



Science in the Public Eye

*It wasn't all that long ago that science was pursued in ivory towers. Now, however, as a result of the desire to achieve a "public understanding of science," research institutes have become popular destinations for school excursions, and some scientists have even attained media star status or, as in the case of Einstein, been posthumously declared patron of the year. **JÜRGEN KAUBE** views this development through the critical eye of a journalist.*

Today, every newspaper of any size and every radio station employs editors to oversee reports on science and scientific policy. There are numerous TV channels specializing in magazine-style programs that spotlight the latest astonishing discoveries by scientists, archaeologists and engineers. No matter what the occasion, be it election broadcasts, specials on the world of Islam or Rembrandt's birthday, there is always a research expert on hand to say a few words or pen a column.

In addition, there is a veritable forest of periodicals dedicated to popularizing scientific research. And let us not forget the substantial market for non-fiction books and publications in which even such seemingly impenetrable topics as the solution to Fermat's last theorem or issues of population ecology can be turned into best sellers. As far as the mass media are concerned, as regards their relationship with science, all is right with the world. The news is being reported.

Not enough, replies the world of science. And: not adequately. How else can it be explained that, at the same time that science reporting saw an unprecedented increase, the organized representatives of scientific interests took it upon themselves to generate even greater public awareness of scientific research? Since then, "science years" have been proclaimed and all-night events devoted to scientific awareness have been staged. Brochures have been printed and issues publicly debated. Indeed, project funds have even been earmarked for

press conferences and free distribution of profiles and self-portraits.

At the same time, complaints have been voiced that the general public does not amply recognize the importance of scientific progress as the driver of national prosperity. The German public, in particular, is widely known to be skeptical of technology – that is, to be notoriously preoccupied with risks rather than open to opportunities. Thus, while the scope of populist interpretations of scientific findings has widened immensely, the trend has failed to stem the tide of complaints by scientists who feel themselves misunderstood, underrepresented, wrongly portrayed and undervalued.

As a journalist, one is tempted to simply shrug one's shoulders: such complaints are equally common among other interest groups, such as business, the churches, or the medical or teaching professions. If, however, one is not content to leave it at that, then one might wish to investigate what scientists and journalists might reasonably expect of one another and where the stumbling blocks lie that impede their communication.

A powerful entity incapable of action

It seems to me that there are two necessary aspects to this investigation: First, it is necessary to define just what "public" science seeks to reach. And second, it should be determined what specific problems science –

in contrast to other social forces – is facing in contact with the mass media.

The term “public” is as popular in use as it is unclear in meaning. The only constant to survive in its derivation from the Latin *res publica* is the reference to a valuable and powerful entity with the peculiar characteristic of being incapable of acting, but rather capable only of holding opinions; of being itself inactive, but rather only stimulating action. In the case of the mass media that, from time to time, are equated with the public – but with the universal restriction that they represent only the “published” aspect of public opinion – this applies to them solely as an abstract and collective concept. As actors, on the other hand, they are individual voices with an identity and without representative standing.

This idea of power incapable of action, however, is not the only affront to reason that may be associated with the term “public”. In reality, as far as most citizens were concerned, the *res publica* itself, the “public element,” was classified information in much the same way that, conversely, today’s secret services are part of the public sector. So when the desire is expressed for more public understanding and awareness, this may entail a demand for more controversial discussion, but it also means more acceptance of what scientists take for granted. A “public understanding of science” sounds a bit like an appeal for tolerance of the resources science consumes.

Flying blind into the public

It is also unclear whether the desired result of more public understanding is a more informed citizenry, or whether an increase in mass media reporting would suffice, as it is ultimately a case of impressing those who control the purse strings. Indeed, one might doubt whether there are even any criteria by which to judge when public understanding has been achieved.

Moreover, there is no shortage of words to describe the opposite effects of mass media attention: the stories carried in newspapers and on television are an undue simplification, focused willfully on eye-catching sensations, moralizing issues, forgeries and misadventures – and thus precisely do not lead to more informed citizens, and certainly not to citizens who are kindly disposed toward genetic engineering. Experts with a strong penchant for expressing themselves in public are likely to be classed as unserious “feature scientists.” Furthermore, it is stressed that science can be judged only by those who practice it. Why, then, such an interest in public understanding? Or it is remarked that research policy is beyond cognitive grasp.

Astonishingly, the ideal of “public understanding” soars above such difficulties. In other words, the goal remains untouched by the knowledge that the empirical

correlates of the term are both exceptionally diverse and of dubious instrumental value.

For this reason, public relations initiatives for science often leave the impression that their primary aim is to document the fact that something – anything – was done and that, in principle, no one was excluded. In its laudable endeavor to connect with the public, science is largely flying blind. Success is judged by the size of the audience, and the effort itself qualifies as a “dialogue” between research and the public as long as it takes the form of a simple lecture followed by a question and answer session. Or if the effects are more reminiscent of entertainment than of information.

One example of the idiosyncratic consequences of this perceived compulsion to connect with the public is the tendency of universities to distribute lists to the media detailing which of their researchers, according to the season and the current headlines, are competent to answer questions on street fighting in Paris, nuclear meltdown or the perils of sunburn. If the concept of competence is stretched far enough into the realms of the abstract, then professors of contemporary German history would qualify to comment on “social tensions in modern societies.” And on the subject of sunburn, there are specialists on hand to advise the population – scientifically speaking – that it’s a good idea to use suntan lotion.

As in the case of the pronouncements of election researchers in election broadcasts, in these social interactions, it is evident that it is the recipient (here, the media) rather than the sender who determines the effect. The attempt to propel science into the world of the media can easily lead to a repetition of what the media themselves might have said, albeit without the seal of scientific approval. Rather than science finding a public, it is a case of the public finding a “pet scientist.” Or put another way: it is not research that brings the issue before the cameras or into the opinion columns, but rather the researcher as an individual. That in itself is nothing to be disdained – just that it certainly doesn’t contribute to the public understanding of science. It simply confirms that scientists, too, can make themselves felt in the media, and that the demand for them is dependent on how low-maintenance and entertaining they are, and whether they deliver on time.

Given these circumstances, how can it be that the ideal of science that has a public face and meets with genuine public interest still prevails? One important factor is likely to be found in the history of modern science, namely in the historic promise that with research comes enlightenment. This belief might easily explain the desire to connect with the public, implying as it does that it is ultimately the problems faced by the public that researchers are attempting to address: burning suburbs, sun-burned skin and various other crises. Enlightenment

here also means the liquidation of non- and un-scientific prejudices, liberation from false understanding, and the correction of unconsidered and untried opinion.

However, given the high proportion of questions and answers of purely scientific origin with which research concerns itself, this description becomes increasingly implausible. Most scientific answers are entirely unrelated to either non-scientific questions or prejudiced opinion. There are, in any case, fewer falsities needing clarification than there are questions undertaken by research as an institution when it is once set in motion.

For a scientist, bringing enlightenment may be a glorious role to play, but in normal day-to-day life, it is the one with the fewest speaking lines. Moreover, an increase in scientific literacy among the population is impeded by the fact that contacts between science and the general public are always selective by nature. In their reporting, journalists, too, more or less follow the sequence of scientific publications, and these do not necessarily take didactic considerations into account.

In addition, in dozens of recent individual studies, psychologists have shown how minor a role even elementary rationality manages to play in everyday decision-making. But if people are unable to reason for themselves, how can they be expected to appreciate the reasoning of others, of scientific minds, simply on the strength of a promise that such arguments are provisionally guaranteed to be correct?

But they are not expected to appreciate the reasoning, they are expected to swallow the results. That would be an honest answer – albeit perhaps not semantically in tune with the concept of science in dialogue – and one to which historic enlightenment also resorted. Yet the act of swallowing is, itself, no longer a scientific process. Adherents of Karl Popper might even say that swallowing is a deeply unscientific behavior.

This leads to a perspective that, in discussions about the prospects of a greater public understanding of science, is often neglected. Every realm of society distinguishes between the roles of performers and the public. There are doctors and there are patients, clerics and the laity, politicians and the electorate, sellers and consumers, teachers and pupils, sportsmen and spectators.

Science is a special case. It has no public – no audience in the sense of a theater production or an election campaign, no customers as commercial enterprises know them, and no compulsory cohorts like those found in schools. Neither theaters nor elections nor schools nor even sports or television need, in this sense, to be popu-



larized, whereas science evidently does. After all, the primary audience for scientists is composed of – other scientists.

It is because of this symmetry that science must organize its own quality control internally. General processes of coordination, market forces or external criticism can be integrated only at considerable risk. Thus, it truly is the case that only scientists can meaningfully judge the value of their

own science.

And what about us? Given the circumstances described here, are journalists to be relegated entirely to a distributive role as purveyors of starkly simplified research digests to anonymous taxpayers?

Certainly this aspect can no more be denied than the journalistic expectations in terms of novelty, entertainment value, customization or the potential conflict inherent in scientific findings. Yet precisely because the media apply their own perspectives in evaluating whatever science offers them in whatever form, they contribute observations on research that are far removed from those of the researchers themselves.

Which questions interest which readers?

This also brings us back to the distinction between questions that derive from science itself and those that make immediate sense even to non-scientists, reflecting the role of pure science as the bringer of enlightenment. This is not a qualitative distinction, nor does it determine whether an issue appears worthy of journalistic attention. It would be a grave error to assume that newspaper readers were interested solely in that which they already knew to be interesting. Or, indeed, solely in issues they had already previously encountered in their own daily lives. Such an argument does not explain reports that, for example, according to the latest studies by the University of Bordeaux, drinking wine is not a health hazard.

If it were true that reader interest were closely linked with anticipated utility, one would be hard pressed to understand either the widespread fascination with astronomy or the worldwide success of the books written by Stephen Jay Gould, which deal with events drawn from prehistory and are both scientifically and journalistically exemplary.

For a journalist, distinguishing between questions that are “internal to the world of science” and those that are “generally plausible” is less a matter of making a judgment on research issues than of re-evaluating one’s own perspective. Is it necessary to explain the questions ad-

dressed by the researcher, or merely how they have been answered? Is it sufficient to report the study per se, or is it worth casting an eye over the answers of other disciplines to the same issue? Is one writing for an academic readership or for those without any prior studied knowledge?

For purposes of scientific publication, it may be sufficient that information gleaned from research is correct. As far as reporting is concerned, however, accuracy alone is an inadequate criterion, given that journalists find themselves faced not merely with an ever growing mass of research, but also with an ever growing volume of PR. The one tends to neutralize the other. My own experience here confirms that the only option is to combine one's own interests with a perusal of preferred magazine titles, grazing at random among a plethora of preprints, and keeping in touch with close personal contacts. Some 99 percent of PR blurbs land in the wastepaper basket, 98 percent of them unread.

If journalists often dig their heels in when the crystal-clear benefits of a particular program are extolled to them – for example stem cell research – it is not merely a question of ignorance or of political preferences. It also marks the boundary between journalism and public relations.

Those who seek to popularize must tolerate skepticism

The same applies to the possibility of journalists swimming against the tide of science. That is to say, for example, taking an interest in the significance of systematic zoology in times of molecular genetic breakthroughs, or considering whether the urgency of research into international private law demands the rededication of chairs in legal history. When scientific journalists in particular respond with skepticism to progress and the material served up to them, it is not necessarily an expression of conservative attitudes.

In conclusion, some remarks in response to the frequently asked question of whether the conditions under which science can count on public understanding have changed. Three things strike me: First, the degree of specialization in the science world has increased enormously. For journalists, that initially presents a problem because science editors are unable to keep pace with the speed of scientific cell division. However, the situation is eased by the fact that, as a product of the same process, communication between scientists themselves is dependent on constant translation for the benefit of a target audience that is highly educated but simply unfamiliar with the research field at hand. The increasing necessity,



even removed from contact with the mass media, to translate one's own work also favors the exchange of ideas between researchers and journalists.

Second, there has also been an increase in the number of newspaper readers with an academic education – that is, people who have at one time or another come into contact with science. This in no way hinders the cause of popularization, but as many scientists easily forget, it also leads to skepticism, risk-awareness and rejection. Not only is trust, in layman's terms, anything but a linear function of knowledge. Scientists also often underestimate how they are perceived by those who may have a university education but who themselves, despite Humboldt's emphasis on the unity of teaching and research, were never drawn to a life in the laboratory.

If research is regarded with reserve, that is, in my opinion, often the legacy of a professor who devoted his seminar time to those who he regarded as future colleagues, at the expense of the remaining four-fifths of the class who he considered in a different light – even though the professor may well have assessed the situation correctly. However, if the citizenry does not rise up in protest at the ruination of the universities, it is no thanks to the four-fifths who were ignored. In other words, it is possible to encounter an audience that was already written off at the universities.

Finally, the general lobbying with which society is obsessed has also changed the conditions under which science must communicate. There are experts everywhere who justify both an argument and its opposite. Science itself has acquired distinct habits of lobbying. Like other systems, it insists that prosperity, in general, is contingent upon its advancement.

However, advertising provokes suspicion, triggering an increasing need to explain what exactly a scientist does. But only insofar as such explanations can be delivered without marketing and esotericism, and in such a manner as will attract the interest of those who have nothing to directly gain from this knowledge. As a journalist, the scientists who are considered interesting are those who do not demand one's attention, who stay on top of their research – and who do not exaggerate it whenever they spot a microphone. And if they then post preprints of their papers on the Internet, there is little else a journalist could wish for. ●

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