Oyster Mortality in Louisiana

In a recent comment (*Science*, October 29, pp. 484–485) Gunter apparently attempts to minimize the seriousness of the oyster losses in the State of Louisiana which have occurred and are continuing to occur. The use of statistics in such a connection can be very misleading without detailed study of the facts. Even though the total production remains stable or actually increases, it must be realized that this situation results from expansion of the industry through use of undeveloped grounds, of which Louisiana has an abundance, and of better utilization of producing grounds. It does not negate the fact that a continuing unexplained mortality may prevent the production from reaching even higher levels. Furthermore, once the expansion is completed, this mortality may then result in decline as the adverse factors causing this mortality continue and spread to other areas. This latter possibility has been in the minds of Louisiana oyster conservationists for some time. Because they are progressive and look into the future, they have good reason for alarm.

Conservation officials of the State have repeatedly asked the Fish and Wildlife Service to assist them with problems of unexplained and continuing severe oyster mortalities. As a result of those requests I was detailed to Louisiana for this work a few years ago. Unfortunately, the studies were discontinued abruptly because of the war. But even in this brief work, we saw sudden oyster deaths and watched many acres of oyster bottoms covered with excellent oysters change into acres of empty shells. Oystermen sustained heavily financial losses, the production of their ground dropping to zero. It cannot be denied that serious mortalities have occurred and are of great concern to the oyster industry of Louisiana. The seriousness of such losses should not be overlooked for their is danger that the factor or factors bringing about these mortalities may continue to spread.

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Biological Education in Secondary Schools

The increase in food production which has been accomplished in spite of a shortage of labor is the result of the application of scientific principles to farming. This is modern agriculture, and it has little in common with the traditional ideas of peasant farming. The effective use of fertilizers of high yielding varieties, of chemicals which control insects, nematodes, and weeds, of better agricultural machinery, and of better agricultural practices have all contributed to making this nation a leader in agriculture. What are we doing to maintain this leadership in the future? Do we adequately acquaint the coming generations with the basic principles of biology, chemistry, and physics upon which rests our future in agriculture?

Like so many other biologists, I have watched with apprehension the appalling lack of appreciation of the importance of the teaching of biology at the secondary school level in this country. To me it seems obvious that, if we are to keep our leading position, we will have to gear our educational system to modern agriculture. This cannot be done adequately without making biology a required subject in all secondary schools.

Other countries have long realized the importance of indoctrinating their coming generations in the principles of biology. In Holland, long a leader in the field of intensive agriculture in their home country and the tropics, every student attending secondary school receives five full years of training in zoology and botany. This has contributed much in providing the Dutch empire with a steady supply of workers necessary in all the phases of a complicated economy based on modern agriculture. Training of this sort provides a suitable basis for further specialization. In addition, it has great cultural value in that a larger section of the population obtains a better understanding of the problems which confront an agricultural economy.

In this country we could well profit by this example and embark on an educational program which will make the nation aware that our economy actually rests on biological principles. High school courses could start profitably during the freshman year with a simple course in human anatomy. Young people are very interested in themselves; hence such a course would logically serve as an introduction to biology. Gradually the student should become acquainted with other forms of life that exist in the world around us. In an age of synthetic chemicals we tend to forget that the source of energy which makes human beings go is still derived from food, for which we are dependent upon plants and animals. Courses in biology should therefore include animal and plant taxonomy, morphology, and anatomy. During the final years, when the student is acquiring knowledge of physics and chemistry, some of the principles of animal and plant physiology could be taught. This emphasizes the desirability of teaching biology as an integral part of a required course in basic science.

We are well aware that our store of scientific knowledge has increased enormously during the past decades, and one would therefore be inclined to think that teaching of basic science at the secondary school level would hopelessly overcrowd the curriculum with complicated courses. This is not necessarily so. On the contrary, we are now in a position to teach the principles and omit the frills. As Pauling has stated in the introduction of his new chemistry book: "Nevertheless, despite its growth (the) science can now be presented to the student more easily and effectively than ever before."

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