

# Pedantic Semantics

by ROBERT V. KESLING  
Curator of Micropaleontology and  
Professor of Geology  
Museum of Paleontology  
University of Michigan  
Ann Arbor, Michigan

And talking can be less effort than thinking.

## Techniques

You too can appear erudite without learning, sophisticated without wisdom, and precise without knowledge of the subject. The rules are simple. Only eloquence and pessimism are necessary. With only a few minutes daily before your mirror, you can learn to pose as the Grand Philosopher of any science. Advanced detractors recommend the following five steps.

Today, as never before, words are accepted as superior substitutes for research. Pedantry now rates higher than knowledge. Scorn replaces observation. It is high time, I firmly believe, to defend work and learning, for the attacks upon them are increasingly insidious if not more vigorous. Lest the requiem of science be composed in semantics, let us study this disease of sophisticated insinuation—for insight is potentially the cure.

In our confused time, we find biologists lampooning biology, zoologists belittling zoology, botanists defaming botany, paleontologists scoffing at paleontology, educators harassing education. I could go on. Every branch of science has spawned some critics ready and eager to malign it. Research is impugned as wasted time. Scientific methods are disparaged as unsound. Even teaching is decried as a process to beguile the young with our own outmoded illusions. If it is alarming to find science beset by scoffers, it is downright distressing to learn that the Judas kiss is delivered by scientists themselves.

The cynics may be few, but their effect is devastating. If our advanced students are presented with a melancholy, hopeless picture of their field, no wonder they are bewildered. If their teacher, after spending his lifetime in the science, confesses to thwarted search for meaning, of course they are demoralized.

How has this premeditated defeatism come about? Always it is easier to detract from a subject than to pursue it.

1. *The identity quiz.* Even amateurs can use this formula for apocalyptic effect. At a conference on ecology, one can interject, "But do we have any assurance that ecology is *really* ecology?" Or at a symposium on biology, "But do we know that biology is *really* biology?" Or at a seminar on geophysics, simply, "But is geophysics *really* geophysics?" Delivered in an exacting manner, such questions convey the impression of profound and meticulous evaluation. Actually, the speaker need never study recent advances in ecology, biology, or geophysics. Indeed, he may have forgotten how to spell them.

For interesting variations, replace one of the nouns by the corresponding verb: "Do we *really* investigate in investigation?" Or by the corresponding adjective: "Is zoology *really* zoological?"

2. *The fallacious observation.* Because observations are the foundations for science, undermine them immediately. "What you see cannot be what I see, since we are differently conditioned by our past experiences." Don't be afraid of ridiculous extremes. Speaking solemnly, you can get by with "Even a test tube may have deep Freudian significance to one observer," or "What appears to you to be a ridge I

may interpret as a valley." Just don't smile. Conclude with "Who can say that his observations are right?"

3. *The ultimate mirage.* Point out that science advances only as new discoveries are made, and that at any given time the goals are vague and obscure. All of science is filled with incertitude. If researchers knew what they are heading for, they would not need to be researchers. Scientific investigation is a quandary, with no assurance of success and no standard by which success can be judged. Deject the young before they get under way.

4. *The blind search.* Since the goals are uncertain, the methods of research can never be systematic. All experiments are aimless, a series of leaps in the dark. "With unpredictable targets, the progress of science at best is irresolute, wandering, and precarious."

5. *The confessional.* This is the cynic's crowning effort in gloom and depression. Although definitely more effective when given by an older person, it can be used by any postgraduate. The confessional requires finesse. It must be both condescending and apprehensive.

"Once I too was credulous enough to believe in this science, unaware of its shortcomings and nonfulfillment. Too late I have realized that my observations were remiss, my aims dubious, and my work perfunctory." If there is still a dry eye in the audience, continue the soliloquy. (Condescendingly) "Some of you may have spared yourselves this introspection." (With despair) "My work has been pathetically superficial," (with upraised hand and feigned sympathy) "but what of the student of today?" (With pathos) "What shall we tell him?"

Sit down and lose yourself in meditation. It discourages questions.

## Analysis

Let us look closely at these pedantic semantics. Under scrutiny and analysis, they appear ludicrous. They are.

Can you imagine one of these prophets, for example, intruding into a group of plumbers to ask "Is plumbing really plumbing?" Like as not, he would discover promptly that a pipe wrench is really a pipe wrench. Are scientists, then, more gullible than plumbers? Perhaps some are. Yet, the explanation of unrefuted cynicism, it seems to me, lies in the background of the scientific audience. Throughout his training, each scientist is alerted to look for cryptic meanings, to explain ambiguity, to analyze with care. So by the time the listener has eliminated all possibilities except double-talk, the meeting is long over and the speaker is lampooning elsewhere.

As for the fallibility of observations, white is white, square is square,  $\text{Cu}_2\text{SO}_4$  is  $\text{Cu}_2\text{SO}_4$ , and 100 is 100. I feel free to ask a student about a white precipitate without worrying about the possibility that the query may be traumatic because his grandmother had an unfortunate experience during a snowstorm. Or I might ask him to describe the dorsal valve of a brachiopod without delving into his prenatal orientation. Certain observations may need quantitative refinement, it is true, but it does not follow that no observation is ever wrong. I would place my trust in chemical reactions or mechanical forces instead of Freudian symbols or witchcraft.

On the subject of scientific methods and goals, it is sufficient to point out that the present state of science was achieved by patient work and careful induction, not by "irresolute" and "aimless" experimentation. The well-established routine—observing, synthesizing the data, formulating hypotheses, testing each hypothesis, and evaluating the results—has produced and continues to produce scientific advances. Research could do with a little more work and a little less heckling.

## Reaction

Am I nettled by semantics which belittle, depreciate, and disparage science? Am I rankled by the pedants who perplex, beguile, and dishearten the students? Am

I provoked by the expressions of gloom and despair? Am I sick of the dirge for science? You bet I am.

Why be moved by the cynic's comprehensive confession? If one of these flagellants complains that his work has no significance, say that you are sorry he thinks so; if he laments that his observations are unreliable, suggest a younger assistant with keener perception; and if he worries about the student of today, state positively that students today are at least as intelligent as those of the past and that they have far more information available to them. To the question of what we should tell our students, reply that we can do no better than to encourage them to do their best.

Science is a wonderful world of adventure. In it we can follow the roads built by our forefathers to the end, and from there blaze our own trails to undreamed-of realms. Your exciting land of research is waiting, vast as the universe or small as an electron, ponderous as an elephant or light as a virus, dense as steel or ethereal as the stratosphere. The land is yours to explore. By the satisfaction of a thorough job or the thrill of discovery, science rewards each of us.

If science means much to you, stand up for it. Speak out in its behalf. Extol its virtues. Chart the known paths for your students, and send them forth with confidence and enthusiasm. Show your optimism. Stamp out pedantic semantics.

