

England, in place of Professor G. T. Morgan, who has resigned.

DAVID JACK, at present associate professor in the Carnegie Institute of Technology, Pittsburgh, has been appointed an assistant in the department of natural philosophy at the University of St. Andrews, England.

DISCUSSION AND CORRESPONDENCE

THE EXCESSIVE POLITENESS OF AMERICAN BOTANISTS

WHOEVER writes a novel or a collection of essays—and gets it published—feels that some one somewhere is likely to say, in print, just what he thinks of the book and why. The American botanist who writes a paper has, on the other hand, every reason to believe that he will have little difficulty in finding a publisher; and thanks to the excessive politeness or perhaps the indifference of his colleagues, he is also reasonably certain that no matter how poor the paper be, no one will tell him so even in print. This is merely another way of saying that American botanical literature is conspicuously lacking in adequate criticism. The probable causes of this lack will be discussed briefly in the present note.

There can be no question that we need criticism. Probably the only American botanists whose work is open to no criticism are those who have published no papers. Occasionally, the need of criticism is acute. For example, the February number of *Phytopathology* contained an article in which it was announced as a discovery that *Rhizopus* rot is an important disease of peaches in transit. The concluding paragraph strongly urged that pathologists give attention to this rot and study methods of control. No literature relative to *Rhizopus* rot of peaches was cited, although there are two recent American papers dealing with the subject, one of which was published in the *Journal of Agricultural Research* and the other in *Phytopathology* itself. To date, no review or criticism of this paper has appeared.

In general, we confine our criticisms of papers to personal discussions at times when neither the author of the paper nor the editor of the journal is present. In the February number of the *American Journal of Botany* there appeared an article on *poisonous* plants. This contribution contains such information as that “. . . the burrs of the chestnut produce mechanical injuries” and that “buckwheat cakes sometimes produce a dermatitis in people and hogs.” The prevalent southern notion that “Buckwheat cakes and Injun batter makes you fat or a little fatter” was somehow overlooked. This paper was read aloud recently to a group of professional botanists assembled at lunch. It was greeted with undignified shouts of glee. Regarded purely as a humorous article it was a huge suc-

cess, although two or three of the older members of the society which supports the journal did express the opinion that it was a disgrace to the society. One of them, who has been much in Europe, stated that on account of the publication of such papers we are rapidly losing our standing with European botanists. No one, so far as can be learned, has taken the trouble to write a serious review or even a letter to the editor.

It can not be successfully contended that American botanists lack the ability to criticize. Dr. Fernald's reviews of publications in his field are of unusually high quality and have added materially to his standing as a botanist. Dr. Heald's review of Stevens' “Fungi Which Cause Plant Disease” is a classic.

American botanists have also shown decided ability to appreciate criticism. The editorial review published in the *Gardeners' Chronicle* for February, 1921, of Dr. Coville's paper on the influence of cold in stimulating the growth of plants was widely read and appreciated by American botanists, including, we believe, the author of the criticized paper. More recently American botanists have read with interest, in the *International Sugar Journal*, Dr. E. W. Cross's review of Lee's paper on present needs in cane disease control.

Reference to the note in the *Gardeners' Chronicle* brings up the interesting question of why friendly and constructive criticism is more common in English botanical publications than in American. Without attempting to answer the question in detail it may be suggested that perhaps real criticism is lacking in American botany because of the great American tendency to move in crowds. Most American botanists of the present generation have been college trained; that is, they have been trained to boost for the old college and yell for the home team. They hate to offend personal friends. They realize that an incisive review may hurt the reviewer's chances of election to the vice-presidency of the section of oenotheriology of the Botanical Society of America—and so, the review is not written.

The need of adequate criticism in American botany being recognized, how shall it be met? In the literary field it is met by a special class of writers, many of whom in the past have attained high standing as critics. This solution of the problem is perhaps not possible in botany at the present time, although something similar has been suggested. Only recently, the distinguished professor of botany in one of our great universities wrote a Washington botanist: “Why does not the department establish a division of research criticisms and reviews and start a journal in that line?” This is emphasized by the pen note, “*This is serious and no joke.*” Granted the desirability of such a journal, why should it be conducted by the Department of Agriculture? Why should it not

be established, for example, by the National Research Council? There could then be started somewhere else a journal of criticisms of the National Research Council and both publications would be assured of abundant material.

A criticism need not be caustic nor entirely unfavorable. It should call attention to the strong points of the article as well as its weak ones and it should never be anything but frank and honest. On occasion it may even have entertainment value.

The above notes while in manuscript form were referred for criticism to Dr. C. L. Shear. He returned them with a comment which so well bears out our central thought that we are quoting it in conclusion:

In the case of young investigators it is little less than criminal to encourage or ignore hasty and poorly prepared publications, since by so doing their futures may be blasted and real contributions to science lost.

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ON THE DAYLIGHT VISIBILITY OF STARS FROM A MINE SHAFT

THE perennial question of the daylight visibility of stars from wells or mine shafts having been raised again, I have thought the following discussion might be of sufficient interest to justify a printed note.

Stars can, of course, be observed by daylight with a telescope. The image of a fixed star appears in a telescope as practically a point, but due to the light-gathering power of the objective of the telescope, is hundreds of times as bright as when seen by the unaided eye. The intrinsic brightness of the sky, an extended surface, can not be increased in the least. Consequently, on any clear day, the brighter stars are easily seen with a telescope of moderate size.

Now consider a person descending a well or a mine on a bright day. As one goes down, the patch of sky seen above becomes smaller and smaller, but from an elementary proposition in physics the intrinsic brightness is practically unchanged. The only change is the small loss due to atmospheric absorption, which will affect also any stars which happen to be in that area.

At a depth of a few hundred feet the general illumination would be greatly reduced, and the eye would be a little more sensitive; but since the contrast between the stars and the sky background is the same as at the surface, it is obvious that a star could be seen only if bright enough to be on the limit of visibility from the shade of any good sized building. The necessary brightness for daylight visibility is easily estimated from observations with a telescope,

or obtained directly from observations of the planet Venus in midday.

With an objective of 6-inches aperture a star in daylight should theoretically appear about 1,000 times as bright as to the unaided eye. Further, it is found that the faintest stars which can be observed in midday with such an instrument give about one thousandth the light of the planet Venus at its maximum brightness. Making no allowance for atmospheric disturbances, we would expect these stars as seen in the telescope to appear about as bright as Venus seen with the unaided eye. But, as the "seeing" is always rather bad in the daytime and any disturbances are greatly magnified in the telescope, Venus at maximum brightness is an easier object to the unaided eye than such a star is in the telescope. As a matter of fact, Venus can be seen with no great difficulty on the best days when about half a magnitude below maximum. However, in the eastern and middle western states, one must have good eyesight and choose a very clear day to see Venus when as faint as thirty times the brightness of Vega, the brightest star which could be seen from a vertical mine shaft anywhere in the United States or Europe.

This is a pretty wide margin, and one naturally wonders how the stories started. A suggestion is that accidental views of Venus in the daytime are responsible. I have in the last twenty years personally known of several such, by persons with no astronomical knowledge. Any good news writer, hearing of such a glimpse of a "star" from an open window or cave opening to the south, could imagine that from a deep mine other stars could be seen. It should also be borne in mind that Venus passes overhead in tropical countries and should occasionally be seen from wells, shallow mines, large chimneys, etc., in those regions.

After the above was written, I spoke to Professor A. E. Drucker, a mining engineer of some twenty years' experience. His reply was that as one descends a deep mine the patch of bright sky at the top gets smaller and smaller, eventually looking like a star. He had never heard of any one's seeing a star by daylight from a deep mine shaft.

To summarize: Since the contrast between a star and the sky background would not be changed in descending a mine shaft, one could see a star only if practically on the limit of visibility from any spot above ground where the eyes are well protected from the glare of the sun. To be so seen a star must approach the brightness of Venus at greatest brilliancy. From this we can say that in the United States and Europe no stars could be seen from a ver-