

Letters

Scientific Responsibility

Austin, Texas

In his article in the December-January issue of *E&S*, Dr. Albert Hibbs misleads by emphasizing "repugnance" as a collective trait of the theories of Galileo, Freud, Pauling, Shockley, etc. The issue is not whether a forum for "repugnant" theories should exist. It is whether science should pursue areas which have a vast potential to damage human beings. The idea that all topics should be fully investigated derives from the concept of scientists in isolation, searching for "absolute truths." A scientist is first of all a man or woman, and this should imply social consciousness and responsibility.

Examples of repugnant areas of research are manifold. What type of bomb will be lethal to the fewest people while creating the most radiation damage? What nerve gases will turn a man into a vegetable? Debate whether Dr. Shockley's theories approach the same class, not whether a scientist must brush the cobwebs from all corners.

Attempts to prove racial inferiority in any sense attack infinitely deeper than governmental structure, the foundations of which deserve to be periodically tested. Prejudice, men hating each other to counteract their feelings of inadequacy, is rampant. Should the academic community work toward giving it a scientific basis, however improbable the prospect of tangible results seems? The specter of a rational 1933-1945 as a solution to overpopulation hovers.

Science has become a popular god whom few have the knowledge to question and all too many are willing to automatically accept. That god must do its best to be benevolent. Thus, let us investigate as fallible human beings, giving careful thought to researching topics that could work toward putting the de facto injustice of the application of the First Amendment on the sacrificial altar of the god of science.

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Science and Values

Malibu

After reading your article by Sir George Porter on the function of science (*E&S*, December-January 1975) I composed a short essay giving the other side of the question, what is the function of science? I thought it might stimulate a lively dialogue on the crucial question of science and values:

"I've given up God, and religion, but I still believe in man. I believe in values."

In these words, the modern humanist often expresses his world view. The conviction is very widespread nowadays that the gods are all dead or silent, that man has come of age, that the sons of science must now make their way alone, without any help from the outside. Even if it means waiting four billion years for science to discover our purpose!

But can you do this? Can you give up God and metaphysics and still believe in values? Can science by itself establish values? Nietzsche once quipped that the English give up God and then do penance by becoming moral fanatics, which, to him, was a trifle absurd. Does it make any sense to "go completely secular" and still try to hang on to morality, ethics, values?

I agree with Nietzsche: I say it makes no sense. I challenge anyone to establish a single value that man has traditionally prized by using the scientific method!

If you decide to take up my challenge, let me explain what your job will be. To prove a value by the scientific method, you'll need to show that it is objectively public, that it can be perceived by all men. Science knows no private truths; scientific facts must be clear to all. There is no "German math" or "Russian physics," no parochial divisions of truth.

Next, you'll have to establish the particular value, not by revelation, authority, tradition, hunch, or intuition, but by the strict empirical, laboratory method of investigation. In short, the value will have to come only through experience,

through the senses. Furthermore, when it comes through the senses, we must be able to see by some clear definition that it is indeed a value.

But that's just the trouble—values can't come through the senses. Value judgments are made *by* the mind, working *upon* data from the senses. Wars, murders, rapes, thefts—all these bad things—are just as natural or empirical as plants, animals, and rocks. They all come through the senses, but none of them comes through with a bright red tag reading, "I am valuable." If they did, we could settle some of those borderline moral issues like abortion and euthanasia.

If you consistently follow the scientific method in all investigations, you'll finally have to conclude that all values are subjective, that values have no basis at all in the objective world. You can't go from the "is" to the "ought." You can't pass from the descriptive to the normative. You can't prove what people should do merely by studying what they, in fact, do. Else you end up affirming, "Whatever is, is right." G. E. Moore correctly dubbed this "The Naturalistic Fallacy."

"But," you may object, "hasn't science proved that love, the greatest of all moral values, is firmly based on experience?" Careful! What you can prove is that human beings need to love and to be loved in order to survive and live full, happy lives. But what you can never prove in a million experiments is the proposition: "I should love my fellow human being." That is a normative assertion that empirical science doesn't even pretend to establish.

To prove the survival benefits of love isn't remarkable. To survive, my wristwatch needs oil, my car needs gasoline, my lawn needs fertilizer, my neighbor needs love. These are all good, scientific statements, good factual, descriptive propositions. But where do I look for that crucial imperative: *I am obligated* to oil my watch, gas my car, fertilize my lawn, and love my neighbor? What laboratory has proved—scientifically—that I *should* want my neighbor to survive?

That crucial imperative, that should or
continued on page 32

Letters . . . continued

ought, isn't in the scientific method. If a humanist has it in his world view, he smuggled it in from another.

A few years ago someone asked the famous Harvard psychologist B. F. Skinner what he thought was the most basic of all values. Skinner answered, "All values derive from survival value." Yet when asked why anyone should be concerned about the survival of a particular culture, Skinner answered, "There is no good reason why you should be concerned, but if your culture has not convinced you that there is, so much the worse for your culture."

Strange words from a scientific humanist! Is Skinner saying that we must *assume* or *postulate* survival of the race as our basic value? But I thought that all things in the humanistic world view were proved by the best of all methods—the scientific method. Once you start assuming things beyond the bare empirical evidence, you get into trouble. Isn't that what humanists are always saying about prescientific religious world views?

Couldn't another thinker just assume that the survival of the entire race wasn't a value? Is there anything in the scientific method that prevents another Hitler from postulating the value that only a certain fraction of the race should survive? What in the strict scientific method would refute such a postulate? During the Third Reich, the Nazis succeeded in using some "morally neutral" scientists in their program for exterminating the racially unfit. Stephen Spender, who lived through that horror, wrote in *The God That Failed*:

It is necessary to point out that scientists can derive from science *qua* science no objections to such experiments as exterminating the mentally unfit. If they do object, they are acting upon non-scientific values. Modern science has produced no reason to prevent science from being directed by governments toward purposes of enormous destruction in every country. Science is simply an instrument, for good or for bad. For it to be directed toward good, whoever directs it must have some conception of humanity wider than that of a planned scientific society.

We mustn't forget that Hitler loved to remind people that, according to

science, morals are relative and there are no objective standards for right or wrong. Nazi irrationalism denied the unity of the human race and the value of every individual personality, a denial which allowed Nazis to murder six million Jews with a great feeling of righteous justification. The ovens that worked at Auschwitz were manufactured by a very reputable firm in the Ruhr. German science, the best in the world, didn't seem to have the capacity to prevent the moral shame of the "final solution."

"But why are you knocking science so much?" you ask. Please don't misunderstand me; no one is knocking science. The scientific method is the finest thing ever devised to study what science studies—the empirical world. One of the finest things about the scientific method is the rigorous standard of truth it demands in all investigations. But if you apply that standard rigorously to science itself, you can't use it to establish values. I haven't limited science; science has limited itself.

Occasionally a thinker comes along who dramatizes the concrete implications of a line of thought. Such a thinker was Jack London, who embraced with gusto the brutal truth about an amoral universe, about a purely "naturalistic ethic." In his novel, *Sea Wolf*, London has Wolf Larsen say:

One cannot wrong another man. He can only wrong himself. As I see it, I do wrong always when I consider the interest of others. Don't you see? How can two particles of yeast wrong each other by striving to devour each other? It is their inborn heritage to strive to devour, and to strive not to be devoured. When they depart from this they sin.

If London's beastly view of ethics shocks you, then welcome to the club of those who look for something beyond the scientific method to establish values. As we see it, there is no such thing as duty in a world known only by the scientific method.

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Those Were the Days

Los Angeles

In addition to the excellent articles in the December-January issue of *E&S* (I have read them all), this issue had personal interest for me, as I knew Arnold Beckman, Richard Badger, and Al Hibbs. When in 1933 I made my first of numerous trips to Death Valley, I consulted Beckman, who had recently made such a trip. He urged me to see Titus Canyon there, which I did. On all my later trips, except when the canyon was closed because of flooding, I took that in again, always taking along some of my students or friends. Among the students I took was your Robert Leighton, on two trips, while he was still a student—he had been my student here at LACC. Also Charles Wilts.

Richard Badger and I teamed up with Fritz Zwicky and an Austrian physicist, in two small cars, to make an extended camping trip to the Utah and Arizona national parks, Monument Valley, Meteor Crater, various Indian ruins, and so on. This lasted nearly a month. On such a camping trip, especially under the conditions that obtained in 1927, one can really become acquainted with the members of the party.

On one occasion during the war the Registrar, Harry van Buskirk, who was also head of the math department, went away to some convention of Registrars, asked me to take his Honor Section of Freshman Math during his absence, and Al Hibbs was in that section, as I recall. Linus Pauling and I came to Tech the same year, and we were in a math class with "Van B" as he was usually called. When I came back during the war, in 1942, Dr. Millikan drafted me to be the Resident Associate in Dabney House, and Hibbs was in that house, and of course I came to know all the students in that house.

Dr. Millikan and Mrs. M. used to have Open House every Sunday afternoon for the graduate students in physics, and I enjoyed those meetings. I will remember that his Nobel gold medal was on display at the first meeting after he came back from Sweden with it. For me, "those were the days."

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