

Marian Apostle

Neurasthenic Science

The funding of scientific research declines everywhere today. People do not buy science now as they did before. In the past, scientific researchers were disguised as priests, philosophers, astrologers, alchemists, engineers, professors, and they were paid for that. Technically speaking, all of these were covert researchers, acting under cover. With the advent of science factories (institutes of scientific research) their cover was withdrawn, their guise fell, and they were forced to declare their legitimate identity: that of scientific researcher.

At that very same moment in time the questions arose of what they were good for, what is their use, and what are they supposed to do for a living? The answer was that these people would further advance science, and that their scientific products and by-products would be useful to everyone. This answer was accepted, the scientists were trusted and financed, and they kept their promise: science produced the steam engine, the combustion engine, the movie industry, electric power, steel, plastics and modern materials, telecommunications (*ie* radio, telegraph, television, telephones), nuclear power, pharmaceuticals and cures for diseases, air and space flight, silicon and microelectronics (including sound and image devices), computers and virtual reality, to mention only a few. Scientists call all these science by-products, while laymen call them scientific (and technical) products. For scientists the product of science is knowledge, a point which usually escapes the awareness of laypeople.

Now, the usefulness of science and scientists is being questioned again. Science and scientists must be 'accountable', and governmental acts concerning 'performance and results' of scientific research are passed and enacted; scien-

tists are required to devise 'strategies and plans of research', to propose 'research projects, programs and themes', which are to be 'evaluated', approved or rejected, by 'panels of experts', to submit their articles to 'peer review', to 'fight' a new war and play this foolish new game. For what? To make a modest living by an activity as generous as scientific research is.

Speaking of the 'accountability' of science and scientists no one ever remembers the list of scientific products given above; and no one thinks of taxing transportation, telecommunications, energy, the sales of CDs and videotapes to support scientific research.

Instead of challenging the 'accountants' regarding their own 'accountability', the scientists attempt to cope with the new situation by filling out 'research receipts': add more motion, bits of music and image, a handful of computations, add many graphics to your scientific papers, use colour transparencies in your oral presentations, cite everyone with influence, pay the page charges for your publications, submit thick, highly coloured reports, animated if possible. All of your time, effort, and money are exhausted in proposing and reporting on research projects which never get accomplished in fact. Computer programs are widely in use, which write scientific papers automatically, by themselves: there is a list of options for the subject, a menu for the extent of treatment for each topic, another for citing the methods used, and, since the program is personalized, your and your collaborators' names are put automatically on the authors' line; another set of options generates the title of the paper. Serial papers are written and published in this way. All of this aberrant, serial production gets published, recording high scores in the reviews and evalua-

tion processes, because money is at stake in this game, because money is the name of this game. This is *neurasthenic science*.

There have appeared experts in evaluating the research output, there have been developed theories about theories, and we have scientific researchers that do scientific research about scientific research. There are experts on experts (*ie* metaexperts), and science of science.... The scientific metamethods of metaevaluation of the metaoutput of this multi-metascience have expanded into monstrous and grotesque forms, which feed on themselves, in an erratic movement of virtual objects in an empty world, devoid of any sense. Obviously, this is nothing but the end of conducting scientific research in any proper way. This is the self-cancellation of scientific research.

The nonsensical, money-oriented, movement described above (*neurasthenic science*) breeds a new race of people; they live among, and on, scientists, but certainly outside of them; they deal with science-related matters, but certainly are outside of science. This gregarious and noisy bunch of beotians, of science activists, call themselves professors, projects managers, coordinators, conveners, moderators, chairpersons, supervisors, editors, reviewers, referees, but their deepest ambition is to be called 'peers'. A 'peer' is a person who has an equal standing with another, and the 'peers' wish to be equal with the scientists. Of course, they are not, precisely because they call themselves 'peers' and not scientists, on the one hand; and on the other, the equality of two or more persons is an illusion, especially in science. Such a relationship simply does not exist. Does anyone sufficiently sane think of Bohr as equal to Einstein? The scientists are a collection of distinct (and distinguished) persons.

The peers bunch made two main contributions to *neurasthenic science*: bibliometrics, or scientometrics, and peer review. Bibliometrics is a numerics of papers, citations, and other items, which are sometimes related accidentally to the substance of scientific research. Peer reviews are said to promote the scientific results. Speaking of science progress we should remember that science progressed by the interaction between more experienced and less experienced scientists. If there is a progress inside science, *ie* a certain internal motion, then there

should be inequalities between which this motion proceeds: the less experienced learn, and get assurance from, their superiors, while the latter get confused and lose their confidence by contact with their inferiors.

Heisenberg took his paper to Born, he did not look for 'peers'. Progress in science was always achieved by this process, and only by such a process. No scientific discovery came from a team of 'equal' scientists. Today, however, science must look 'democratic', not 'aristocratic', and there is no room in it for scientists of distinction. A New Look, a New Image of Science was accordingly devised, to help illustrate the New Philosophy.

Because, after all, what is this Science? We are Science, say these little emperors. We claim that the 'disinterested, humble, sceptical seeker of the truth does not exist'. Science is a matter of subjective 'consensus' (especially between us, not between others), scientific knowledge is continuously 'negotiated', facts are 'constructed' in a collective process, our vagaries are natural laws, writing scientific papers is 'Machiavellian and Byzantine politics', they are meant to sell a 'scientific pizza'; successive versions of the same data differ in scientific publications, and they must differ, a scientific paper is a 'fraud, a fiction and a perversion', and it ought to be so, because this is the New Science; we publish scientific papers, namely new-scientific papers, but please do not read them, they not only conceal but 'actively misrepresent'; do not read them, listen instead at the keyhole. This is scientific research of the boudoir.

We can be sarcastic, we can be malicious, we can even tell the truth. Yet, the problem persists. We are told that there is a big shortage of money for scientific research, we are told, straightforwardly, that scientists are too many and too useless to be financed as before. The financing bodies require guarantees that the small amount of money still given for scientific research is spent 'efficiently', they want to be assured by someone, by something, in some way, that 'their' money is spent 'correctly'. The credibility of scientists is no longer enough, there is no credible scientist left, because that bunch of neurasthenics took good care to discredit everyone, and succeeded. And it was they, too, who came up with another formula: neurasthenic science, bibliometrics, scientometric and peer reviews.

Their philosophy is very simple: Give us your money for science and we shall show you in return that you were right, you made the right thing, you made the right choice, and your money has been spent as well as possible. How shall we show you this? By publishing automatic, serial and trivial papers, by rejecting the few good ones (because they are few, are not 'representative', because they are not sufficiently novel, they are 'scientifically old' and do not illustrate our 'paradigm'), by producing thick reports of evaluation, by scientometric methods, by numbers, by everything, by our very money-enlivened enthusiasm. What? The emperor has no clothes? Not at all, the emperor is just a spiritual entity, a sort of superghost, which exists, but there exists no proof of his existence except ourselves. In the matter of funding for science, in problems of scientific money, we are the only truth, the whole truth, nothing but the truth, and the ultimate truth. We are the final solution. Indeed, truly they are, to scientific research.

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Famous theorists of physics claim vigorously today that we shall soon be in possession of The Final Theory, The Ultimate Theory, The Total Theory of Everything that Exists, ever Existed and will Exist. Does not it sound like The End? Are not we ourselves the ones who irresponsibly claim that we are finished? We do not have a science of science, we do not know how to do science; had we such a science of how to do science we would teach it and everybody would do science and would be a scientist. Would that not be the end? We only know that, while many of us work hard and honestly, only a few of us succeed in having scientific visions that work. We can only say that science is perhaps of a divine nature, and, as such, not entirely accessible to all of us.

Scientific research is defined as that which is intended to produce what is new and correct within a science historically formed and recognized as a science. The essential thing here is that the true scientists know what they are

speaking about— science.

Science has its own questions, problems, and, what is more important, its own scientific spirit, formed as such during its history, and this must be known before starting to write, publish or evaluate scientific papers. The main problem with the science 'peers' of today is that the vast majority of them are ignorant of science, and what is worse, as with all ignorants, they do not even dream that there could be anything to science besides their own fantasies. Between the earth and the sky are many things of which there is no trace in their 'science', and, conversely, there are many things in their 'science' of which no trace exists between any earth and any sky.

Finally, it is perhaps worthwhile to note a few more things. Yet, even now there exists scientific research properly conducted, there are scientists who can be fully trusted, there exists a wonderful world of scientific inquiry and truth, there are beautiful scientific papers; God exists. Where? Among us, within small, quiet, humble scientific confrères. The old question: How can we know this, how can we know that all of these do exist?—has the same old and simple answer: by sincere faith. If we believe sincerely in all these truths, then we begin to learn, we begin to know, we begin to see these truths; and we begin to see an absolutely beautiful world. The principle of truth is the truth itself. Only the one who knows, knows that he knows; those who do not know do not know that they do not know. The world is a matter of belief, and the scientific method is itself belief in God.

And, to implement a practical solution, let us account for the money, let us count the scientists; let us account for our needs and our ideals; let us count the products of science and tax their utilization to fund scientific research; let us spell out the truth about neurasthenic science and its promoters and followers; and let us be sorry for them.

This article was reduced in length for Europhysics News by the author, who works at the Institute of Atomic Physics, Magurele-Bucharest, Romania. A full version of the article can be obtained from the author by email apoma@theor1.ifa.ro

Past issue

see Europhysics News 27 3 May/June 1996 for an earlier article by this author