Letters

Ammi majus

In the article "Effects of 8-methoxypsoralen and ultraviolet light in human skin" [*Science* **127**, 878 (1958)], the author, S. W. Becker, Jr., clearly demonstrated the mechanism of 8-methoxypsoralen action. However, I would like to point out that extracts of *Ammi majus* (Linné) have not been "used by the Egyptians . . . for centuries." In fact, the first extracts were made at Cairo University in 1954 [see I. R. Fahmy, A. A. Rahman, R. E. Hakim, *Proc. Pharm. Soc. Egypt Sci. Ed.* **38**, 67 (1956)].

Only the cremocarps (tiny fruits) of *Ammi majus* have been dispensed, by the nomadic Berberian tribe of Beni-Shoeïb, dwelling in the North African desert, who furnished them powdered in order to disguise the origin of the drug, which was called in Berberian "Atrillal" or the "bird's foot," due to the shape of the umbel that carries the cremocarps.

As reported by Ibn El Bitar (13th century), the secret was finally disclosed, and El Sherif (sixth century) was the first physician to administer these powdered cremocarps for leucoderma in a rather rational way. Dawood El Antaki (17th century), El Rashidi (19th century), and Maimonides all wrote extensively on this drug and its administration, but nowhere is there any mention of "extract" of the plant or its cremocarps.

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Raouf Hakim's statements are correct. My choice of the term *extract* was a poor one; I meant crude preparations of the *Ammi majus plant*. The first true extracts were those prepared at Cairo University in 1954.

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Science Education

Science [**127**, 852 (1958)] reported the very important recommendations of the 1958 Parliament of Science. All scientists will recognize that several widely diverse aspects of our total educational problem were well discussed and helpfully reported by these meetings sponsored by the AAAS.

May one reader note, however, the existence of evidence in support of the view that those recommendations nevertheless essentially fail to come to grips with one problem which some observers now consider the central and most urgent of all our educational problems? I refer to the hardest of all tasks—getting more and

better courses in the sciences and mathematics into the high-school curriculum and getting quickly a markedly higher percentage of the high-school population enrolled in all of these subjects. If, in high school, the necessary years are added to study of these subjects, those years will also be subtracted from some other exercise of study. The report is therefore quite unrealistic in the oft-repeated thought illustrated by the statement, "We believe that scientific education is best fostered as a part of a general emphasis on intellectual activity and that the pressing need is for increased support of the social sciences and humanities [foreign languages are elsewhere added] as well as the natural sciences." This approach stymies almost all efforts to bring about quantitative change.

Other sources have placed "the pressing need" elsewhere. The Report of the President's Committee on Scientists and Engineers (1 Dec. 1957) said: "There is ample evidence that the Soviet Union is bending every effort to achieve its goal of world domination by leading the way in this scientific revolution. . . . Russian advances in other technological fields present an equally grave threat to the ultimate security and wellbeing of our people." And Khrushchev confirmed this in March 1958 by stating that the Soviets expect to win their contest with the West through education, industrial production, and other nonmilitary means. The President's committee also clearly noted that, to oppose the Russian threat, the committee's "educational program is largely directed towards the secondary schools . . . and [is designed] to persuade a higher proportion of the youngsters with science aptitudes to choose science or engineering as a career."

During the years 1936–45 I was chairman of a committee that gathered extensive information on the status of biology as a high-school subject and the problems that arise from inclusion of biology in the curriculum and also obtained some insight on the status of chemistry and physics in the same 3100 high schools of 48 states. For none of these sciences was the picture obtained a healthy one. And the inherent, built-in difficulties in making the marked curricular changes clearly demanded in the statements quoted in the preceding paragraph seem to be singularly overlooked in the Parliament report. Neglected, too, is the warning given in the documented account of a scholar in literature, Joseph Gallant [*Science* **125**, 787 (1957)], who showed that, at the high-school level, there is a vast difference between what the teaching of social studies and the humanities could and ought to accomplish and what is *usually* done in high schools for the enlightenment and motivation of modern students. He well shows that much of that teaching is damagingly "prescientific" and a denigration of science. He calls for a "reorientation in our intellectual outlook," and if that is attainable at all, it surely requires some decades to accomplish. Is a definitely higher place for the natural sciences—hitherto step-children in the curriculum—any less than one good way to lift the quality of the training given there in the truly indispensable humanities and social sciences?

Is softness in our secondary school curriculum justifiable in the light of the present threat, mode of attack, and strength of our opponent? Call it merest coincidence or rate it vitally meaningful, it is certain that the first nation that ever swept religion completely from its schools performed immediately thereafter a feat in science education never before approximated on this planet. Starting 40 years ago with a poor and war-crushed people 70 percent illiterate, it now annually graduates more than twice as many scientists and engineers as does the United States. That nation now happens to be our dangerous and aggressive enemy. How much longer are we to gamble the fortunes of Western civilization on the proposition that the scientific age is still remote?

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