

Current Comments®

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Is the American Science Press Provincial?

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We in the US are often criticized for our lack of awareness or utilization of foreign research. British and French authors cite cases of US neglect,^{1,2} but, sadly, most of the few "studies" that exist are rather limited.

By the same token, our Third World colleagues also feel shut out, and for a variety of reasons. In order to gain attention from the developed world, they are usually forced to publish in international journals. At the same time, they feel deprived of the opportunity to gain recognition for their own national journals. This ambivalence is accentuated when their research is ignored by the foreign press.

A complete list of the *Current Contents*® essays that have dealt with one or more aspects of xenophobia in science would take up considerable space. I have not been reluctant to point out provincialism in other countries, such as France³ and the USSR,⁴ and would not be shy about taking Americans to task for similar reasons. However, there is a great deal of mythology about American practices. I am often suspicious of the so-called "language barrier," for instance, since the US is so full of scientists who have recently emigrated from foreign countries and other bilingual citizens. Oftentimes the language barrier is just as formidable between specialties as between countries.

The Ugly American?

Nevertheless, there can be little doubt that the image of the ugly American persists in one guise or another. A recent report in the *Journal of Information Science* concerning US perceptions of European science lends support to this image.⁵ The author, Fran-

coise Harrois-Monin, is science editor for the Paris-based newsmagazine *L'Express*. In 1986 she reported her analysis of US coverage of European science to an International Science Writers Association seminar, which was part of the American Association for the Advancement of Science annual meeting in Philadelphia.

Her analysis covers a mixture of the primary literature and what we would call the popular-science press. Her selections included such magazines as *Discover*, *Science News*, *Science 85* (which was still being published at the time), and *Science*, a primary journal that also contains a "News and Comment" section. However, she omits virtually any analysis of television science programs or of the mainstream American newspapers (with the exception of four months' worth of coverage in the *New York Times* science section⁶). American newspapers now publish over 65 science sections.⁷ Most Americans get their information about contemporary affairs from a mixture of local and national newspapers and television.⁸

Another problem, for which the journal's editor and referees should also be criticized, is the lack of a list of representative references on this subject. Unfortunately, although I serve on the editorial board of this journal, I did not have an opportunity to referee this most interesting perspective on the US press. Harrois-Monin notes that she did not include references because she could find no sources pertaining to this *precise* topic.⁶ By way of complementing her article, however, we have included a bibliography of works on the reporting of science by the mass media, which follows this essay.

Another quirk of Harrois-Monin's survey is the way in which she categorized men-

tions of science in US publications. She classified them either as US science, European science, or neither US nor European science (Japan, Israel, India, and so on). Each article that mentioned the name of a specific researcher or laboratory was assigned to the category for the part of the world it represented; those that mentioned only the country in which the work took place, and no other particulars, weren't counted at all. While she gives no reason in the text for this simplification, Harrois-Monin has noted subsequently that items mentioning only the name of a country (e.g., "Scientists in West Germany are working on...") were, in her view, too vague to be of use.⁶ Since US popular-science publications are often woefully lacking in specific affiliations—even when referring to American laboratories and researchers—this may have caused her to underestimate the number of articles discussing European science.

Study Results

Whatever the limitations of her study, however, we can thank Harrois-Monin for giving us the always valuable opportunity to perceive ourselves as others see us. Her particular view is hardly flattering. In spite of the flaws I've mentioned, her survey points out such a large discrepancy in media coverage of US and European science that it cannot be dismissed: 93 percent of the features (articles longer than two pages) and 92 percent of news items (articles shorter than one page) in American monthly periodicals mentioned US research; only 22 and 9 percent, respectively, of stories in each category reported on European science, and only 11 and 3 percent, respectively, discussed science from the rest of the world (the figures exceed 100 percent because some items mentioned more than one country).

At the same time, she contends that the coverage of French monthly publications was more "balanced": by her calculations, only 42 percent of their news items discussed French science and 29 percent talked about US science. Eleven percent mentioned other European science and 17 percent noted research from elsewhere in the world (figures for UK publications were comparable).

Although this sounds good in some respects, one could argue that French periodicals could hardly justify 42 percent coverage of French science if such publications were truly representative of worldwide science. In fact, it should be kept in mind that Harrois-Monin compares the US with the European Economic Community (EEC) countries as if they made up a single "United States of Europe," then complains that *individual* nations are being shortchanged in media attention. By that logic, journalists in Pennsylvania could claim with equal validity that the media was virtually ignoring the scientific accomplishments of their state in favor of those from, say, California or the UK.

In attempting to explain the underlying causes of her survey results, Harrois-Monin draws some conclusions that hit the mark, but others go astray. For instance, she believes that the main reason for the minimal coverage of European science in the US press is language: "Almost every European science journalist is able to read English, and almost every European science magazine subscribes to American scientific journals.... [But] few U.S. science journalists read the European scientific press, primarily because they are not able to understand the language." Although the language barrier may be a significant problem, I don't believe that it is the main reason for the lack of European science coverage in US periodicals. I know few scientists working abroad who could not be interviewed in English; a possible exception is Japan, where spoken English may sometimes be a problem. Harrois-Monin would argue that journalists should have the ability and the inclination to interview a foreign scientist in the scientist's own language—an area where, in her opinion, US journalists do not measure up to their European counterparts.⁶ But I seriously doubt that this is a significant factor in the ability of the US press to mention foreign scientists.

Harrois-Monin notes, quite correctly, that many European magazines maintain correspondents or offices in New York or Washington, DC, while none of the US popular-science magazines have regular European correspondents. This is not merely a matter of budget, since at least a few of the US publications are quite profitable. Instead, I

suspect that the realities of readership demographics enter into the equation. Science publishing is big business, and most publishers rely on the known interests and tendencies of their readers for direction concerning editorial content. It can be argued—and has been so argued by American publishers, as Harrois-Monin herself notes—that US readers simply aren't interested in European science (Harrois-Monin, on the other hand, counters that US readers aren't interested in European science because they are not aware of it, due to its lack of coverage in US media⁶).

Thus, US publications are a faithful reflection of this lack of reader interest—even to the amount of European advertising in the American media. Only a small percentage of advertising sold in the US science market is international. This particular reality has a self-reinforcing effect on the editorial content of American newspapers. However, American readers might argue that our papers *are* full of stories about foreign science and technology firms—if you include the extensive coverage of such firms as the Bavarian Motor Works, Jaguar, Porsche, Saab, Sony, Toshiba, and Toyota. (A lot depends on how you define science.)

The “Best in the World” Syndrome

However, Harrois-Monin contends that, since “the U.S. is the richest and the most powerful nation in the world, it tends to consider what other countries are doing in science as not really worth mentioning.” Many Americans are indeed flag-waving patriots, given even to singing the national anthem at baseball games. Their enthusiasm can sometimes border on chauvinism (not to say jingoism). But their counterparts can be found in virtually every other country. What Harrois-Monin fails to say is that science overall has not been adequately covered in the press.

What applies to the general population may or may not apply to US journalists. But in their defense, it is necessary to keep in mind several factors. One is the vast extent and diversity of the US scientific community. Even in these times of fiscal austerity, the US budget is generous enough to allow research and development in numerous

fields; the far smaller European countries simply cannot afford to pursue so many lines of inquiry at once. This means that, whenever journalists seek preeminent scientists to speak for their fields, without much trouble they are likely to find at least one US scientist to talk to. And it is a rare journalist, whatever the medium, who will look further than the first or most convenient interview.

Moreover, as the word “convenience” implies, distance is not a trivial issue. When you are writing on deadline it is more difficult to contact foreign specialists who may be working in different time zones. Europeans have the luxury of being within easy reach of over a dozen different nations. Indeed, owing to that very fact, I would venture to say that European journalists probably are culturally more “cosmopolitan” than their American counterparts, and they are growing more so as the EEC expands and solidifies. On the other hand, even though we are a country of mainly European immigrants, we have traditionally been isolationist, with a tendency to regard anything of foreign origin as exotic. (In this respect, at least, we are more like the Soviets than the Western Europeans, although *glasnost* might change this.) In fact, most Americans have never visited a foreign country.

Some reviewers did not agree that the pressures of distance and deadlines influenced coverage, since many periodicals are published on a weekly or monthly basis. Fred Jerome, executive vice president, Scientists' Institute for Public Information, New York, pointed out that even dailies can compensate for distance by making use of the 24-hour Reuters wire service and by assigning some reporters to special shifts that will enable them to contact European scientists during working hours in Europe.⁹ This does not take into account, however, Harrois-Monin's final point, that European research centers are not public-relations oriented. In fact, even if European research institutions established public-information centers, they might not be as effective as their US counterparts: the older generation of scientists in some European countries may be loathe to comment on their work, lest it be perceived as egocentric. Aware of the lack of organized scientific public relations

in Europe, we have always welcomed contacts and letters from abroad at ISI®. I must, of course, point out that, since its inception, *THE SCIENTIST*® has had a European editor in Bernard Dixon, a citizen of the UK. (Dixon, in fact, was also a European contributing editor for *Science* 80-86; he commented on Harrois-Monin's article in a recent issue of *THE SCIENTIST*.¹)

I believe we are also the only newspaper of science with an international editorial advisory board. This is not mere window dressing. It is intended to send a signal to all our readers that we recognize the universality of science. That many of the people and firms we discuss are from the US is only natural in terms of a start-up effort, but from the outset we have stressed our interest in the international readership of *THE SCIENTIST* and the internationality of science.

What Can Be Done?

Even if Harrois-Monin's data were unassailable, her conclusions are not: the underlying reasons for the disparity of science coverage between Europe and America is wide open to interpretation. While some of her explanations may be valid, the situation is so complex that it defies easy answers. For example, she cites a number of European topics—primarily technological in nature—that were covered in the European press but not mentioned in US popular-science periodicals. But this does not mean, to disagree with Harrois-Monin, that these topics were ignored in the US. I am confident that if she had surveyed the appropriate trade magazines and newspapers in the US, rather than the so-called popular press, she would have found the coverage significantly different.

If Europeans feel that the American press ignores their science, imagine how our colleagues in the Third World and Japan must feel; their contributions tend to be overlooked in the US and Europe alike. Distance, as I have said, is undeniably a factor, even when one has regular contact with correspondents abroad. Telecommunications certainly improve matters, but it seems to require a major technological disaster (witness Bhopal or Chernobyl) before in-depth coverage of science and technology is extended across national boundaries. In covering routine scientific research, such an effort is seldom brought to bear.

I have repeatedly asserted that every scientist is fundamentally an internationalist. But the outside world's perceptions may be based on experiences that go beyond the "small" boundaries of the scientific worldwide community. Thus, although US scientists may well hold relevant European work in high esteem, the popular media seem not to reflect this attitude. There are some steps that European scientists and research centers can take to help redress this problem, such as more actively courting publicity. It goes without saying that the US media ought, likewise, to seek out stories on science in Europe and elsewhere. But perhaps US scientists can help this process along by, in effect, giving their colleagues from other countries a "plug" when being interviewed by representatives of the media. In the end, we all will benefit from the greater coverage of science that will result.

* * * * *

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Europe as third world: U.S. perceptions of Continental science *

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After considering the relative amounts of money and numbers of people involved in R&D in both Europe and the United States, the paper analyses the contents of those major European scientific publications intended for the general public and the contents of comparable American magazines and newspapers. Both the type of stories covered and the source of information are examined. The comparison shows a discrepancy in the reporting; while there is much emphasis in the European press on U.S.-based stories, many major European projects are ignored by the United States media. The paper attempts to determine the reasons for this disparate coverage.

Science in Europe and in America

What images do Americans have of Europe?

For most of the general public, France is the country of wine, cheese, and croissants, of *grands couturiers* and Renaissance castles. Similarly, Americans are aware of the Chianti, churches, and modern design of Italy. The British are famous for fixing tea and mowing their lawns. Spain conjures up images of bullfighting and castanets. Germany, beer and oompah music. And, sadly, nowadays, Europe is seen as a place plagued by terrorism. But, does the American public ever think of Europe—that funny old continent back East—as a centre for research?

In fact, the amount of research being done in Europe compares quite favourably with that done in the United States.

Figures published at the end of April 1986 by the Organization for Economic Cooperation and Development (OECD) show that the 10 EEC countries—France, United Kingdom, Germany, Italy, Belgium, Ireland, Denmark, Netherlands, Greece, and Luxembourg—together spend on research about two-thirds of the amount spent by the U.S. Moreover, the number of scientists working in these EEC countries also represents two-thirds of the number working in the U.S. In 1983, for example, the U.S. spent about \$50 billion for research and development, while the 10 EEC countries spent about \$31.2 billion. (If we add the research budgets of European countries that were not part of EEC in 1983—Spain, Sweden,

Finland, Austria, Switzerland, and Greece—the total European R&D budget is closer to 80 percent of the U.S. R&D budget.) Also, in 1983, there were approximately 460 000 researchers in the EEC, about two-thirds of the 720 000 scientists in the U.S. during the same year (Table 1).

How good is the research done in Europe compared to that done in the U.S.? Quality is very difficult to measure, of course, but one indication is the number of Nobel Prizes and Fields Medals, the two most prestigious international awards in science, won by scientists in the U.S. and Europe, respectively (Table 2).

Since 1945, American scientists have received 50 percent of the Nobel Prizes in chemistry, medicine, physiology, and physics; European scientists received 41 percent. For Nobel Prizes, then, the award distribution has been about the same order of magnitude on both sides of the Atlantic. On the other hand, European scientists have received more Fields Medals, the awards given every four years for excellence in mathematics.

Analysing international science coverage

A report from the National Science Foundation (*Science Indicators: 1985*) published in January 1986 presented the contradictory finding that American people have high levels of interest in science and technology but that they don't know much about it. Of course, if they don't know much about American science, they probably know nothing about European science. And the main reason is that European science is not very often mentioned in American popular science press.

I first noticed this phenomenon when I was living in the U.S. as the American correspondent for my magazine, but I had no figures to prove it. Thus, I decided to take a closer look at some major science publications, both in the U.S. and in Europe, to get some statistics that would provide quantitative data supporting my qualitative judgment.

In each article of each publication selected for analysis (Table 3), I simply counted how often European science was mentioned as compared with U.S. science and non-U.S./non-European science, e.g., Japan, India, Israel, etc. (When I say 'European science', I mean all the Western European countries, not just members of the EEC.)

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Table 1
Research and development resources: US vs. Europe

	R + D Spending			Scientists		
	%	%	(\$ billions)	%	%	%
	1975	1981	1983	1975	1981	1983
USA	47.5	46.3	46.1 (\$50)	40.4	41.8	41.0
EEC	30.8	29.6	28.7 (\$31)	26.5	25.4	25.3
Japan	13.5	16.1	17.4 (\$19)	24.3	24.0	24.8
Others	8.2	7.9	7.8 (\$8.5)	8.7	8.8	8.9

(Source: Organization for Economic Cooperation and Development, 1986.)

I divided the stories into three categories: features (articles longer than 2 pages), news (shorter than 1 page), and 'short stories' (between 1 and 2 pages).

Every time the name of a specific researcher or laboratory was mentioned, I counted '1' for the part of the world represented. I counted '0' when the name of a country alone was given, e.g., "In Great Britain, people are working on that problem...". When articles concerned science policy, I counted '1' for every country mentioned. For example, if the article dealt with an agreement between Germany and the U.S., I counted '1' for Europe and '1' for the U.S. Actually, this methodology underestimates the true weight for the United States. For example, an article entitled 'Fuzzy Logic' published in *Discover* (February 1985) mentioned seven American labs and one European lab. In my charts, however, this appears as one for the U.S. and one for Europe. If I had counted 1 per lab and not 1 per country, the results would have been even higher for the United States, and, consequently, the difference between the U.S. and Europe even greater.

The primary results of my analysis were striking, but perhaps not unexpected (Table 4). In American monthly scientific magazines, there is a very strong emphasis on American science, particularly in the 'news' category, where 92 percent of the space is devoted to U.S. science and only 9 percent to European science. In the 'short stories' category, the difference is even greater, only 3 percent of these articles mentioned European science. Only in the longer articles does the

Table 2
Awards and recognition: U.S. vs. Europe

	USA & Canada	Europe non-US/non-Europe
<i>Nobel Prizes (1945 - 1985)</i>		
Chemistry	27	4
Medicine & Physiology	50	4
Physics	39	13
Total	116	21
<i>Field medals (1936 - 1982)</i>		
	11	4

percentage improve, with the European share rising to 22 percent.

For U.S. and United Kingdom weekly magazines, the figures are very much the same (Table 5). Again, the discrepancy is most extreme in the 'news' category. U.S. magazines: 93 percent about U.S. science, 9 percent about Europe; U.K.

Table 3
Magazines analysed

Title	M/W	Size of sample	Circulation
USA Discover	M	1 year 1985	850 000
USA Science 85	M	1 year 1985	700 000
USA Science News	W	6 months '85	175 000
USA Science	W	6 months '85	160 000
USA NY Times (Tuesday Science Section)	W	4 months '85	963 300
France Science & Vie	M	1 year 1985	400 000
France Ca m'interesse	M	1 year 1985	320 000
France Science & Avenir	M	1 year 1985	150 000
Spain CONOCER	M	1 year 1985	70 000
UK New Scientist	W	6 months '85	70 000
UK Nature	W	6 months '85	32 000

M = monthly, W = weekly.

Table 4
Content analysis: U.S. Monthly vs. European Monthlies

	Features (> 2 pp.)	News (< 1 p.)	Short Stories (1-2 pp.)
<i>USA Monthly</i>	183	259	108
USA & Canada	171 93%	238 92%	96 89%
non-USA/non-Europe	21 11%	11 3%	4 4%
Europe	41 22%	23 9%	3 3%
<i>France Monthly</i>	390	659	127
USA & Canada	183 47%	191 29%	40 31%
non-USA/non-Europe	78 20%	114 17%	9 7%
Europe except France	100 26%	75 11%	40 31%
France	300 77%	279 42%	78 61%
<i>France Monthly</i>	136	147	60
USA & Canada	41 31%	34 23%	4 6%
non-USA/non-Europe	20 15%	15 10%	3 5%
Europe except Spain	56 41%	21 14%	7 12%
Spain	43 32%	77 52%	13 22%

Note: Percentages do not total 100%, because U.S. science is often mentioned in context with that of other countries.

Table 5
Content analysis: U.S. Weekly vs. U.K. Weekly

	Features (> 2 pp.)	News (< 1 p.)	Short Stories (1-2 p.)
<i>U.S. Weekly</i>	79	484	39
USA & Canada	75 95%	452 93%	39 100%
non-USA/non-Europe	10 13%	23 5%	9 23%
Europe	24 30%	44 9%	6 15%
<i>U.K. Weekly</i>	61	918	146
USA & Canada	36 59%	339 37%	75 51%
non-USA/non-Europe	13 21%	168 18%	30 21%
Europe except UK	29 47%	193 21%	38 26%
UK	39 64%	398 43%	83 57%

magazines: 43 percent about U.K., 37 percent about U.S. science. Actually, the British weekly science magazines are comparable to the French and Spanish monthly magazines in their broader coverage of European activities.

The unexpected feature I did discover was that neither U.S. nor European magazines print much about what is happening scientifically elsewhere in the world. American science journalists write almost exclusively about America. European journalists write about their own countries and about the U.S., but little about their European neighbors and even less about Japan, Israel, China, etc. However, the European coverage of other European countries or non-U.S./non-European countries is certainly not as low as that in America. European journalists generally write more about 'foreign science' than do U.S. journalists.

American perceptions of 'foreign' research

Equally interesting perhaps is how U.S. journalists perceive research abroad. European science is mentioned in the U.S. scientific press primarily in five instances:

(1) As an historical reference: Pasteur, Freud, Darwin, Broca, Bohr, Fleming, etc. It seems as if we are considered countries of the past, with all our scientific glory behind us.

(2) When there is a strong competition with the U.S.: Gallo/Montagnier in AIDS research, CERN/Fermi in nuclear physics, and ESA/NASA in space.

(3) When American scientists (or the Administration!) want us to participate in the financing of 'joint' projects. A story about the SSC (Superconducting Super Collider) to be built at Stanford may mention all European machines of a similar kind—the electron-positron collider (LEP) in Geneva, the positron-electron collider in Germany, etc.

(4) When research is done 'jointly' by U.S. and European scientists. Of course, very often, both

the names and the affiliations of the American researchers will be mentioned, while the individual European scientists remain anonymous, with only their labs cited.

(5) When there is an international conference in the U.S.—where some European scientists might be attending.

Some missed opportunities

This attitude means that many important stories about European science are not reported in the American popular science press. For example, the following are some major stories either ignored or not really well covered in 1985 by the magazines I surveyed.

(1) SPOT: This Earth-observation satellite has a resolution 10 times better than Landsat and its stereoscopic system allows 3-D pictures of the Earth below. SPOT will probably take over a large share of the civilian Earth-observation business, since its pictures are better and it will be functioning during the period from March 1987 to December 1988 when the Landsat program will be interrupted. (Only *Science News* mentioned this programme in 1985.)

(2) TELETEL Programme: Set up by the French Ministry of Telecommunications, this programme is designed to give free videotex terminals to every household in France. Today, more than 1.8 million homes have received terminals and have access to more than 2000 databases. Many of these databases are available without subscription (lists of restaurants, cinemas, exhibitions, etc.), with the only cost that of the time you are connected. During just the first two months of 1986 the TELETEL services received 35 million telephone calls, representing 3.8 million connect-hours. The benefit for the Ministry of Telecommunications, of course, is in the increased use of the telephone lines. Indeed, TELETEL is so successful, the videotex network is sometimes saturated.

(3) KAIKO Project: This Franco-Japanese ocean floor expedition in June and July 1985 had as its goal the exploration of the Earth's crust 6000 metres below sea level. Using the *Nautille* submarine, scientists explored the very sensitive area where the Pacific tectonic plate dives under the Eurasia Plate. They discovered that water full of methane was percolating continuously through the subduction zone; and, by following the path of this water, they were able to trace precisely the rift in the ocean floor. In addition, they discovered three new species of bivalves.

(4) Alvey and ESPRIT Programmes: both the U.K.'s Alvey programme and the EEC's ESPRIT programme are advancing fifth-generation computing, and both are seen as European answers to the Japanese ICOT programme and the host of American projects—SCS (Strategic Computing and Survivability), Dapra, SRC (Semiconductor Research Cooperative), and MCC (Microelectronics and Computers Technology Corporation). The scope of ESPRIT is impressive: In 1985, 263 European companies, 104 universities, and 81 research centres participated.

(5) EUREKA Programme. This series of international collaborations between European countries was launched in July 1985 to produce high technology products. So far, 10 projects have begun and 50 more will have been chosen in June 1986 at the Eureka meeting in London.

(6) JET Programme: The Joint European Torus (JET) Programme on magnetic fusion is equivalent to the Princeton TFTR project and is one of the most powerful machines of its kind in the world. Yet I have read American articles on fusion where this Tokamak was not even mentioned.

The causes of neglect

Obviously, Europeans are pursuing exciting, solid science. Why, then, is European science ignored by U.S. science journalists?

I think there are several reasons, all playing some part and some really predominant.

(1) *The Language*: The main reason is perhaps language. Almost every European science journalist is able to read English, and almost every European science magazine subscribes to American scientific journals. *Science et Vie*, for example, receives magazines ranging from *Time* and *Newsweek* to *Mosaic*, *Technology Review*, *Harvard*, *High Technology*, *Psychology Today*, *JAMA*, *Science*, *Aviation Week*, *Chemical Week*, *Bulletin of Atomic Scientists*, *Byte*, and so on, for a total of at least 30 American publications. Moreover, at magazines like *Science et Vie*, everybody speaks English and is usually able to read at least one language (German, Italian, Russian, Spanish, etc.). I am not sure this is the case for U.S. journalists. Indeed, I think few U.S. science journalists read the European scientific press, primarily because they are not able to understand the language.

But language is not the only reason. If it were, I would have seen a predominance of news from the United Kingdom, Canada, or Australia in the

U.S. magazines. There is a slight preference for such news, but it is not significant.

(2) *Organization of the scientific press*: Many European magazines have correspondents in the U.S. We have one in New York who buys books and photos and orders technical reports and scientific papers. We also have one in Japan.

The *New Scientist* has a correspondent in the U.S.; *Nature* has several in Washington and one in Japan, as well as drawing on the resources of part-time journalists in various countries. Indeed, *Nature* probably does the best job of covering international science. How many U.S. science magazines have European correspondents? Only one—*Science*!

(3) *The 'best in the world' syndrome*: Because the U.S. is the richest and the most powerful nation in the world, it tends to consider what other countries are doing in science as not really worth mentioning. One time, when I accused the editor-in-chief of a major American science magazine of being very chauvinist, he answered: "That's what our readers want". I don't think he was right; people are interested in the increase of knowledge, not where that knowledge came from.

(4) *The techniques of science writing*: In American journalism, people are quoted much more often than they are in the European popular scientific press. Obviously, to quote people, you have to interview them. And, how can you interview people, if you don't speak their language?

(5) *The organization of European scientific public relations*: When I was in the U.S., I admired the organization of universities, research centres, and industrial concerns. The smallest company, the tiniest research centre, had a public relations officer who sent out press releases all over the world. Even today, based in France, I still receive releases, reports, and full blown magazines from NSF, NRC, Stanford University, Los Alamos, Lawrence Livermore Lab, MIT, Caltech, etc. I don't know of any French universities or research centres—even CNRS (National Centre for Scientific Research)—which send press releases to U.S. journalists. Worse yet, most French universities have no public relations office. In Europe, we simply are not public relations oriented. Of course, information about science in any European country is available by calling the Scientific Attachés at the various embassies; but, the journalist must make the move. And, very often, the attaché does not know the answer right away. European countries really must do more to promote their own science.