ever, walking is learned and skillfully executed daily without any application of rational techniques. The tasks of personal and social functioning are so complex and involve so many variables that no one could live "rationally," however rational their behavior may be if analyzed. Were rationalism to be a way of life rather than an occasional tool of planning and problem-solving, life would be impossible. The experiences of love, friendship, religion, sexuality, and artistic pleasure cannot often be rationally analyzed while the event is occurring, although philosophers and scientists properly attempt to structure and understand these experiences in retrospect. To insist that such experiences be subjected to rational scrutiny and be guided by rational principles by all those who participate on an existential level is, in my judgment, an inappropriate application of rationalism. The many responsible persons of all ages who today reject rationalism perceive its limitations and would rather live and "be involved" at a level where the concept of rationality is simply the wrong frame of reference.

It may also be that those who reject rationalism as a life philosophy are aware of its shortcomings and failures. Even in those areas where scientific method has had its greatest successes there have been numerous failures because of the misapplication of rational concepts. In the realm of the physical sciences, for example, it still happens that bridges collapse, airplanes crash, and nuclear reactors fail because the concept utilized in their design were faulty or incomplete.

In the softer sciences rationalism can hardly be considered a successful or perfected method. Consider the many faulty social theories-dogmatically asserted as "reasonable"-which have ruined the lives of generations before being abandoned, often in favor of other faulty theories. The fact that war, mental illness, poverty, and worldwide economic crises continue to plague modern man suggests that rational methods have been relatively impotent in many areas that matter most to the concerned youth of today. Those ardent advocates of rationalism might well reflect on the view of a homey philosopher who once said, "It ain't the things I don't know that cause me trouble, it's the things I do know that ain't so that are the problem."

I find little in Frankel's brilliant essay with which to disagree regarding the strengths of rationalism. I differ only in judging the extent to which rationalism can or should be applied to the experience of real life. Valuable as rational analysis is to science, it does not have the capability of being anything like a complete life philosophy. Most of life is experienced. Those experiences which are successful or painful may be corrected by rational methods, but this in no way diminishes those common nonrational experiences which are satisfying and successful, and which many seem to say are an adequate base for a meaningful life.

DANIEL LEVINSON Department of Family and Community Medicine, Arizona Medical Center, University of Arizona, Tucson 85724

I am grateful to Roberts, Wands, and Levinson for being so gentle. As a veteran of past combat with defenders of irrationalism, I must say that I seem to be gaining.

Surely Laing and Roszak go through the forms of reasoning and do so seriously. Nothing in my article said or implied anything different. But surely, too, they mean to *advocate* irrationalism in some areas of thought and life. And it is possible that they do not successfully marshall evidence or put together logical arguments to support that conclusion. Roberts seems to confuse these three things.

As for Roberts' suggestion that "rationality" ought to be redefined, I await more specific illumination. However, his final remark to the effect that it is at least possible that *all* rationality is the work of the devil doesn't encourage me to hold my breath. Does he mean that it is seriously possible that there is no case to be made, ever, for looking before leaping?

Wands's reminder that rational men have been thought to be irrational is not an argument for irrationalism. I would take it as a further warning against glorifying the insights yielded by intuition or passion.

Levinson raises at once the most moderate and the most frequent objection to the "rationalism" I defended, and I agree that analysis, cerebration, and conscious detached observation are not 24-hour-a-day requirements. But I know of no defender of rational methods who proposes that we devote our lives exclusively to such activities. As Santayana says in another context, knowledge isn't eating (1). But this is hardly an argument against increasing our knowledge or refining our discriminations with regard to what we eat. I suspect there is little difference between Levinson's views and mine, but it makes me a bit uncomfortable to read Levinson's comments on the limits of rationalism as a "life philosophy," when all he is saying is that philosophy isn't everything, that we oughtn't to be thinking all the time, and that rational methods often fail to solve problems. Who holds these views under attack? And is the implication that, since rational methods often fail, the use of irrational methods is sometimes warranted? I don't think Levinson would draw such an implication, but that leaves me perplexed as to the significance of the point he is making.

CHARLES FRANKEL Department of Philosophy, Columbia University, New York 10027

## References

1. G. Santayana, The Life of Reason, vol. 1, Reason in Common Sense (Collier, New York, 1962).

## Flora North America

It was surprising and disappointing to read of the termination of the *Flora North America* project (News and Comment, 23 Feb., p. 778).

From all available reports, the project seemed to be making important strides in the direction of a "third-generation" style of flora. The use of the computer in a central role for flora information-management was an important development that had a worldwide following. For major continentwide projects, there is an urgent need to provide as best as possible for the local worker, who wants data for only a limited flora. It is these grassroots, local interests that will be a major help in the conservation, study, and use of plant resources in the future. A computer-based flora could give us all the local manuals we want, as subsets of the continent-wide project. These could be as up-to-date as we choose to make them. A host of other benefits could come to the biological sciences, in orderly, computer-organized packages.

It is sad indeed to see such an important project end because of lack of funds. Can *Flora North America* be brought to life again? A firm plea is made for this to be done.

A. V. HALL

## Bolus Herbarium,

University of Cape Town, Rondebosch, Cape Province, South Africa

SCIENCE, VOL. 182