.

This long-range planning committee will soon have its organization meeting and begin considering various scientific problems of Virginia which have been suggested during a comprehensive survey extending over the last four months and just completed. Some 1,200 persons were consulted by the president of the academy in this survey.

E. C. L. MILLER,
Secretary-Treasurer

SCIENTIFIC BOOKS

THE THEORY OF PROBABILITY

Theory of Probability. By HAROLD JEFFREYS. Oxford: published by the Clarendon Press. 1939.

THE purpose of this book is to construct a foundation for scientific method and to analyze inductive reasoning. The problem is attacked with the aid of the theories of probability and statistics. The author gives a set of postulates for the theory of probability. These postulates specify certain relations between implication and probabilities and demand that probabilities shall constitute a completely ordered set. Probabilities are interpreted as "degrees of reasonable belief" and are distinguished from the numbers which represent them. Number is introduced by means of two conventions and one additional postulate. These conventions do not require that certainty be represented by the number one. In fact on occasions the author finds it convenient to represent certainty by infinity. On the basis of the postulates and the conventions the usual results of the theory of probability are derived. The author discusses estimation problems and significance tests with the aid of Bayes's principle and the following rules: "If the parameter may have any value in a finite range, or from $-\infty$ to $+\infty$, its prior probability should be taken as uniformly distributed. If it arises in such a way that it may conceivably have any value from 0 to ∞, the prior probability of its logarithm should be taken as uniformly distributed." He devotes considerable attention to the justification of these rules. The latter part of the book is concerned with general questions, including a discussion of the frequency theory and other foundations for the theory of probability.

Let us note that science and indeed all inductive thinking are vitally concerned with predictions. The first few pages of this book furnish a strong support for this claim. In the pages which follow Jeffreys