

Hermetic Jargon

Afscheidsbericht van Hendrik Tennekes

As soon as scientists and scholars from different disciplines talk to one another, confusion creeps in. In everyday language, words evoke clusters of associations, suggestions, hints and images. This is why an intelligent listener often needs only half a word. But the words that scientists use in their professional communications are usually safeguarded against unwanted associations. Within each separate discipline this helps to limit semantic confusion, but outsiders have no chance.

Disciplines are divided by their languages. Incomprehensible journal articles and oral presentations, ever-expanding university libraries, endless bickering over the appropriation of research funds, resources, and post-doc positions: The Temple of Science has become a Tower of Babel. A Babylonian confusion of tongues has become the organizing principle. As soon as more than a couple dozen scientists unite around the same theme, another specialist journal is created, comprehensible only to the in-crowd. If this is science, I want to get off.

Many years ago, two members of the Royal Netherlands Academy of Arts and Sciences tried to call attention to the problem. One was the leading art historian and Director of the Rijksmuseum in Amsterdam, Henk van Os, the other the retired methodologist of the social sciences, Adriaan de Groot. The two elderly gentlemen arranged a discussion meeting on the peer review system at Academy headquarters. Being an Academy member myself, I eagerly participated. In their introduction van Os and de Groot explained how all disciplines have a tendency to develop their own “hermetic jargon,” the secret language that eliminates the risk of having to discuss the foundations of one’s discipline with the outside world.

Hermetic jargon: what a beautiful neologism! Hermetic: referring to airtight sealing, my Random House dictionary says. Words are at their best when they seed a whole cloud of meanings and associations. In this case my mind reacted instantly, grasping at such concepts as occult science, alchemy, and esoteric writing. Esoteric, accessible to the initiated only, is the qualification given by the philosopher Lucian to some of Aristotle’s writings. Hermetic sealing was the standard laboratory practice of the alchemists. The net effect of hermetic jargon is that outsiders cannot argue with the high priests who wield the words. They can only accept the occult writings in awe.

Looking at the academic enterprise this way, I come across a lot of issues that bother me. The first that comes to mind is that hermetic jargon makes it impossible to conduct mature, scientific discussions of the paradigms, dogmas, and myths that drive each discipline. The claims of the worldwide physics community, for example, are outrageous. All science is Physics, period, is what they claim. All other disciplines, including chemistry, biology, engineering and the earth sciences, are mere derivatives. Physicists glorify their Nobel prizes without ever contemplating whether the Nobel prize system might be based on a nineteenth-century assessment of the world of science. Hermetic jargon is also a very effective means of excluding outsiders from negotiations for research funds. The system by which professional colleagues judge each other’s performance is called Peer Review. Only peers in the same discipline may pass judgment on their colleagues’ funding requests and on the quality of their

papers. Only high-energy physicists are allowed to participate in debates concerning the funding of high-energy physics, only micrometeorologists are allowed to review micrometeorological manuscripts. This makes a lot of sense, of course, because outsiders are in no position to judge the intricate technical details of the measurements and calculations involved. But such judgment is only a necessary first step. The key challenge for a meaningful peer review system would be to make explicit the underlying paradigms, and to subject them to scholarly scrutiny. This, to me, should be the essence of the duty of a National Academy, and perforce of each Academician.

Chances for a mature dialogue will improve when hermetic jargon is taken for what it really is: a way to defend barriers. There are plenty of unresolved issues and dilemmas in the interstices between the disciplines. Almost nobody dares to take a peek, but Gregory Bateson, the originator of the Kantian idea that Mind and Nature form a Necessary Unity, did. *Angels Fear* is the title of the book his daughter Margaret compiled after he died. The subtitle of that beautiful but rather messy book is *Towards an Epistemology of the Sacred*. The term Sacred should not be construed as referring to theology, but to the central problem of all epistemology: how can we know anything, how can we evaluate, who are we to make judgments? In Kant's own words: "Reason suffers the fate of being troubled by questions which it cannot reject because they were brought up by reason itself, but which it cannot answer either because they are utterly beyond its capacities." Yes, only fools rush in where angels fear to tread.

In oral presentations, to give another example, it would behoove the speaker to speak openly about the questions looming behind the research successes, behind the never-ending propaganda for scientific progress. I myself tried this a few times, but to no avail. In my induction speech for the Academy, in January 1984, I introduced the limited predictability of the weather as a prime example of the uncertainties associated with the sensitive dependence of nonlinear systems to initial conditions and to mismatches between Nature and the models we use to compute its evolution. I told my audience that the prediction horizon, in 1950 estimated by John von Neumann at 30 days, in fact is only three days on average. I dwelt only a little on the implications of this for the myth of endless progress in science. Apparently, meteorology is approaching the no-man's land between the unknown and the unknowable, I said. This was enough to alert the cognoscenti. The moment the discussion period following my lecture started, the famous astronomer Henk van de Hulst stood up from his chair in the front row and said: "Henk, that is a sermon, not a lecture. Sermons are not appropriate in this Hall." And the President, David de Wied then, closing the meeting and thanking me for my speech, said in front of the microphones: "Henk, I really don't understand what you said, and I think I don't *want* to understand either."

The two Academy members who had arranged the meeting on peer review apparently had concluded that voluntary changes in the peer review system were very unlikely. They opted for a direct confrontation. They proposed to amend the review system such that a number of colleagues outside the discipline concerned would have to participate in the evaluation of proposals for research funding and debates on the desired direction of research programs. Ask psychologists to look over the shoulders of meteorologists, involve theologians in the evaluation of astronomical long-term planning, let sociologists and engineers review each other's professional papers, and so on. As soon as you do that hermetic jargon loses the rationale for its existence.

It shall come as no surprise that these thoughts were torpedoed the moment they reverberated through the august Academy assembly hall. Everyone knew instantly the very idea was a land mine under the science establishment. Nobody understood that the proposal was rather modest in the sense that bureaucrats, politicians, and taxpayers would be excluded, and that the proposal in fact could be construed as reinforcing the power of the scientific nomenclature. The current practice is that spokesmen for each discipline negotiate directly with bureaucrats in government agencies, and refuse to be drawn into evaluations of the claims of other disciplines.

So all hell broke loose, right there in the meeting, the scene suddenly similar to that in a typical Knesset session, with Academicians jumping up, shouting, and cursing. Within half an hour, the President of the Academy, Pieter Drenth this time, stepped in, stating *ex cathedra* that the current review system was functioning well enough, despite minor flaws. He closed the meeting, and the Executive Board of the Academy decided to abort the idea altogether.

Following in the footsteps of van Os and de Groot, I have tried to fantasize about the fierce battles that might result if their proposal were put into effect. The central myth of cosmology and astrophysics, for example, is that the human mind is more powerful than the Universe. Stephen Hawking writes: when we discover a theory that unifies gravity and quantum mechanics, we will (I shudder as I write this) “know the Mind of God.” Martin Rees, then the Astronomer Royal of the United Kingdom, wrote a book called *Before the Beginning*, subtitled *Our Universe and Others*. Indeed, it has become common in astronomy to talk about Multiple Universes, an oxymoron if I ever saw one. Unfortunately, mainstream theology continues to propagate a similar myth, i.e. the stupid idea that one can talk with insight, and write scholarly publications, about God himself. That, in my mind, is an unforgivable epistemological fallacy. Readers not versed in the Bible might find it useful to read the story of Moses stumbling into a psychedelic thorn bush in Exodus 3. Moses hears voices and asks: “please tell me your Name, so I can tell my people who sent me.” The Voice answers: “I am whoever I want to be, that should be good enough for you.”

Being an engineer myself, I would be delighted to participate in a debate between engineers and sociologists. In both cases, the interaction between the discipline and society is central to the field of inquiry. Take cell phones. The technology is straightforward, but the sociology is complex. Engineers are servants to society. Their work, which uses physics, chemistry, and countless other disciplines, ought to be analyzed by sociologists. I confess that I know no sociology to speak of, but I know enough about engineering to claim that something must be amiss if the best book on technology I know of is Pirsig’s *Zen and the Art of Motorcycle Maintenance*.

As to my own position, I can illustrate that with another incident at the Royal Netherlands Academy of Arts and Sciences. I was elected into the Academy in 1982, and assigned to a small group of scholars not bound to a specific discipline, the Free Section. This group was the envy of several others, because the much coveted expansion of disciplinary sections was hindered by our presence. There were 100 chairs in the Science Division at the time, and several other sections claimed to need more. The powers behind the scenes argued long enough for the Executive Committee to cave in to the demands to eliminate the Free Section, and lodge its members into disciplines. I was tentatively assigned to the physics section, which did not appeal to me at all. So I wrote to the then President, Piet van Zandbergen, saying that one could imagine putting me in the Engineering Section because I was raised as an engineer, in the Physics Section because my area of expertise is turbulence theory, which is

a branch of theoretical physics, and in Earth Sciences, because that would correspond to my current position. Instead, I wrote, I would prefer to be assigned to the Theology and Philosophy Section because of my growing interest in epistemology. The President, eager to avoid any written record of the nuisance I had created, called me one night by phone, saying: “Henk, philosophy belongs to the Arts and Humanities Division of the Academy. The division between them and the Science Division is laid down in our Charter. You cannot cross that Wall however much you want to. That Wall cannot be breached.”

But one can step outside. I did. There is light out there.



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