



## More Letters

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human mind and art of living on behalf of the whole human race. We must undertake "the cartography of inner space" untouched by verbalization, and we must establish "inner space labs."<sup>21</sup> When this is deeply realized by the scientific community, only then there will be universal peace and freedom. Actualization of scientific responsibility by the scientists themselves can save us from annihilation, to heal our diseased mind-brain equipment and to heal our planet. Scientific responsibility is the new approach to public health. This ensures "Health for All - All for Health."

It is the primary concern (responsibility) of the UNESCO, the "Universal Movement for Scientific Responsibility," to make this discovery available at the door step of every scientist on the globe. It is of paramount importance that the deeper truths are shared through dialogues and workshops so that there is deeper awareness of "the responsibility of science with regard to the future of humanity, of ensuring that our children's lives will not only be preserved but enriched in peace," in the words of Jean Dausset.<sup>22</sup> The destiny of humanity is hinged on scientific responsibility. We shall survive only if we can show (responsibility) that we deserve to survive. The one truth that a scientist must never forget is that he is responsible for the future of humanity, for the survival of the species.

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## Education Against Knowledge

*There has to be a way to measure the quality and efficiency of a clinic just as there are ways to measure the same characteristics in a baseball pitcher.*

Former Surg. Gen. C.E. Koop

### Editor:

Years ago, I was told by our state Superintendent of Public Instruction that "what students know has nothing to do with education." Since then I have occasionally wondered how many other people with responsibility for education have such a clear awareness of their social function. Many teachers and professors, who emphatically claim that education has something to do with knowledge, nevertheless will claim that there is no objective way to measure knowledge. Many of these teachers will base their students' grades on examinations, yet it is rare for a school or college to allow a student to take those same exams for full credit without enrolling in the course. Several professions require an examination to qualify for a license to practice, yet will administer the test only to people who have the appropriate degrees, as if the examination (which excludes a fair number of degree-holding applicants) were unable to exclude those with inadequate knowledge.

The National Endowment for the Humanities has done another study, this time showing that U.S. college seniors generally don't know very much. In their earlier study, they found that the average young person in the U.S. knew less about the world than people of the same age in Mexico, Italy, and all the other nations studied. I suppose this country spends at least 50 times as much on "education" as Mexico does. Dr. Koop has pointed out that "health care" in the U.S. is deteriorating, at the same time that its cost is increasing. Just as he proposes that medicine should adopt the serious and objective concern for performance that exists in baseball, I would propose the same for education.

The fear of objectivity in education and in the professions has to do with power. When a professor has secret criteria, his judgment can't be challenged. If his assumptions are unfounded, a student could embarrass him by examining them. But, in a system which requires an accumulation of course-credits, good students quickly learn what is expected of them, and after a few years of learning not to question the assumptions of their "discipline," they are ready to become like their teacher.

Listening to an expert talk about a subject is often a good way to learn, but having your understanding judged by that same expert is very likely to inhibit a spirit of objective inquiry. Separating evaluation from instruction can make a tremendous difference in education. Students and teachers can disagree, and still have a sense of working together. Venerable dogmas and stylish trends can remain in the curriculum, but their mystique is likely to evaporate. Even textbooks are likely to change, because they are now designed to serve the teachers (who select them) rather than the students who use them. Whether the subject is music, or math, or language, or physics, textbooks are likely to be instruments for maintaining a mystique, rather than for directly communicating an understanding of the subject. Vague or fragmentary definitions of terms and symbols often make the subject seem more mysterious than it is.

I have seen teachers present in a day the material that they would normally teach in a semester or two, and it seemed that their students grasped the subject as a whole more clearly than the conventional students who attended dozens of lectures. This was in the early 1960s, at Blake College. This school has been described as a prototype for the experimental college movement of the 1960s, but my intention in creating it was to demonstrate what can happen when students are not required to conform to the cultishly departmentalized attitudes toward knowledge which dominate most schools and universities. Simply by letting the students know that professionalism was not sacred, they were allowed to see how easy it is to master the information which is normally so laboriously and pompously inculcated.

In a miniature way, my composition class at Montana State (1965-66) demonstrated the same process. The department "required" each instructor of freshman composition to grade according to department rules, subtracting so many points for misuse of a comma, or for using the wrong part of speech, or misspelling, etc., with the result that 50% of the students failed the course. A few weeks into winter quarter, I decided that the procedure was just too pointless and degrading, for both students and teachers, and I told my classes that I was going to ignore their grammar and spelling and punctuation when I decided on grades for their papers (though I still pointed out the conventional errors), but that I was going to grade on the content of what they said. If they communicated something of interest, they would get a

good grade, but if they kept writing on the level of a grade-school child (which they did in an effort to keep the mechanics of writing simple, hoping to minimize errors) I would give them an F. They immediately started to write more interestingly and more complexly, and the errors in grammar dropped sharply, so that nearly all of them were passing even by the stupid departmental requirements. That spring, the university solicited grant applications for research projects to improve education, so I submitted a description of my class, with before-and-after examples of the student's writing, to demonstrate the dramatic improvement. Only one other person, out of the 40 teachers in the department, would talk about the idea of writing for content; I'm sure that the department chairman didn't forward my proposal to the committee that had solicited research proposals, since so many of the old-timers in the department were committed to the idea that the department's "standards" would be lowered if they didn't fail half of the freshmen. (Incidentally, the courses were called "Communication 121," etc., so I argued that it was proper to grade the students on the basis of communication, rather than form). Since then, I have heard many people justify various "educational" ordeals, by saying "that would be like a child trying to learn to speak before learning the alphabet," or something to that effect. Their examples usually make exactly the point they oppose; for example, it would be a seriously distorted child who learned the alphabet before learning to speak. And much of our educational system, at various levels, is devoted to just that kind of distortion.

Unless the dogmatic power of "the authorities" is replaced by some objective standards of knowledge and skill, public knowledge will continue to deteriorate. Our interactions with the environment, with each other, and with other nations will continue to deteriorate. Public health and the standard of living will deteriorate, unless knowledge is treated with the same seriousness as the skill of athletes.

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### 16 Million Americans Sensitive to Pesticides

Editor:

About 5 million Americans are highly allergic to pesticides and risk severe immune reactions ranging from watery eyes and itchy skin to shock and death when they are exposed to these chemicals, reports Russell Jaffe, M.D., Ph.D., principal scientist at Seramune Physicians Lab, a biotechnology laboratory in Reston, Virginia. Another 11 million have moderate reactions to pesticides ranging from tearing and dripping noses to hives and muscle and joint pain.

This is the first study that makes an accurate determination of the body's immune system response to pesticides - a class of chemicals called biocides used to kill life. In a five year period, the study measured responses of more than 8,000 patients to the three major classes of pesticides - carbamates, organophosphates, and halogenated compounds.

"Our research is the first to clearly link pesticides with immune recognition responses," says Dr. Jaffe. "It is no longer a matter of guess work. Now we can determine for an individual their sensitivity to pesticides." Dr. Jaffe's study data are derived from the ELISA/ACT test, a state-of-the-art evaluation tool of immune system reactions to 235 foods, pesticides and environmental chemicals. This is the first procedure to fully diagnose immune responses - providing physicians an immunologic finger print.

In susceptible people even low levels of these pesticides can cause major problems such as asthma, bronchitis, eczema, and migraine. The report estimates that about 500,000 people have these types of responses.

A finding of the study is that more than 16 million people show impaired immune function due to the effects of these pesticides - increasing susceptibility to chronic viral and bacterial infection and decreasing the body's ability to repair itself.

Chronically impaired immune function greatly increases the risk of cancer and heart disease. Future prospective studies are needed to determine the exact nature of this risk.

In study after study, the American public has shown increasing concern about the safety of pesticides in our environment,