

## DISCUSSION AND REVIEWS

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### THE COLLAPSE OF THE EASTERN EMPIRE OF KNOWLEDGE AS REFLECTED BY JOURNALS OF SOCIAL STUDIES OF SCIENCE

#### **Looking for the issue**

By pure coincidence I was in Moscow during the days of the August Coup of 1991 (on scholarly occasion). And I was stunned when I realized that I checked the reliability of what I saw in the streets of Moscow by watching the CNN-news flickering all day long in the hotel lobby.

Back home, I contemplated a study of the coverage of the collapse of the Soviet Block in mass-media. But I was somewhat scared by the highly specialised "discourse" of the mass-media people, and afraid to trespass the disciplinary frontiers. Gradually I realized that I was in even deeper trouble. I simply lacked the concepts to wrap around the whole issue. And what was the issue anyway?

Being old enough to remember The Sputnik I could not help wondering how many billions of dollars the poor dog's death released to facilitate the biggest catch-up operation in the history of Western science and technology. The claimed Russian lead in the

S&T race gave rise to innumerable space projects and also had an immense effect far beyond the immediate target area. The Sputnik became not only a shibboleth opening the public purse, but also an overture for the new relationship between the State and its scientists. This new relationship was a result of an obviously impressive applicability of science for industrial and military purposes. So impressive, that by now, one half of the World's scientists and engineers are employed in military research.

Another characteristic trait of the era was a continuous growth of the number of experts administrating, distributing and evaluating the money that poured into governmental, private, academic or mixed research sites.

I have taken for granted that a major political change has taken place in the territories, which since the Yalta Conference have been dubbed Eastern Europe, although I felt that a satisfactory understanding of the totality of the phenomenon is a Promethean task. So great that we may be even witness-

ing the birth of a new field of academic studies, a new kind of cross-disciplinary effort in post-kremlinology.

The relationship between ideas (scientific and others) and their social consequences was differently interpreted by the classics, to reach its intermediary apex in Bernal's program of social studies of science.

I cursed all the years spent on reading social studies of science which had stiffened my mind and narrowed my view, compelling me to look for changes in science as the political and cultural context had obviously changed.

I found myself in a conceptual quicksand. I was not able to answer the simplest questions concerning this "major political change". I was not sure either *where* or *when* it had taken place. I could not even decide *what* was its correct name. I realized that I somehow desperately wanted to connect a phenomenon, which I was unable to identify, with another phenomenon (*science*) of, if possible, an even more elusive complexion.

Having experienced such vertiginous uncertainty I started mumbling the good old mantras of the social studies of science: Culture, Context, Diffusion, Human Values, Knowledge, Policy, Research, Science, Technology, and so on ...

They coalesced into twenty titles of journals which thrive in the area of social studies of science (the titles are listed in the Appendix).

I found a traditional way out. I asked the established authorities to lead me through the marshy fields of science studies looking for the impact of the collapse of the Eastern Empire of Knowledge (Vucinich, 1984).

I decided to look for relevant questions as well as for the answers relying on these experienced travel guides.

### **An unfinished and adumbrate past**

I assumed that the political change which has recently taken place in the countries situated between the Elbe and the Ural is bound to have some impact on the organi-

zation and the execution of science in the region and probably even world-wide.

I think it was only natural to begin by establishing some kind of "dynamic" perspective on the change and look for information concerning the situation "quo ante". How did the system function before the earthquake?

I reached trustfully for the oldest title in the field, UNESCO's *Science Policy Studies and Documents* which have appeared regularly since 1965, and found no. 72, 1991 which deals with research programming in the USSR (Larichev & Petrovsky, 1991).

A decision to go through thousands of pages of printed matter (some 20 journals covering the last two years) in trying to trace the impact of the Eastern European political turnover on the community of social studies of science, enforces some degree of superficiality. I looked for the winds of change in *Science Policy Studies and Documents* trying to find once widely acknowledged shibboleths: perestroika and glasnost.

I did not find any references to perestroika or glasnost in Larichev's and Petrovsky's study in spite of the fact that it deals with "... a construction of expert knowledge base, determination of the most informative questions, search for and removal of contradictions in expert preferences." (p. 36).

The authors recommend the comprehensive "CLASS technique" in order to remove the existing contradictions in expert preferences and reassure us that, it "... can be done only through interaction with the computer, making use of special procedures and algorithms. But when the knowledge base has been built the decision classification rule may be presented in a compact form convenient for application." (p. 36)

I admit I read this with very mixed feelings. I worried about the authors' prospects to stay on the payroll of The Institute for Systems Studies of the Academy of Science of USSR, which dissolved at about the time when their study left the press. On the other hand they did not soil their hands as experts using the perestroika or glasnost which had lost shibboleth value somewhat earlier. And they do advertise a comprehensive compu-

ter based technique which brings about the "removal" of contradictions in expert preferences.

Unanimity of expert preferences is vital for science planners irrespective of the name of the state. The importance of the subject and the authors' apparent political neutrality taken into consideration, their job opportunities suddenly seemed reasonably good (maybe even world-wide).

As I did not find any forecast of the coming change in the science programming-study, I turned to the statement on the editorial policy of the series hoping to find some clues that might explain this, for science-planners, somewhat embarrassing situation.

On the basis of the resolution 2.1131b from 1960 the official goal of the UNESCO is: "... to collect, analyze and disseminate information concerning the organization of scientific research in Member Countries and the policies of Member States in this respect." (*Science Policy Studies and Documents*, 72, 1991: 5). Since 1965 *Science Policy Studies and Documents* "... aims at making available to those responsible for scientific research and experimental development throughout the world, factual information concerning the science policies of various Member States of the Organization as well as normative studies of a general character."

I checked the back page of the last issue of *Science Policy Studies and Documents* and found there an astounding list of national distributors of UNESCO publications. Among them you can find the Warsaw offices situated in the Palace of Culture, in spite of the fact that they were closed several years ago. In the summer of 1991, the pompous rooms and marble halls of the Palace reopened after thorough renovation, as commercial exhibition and show-rooms. Later the same year I saw the Moscow offices slightly damaged during the August Coup, but they seemed empty and abandoned long ago.

No matter how important the distribution network is for the dissemination of information, the previous "collection and the analysis" of science policy data must be of utmost

importance, especially to those "responsible" for the policy. The preface to no. 7 in the series gives a thorough description of the applied methodology (1963: 3): "The present study on science policy and research organisation in the USSR was prepared under a contract signed in 1965 between UNESCO and State Committee of the Council of Ministers of the USSR for Science and Technology. The State Committee nominated N.I. Tiskevic, of the Scientific and Technical Information Section of the Committee, as coordinator of the study. It was carried out by a group of specialists from the following organizations: the State Committee of the Council of Ministers of The USSR for Science and Technology, the Academy of Sciences of the USSR (particularly the Institute for the History of Science and Technology), the Ministry for Higher Education of the USSR and the Gosplan of the USSR." Then comes the plan of the study, which is an example of academic thoroughness. At last comes a statement concerning the authorship: "The opinions expressed in the study are the sole responsibility of the authors and do not necessarily coincide with the views of UNESCO".

The device described in the preface seems to me to be quite elegant although not the final solution to the problem of Speaking Truth to Power, or to the problem of the social construction of expertise: the State Committee nominates one of its own members - Mr. Tiskevic who selects some specialists in the area, and whose work he coordinates. The specialists do the collecting and analyzing and share the full responsibility for the results under the protection of anonymity and Mr. Tiskevic.

One of the problems of Speaking Truth to Power is an uncertainty concerning the nature of the voices which "those responsible" for the science policy are hearing. Are they actually the voices of the real experts? Their appointment to some extent reduces the burdens of uncertainty but it exposes "those responsible" to the danger of hearing only the echo of their own words.

The problems of experts are not adequate-

ly solved either. The anonymity shelters them from the worst consequences of going dissident or muckraking, but it does not protect them against being stricken from the list of experts. The anonymity also bereaves them of a possible academic credit for the piece of expertise, (you do not count in Social Science Citation Index as long as you are anonymous). No wonder that many experts faced with those hardships are tempted to concentrate their efforts on more technical aspects of decision making.

The OECD, which somewhat hesitatingly coordinates science policies of the "Ivy League"-countries applies quite similar procedures. The main drawback of both UNESCO's and OECD's 'negotiated' expertise is the obsolescence of the information. The decision-makers usually get back from the Paris headquarters the stuff which they negotiated with the "national" experts a long time ago.

### **An edited present**

The "official" sources of information are not quite fit if you want to catch the "dynamics" of a rapid change. The academic journals of an acknowledged quality, for a variety of reasons also have difficulties with an adequate coverage of a rapid change. The most prestigious academic form of publication in the field of social studies of science seems to be an international, refereed, and abstracted journal appearing about four times a year.

If you think this piece of information is important you can reach it along two equally unsafe routes. A simple but boring and time-consuming bibliometric/scientometric analysis will show you that the international quarterlies appear most often as "source" in *Social Science Citation Index* or any other comparable source of bibliometric information. I call this procedure "unsafe" because there is still no valid consensus concerning which titles constitute the core area of social studies of science.<sup>1</sup>

If you find this type of analysis a shameful waste of time and an abuse of reason,

you run the risk of leaving a broadly respected and growing field of quantitative studies of science, and you will never be able to publish in one of its highly respected quarterlies (*Scientometrics*). Or you run even a greater risk. You may be asked to design another technique of measuring the quality of academic work, competitive to the citation analysis, in terms of low cost and administrative simplicity (see Woolgar, 1991).

It is very difficult to estimate the time needed for a production of publishable results in the social sciences. According to the usual official statements the editors accept only manuscripts of "high quality", "relevance", and following the regulations concerning size and their footnoting policy. Among the journals I browsed through, looking for the impact of the collapse of the Eastern Empire some seemed more sensitive than others to the oncoming change of the political weather.

*Science and Society. An Independent Journal of Marxism*, established even before "science policy" entered our "discourse", provides an interesting example of an attempt to challenge the forces of the market through a fusion of the competitive advantage of an la carte solution with that of the "day's special". Although the academic Marxists cannot be held responsible for an iconoclastic habit of invoking Marxism as a theoretical base of the dissolving regimes of Eastern Europe, no one would be surprised by somewhat failing sales of everything "Marxist" in the years to come.

The editors of *Science and Society*, being aware of the potential dangers of a last minute heating of the dishes by editorial attempts to actualize them, courageously staked on a special issue. They issued a call for papers on "The Theory of the Socialist Economy" in the Fall 1990 issue.

The call for papers resulted in a Special Issue: Socialism. Alternative Visions and Models, in Spring 1992, when Helmut Kohl's Unified Germany was already digesting the "really existing" economy of the late GDR. The acute sensibility of the independent Marxists to the approaching stormy

weather comes forth in their justification for the special issue: "... particularly at present ... the need for a systematic study of socialist theory, experience and restructuring seems particularly urgent." (*Science and Society*, 56, 1, 1992: 2).

Equally acute awareness of the unpredictability of events compels them to, simultaneously, stake on the culinary evergreens: "... given the dizzying pace of events and our long lead to production ...". They ask "... the contributors to concentrate on the long-term and underlying issues, rather than on current developments that become dated rapidly." (*Science and Society*, 56, 1, 1992: 2).

By this impeccably rational policy, possible losses are minimized. The transformation of the Eastern Europe did not, as yet, bring about the end of history, but it resulted unexpectedly in the end of unanimity of the Editorial Board of *Science and Society*. Part of a group of editors (anonymous) formulated a "Dissenting Opinion", opening the Spring 1992 Special Issue: "... three of the pieces ... [there are four in the issue] are disfigured by the naive utopianism and a tendency (in places disguised with pro forma references) to ignore or minimize what has happened recently in almost all the 'actually existing socialist' nations. Their common failure is not to take collapse of the socialism seriously enough." (*Science and Society*, 56, 1, 1992: 5).

By choosing anonymity a group of editors probably wants only to protect us from being unduly influenced by the fame of their names. They do not dare, however, to let our judgement be completely unaided. They refer us to the proven authorities of the founding fathers: "Since it is not for us to create a plan for the future that will hold for all time, all the more surely, what we contemporaries have to do is uncompromising critical evaluation of all that exists, uncompromising in the sense that our criticism fears neither its own results nor the conflict with the powers that be" wrote K. Marx to Ruge, in a letter from 1843 according to the group of editors (*Science and Society* 56, 1, 1992: 6).

It is impossible to predict whether Marxist studies will survive the collapse of socialism. I am inclined to think they will. There will always be a call for a fearless and an uncompromising criticism of even one's own results, as Marx said 150 years ago, if not for other reasons, then for the sake of the scholarly debate.

### **An unedited present**

A publication in a properly reviewed journal of international reputation is one of the most reliable quality indicators of the academic production. But as I have argued the process of preparing, conducting and publishing the results is a lengthy and an elaborate affair, as no "facts" speak for themselves. They have to be properly framed into a theoretical context.

One of the means of keeping oneself updated in the chaos of international science policy is probably to subscribe to *Outlook on Science Policy* which is the fourteen years old, little sister of an international, even intercontinental, (refereed and abstracted) bi-monthly *Science and Public Policy*. Outlook, based in London, established by the renowned Dr. Maurice Goldsmith of International Science Foundation, supplies us with the theoretically unaided pieces of information, and thus complements Goldsmith's bi-monthly.

Information procured by *Outlook* is so important, that probably everybody working in the field already has acquired by the time *Outlook* comes out. But, of course, the important facts do not lose their weight by being retold. The importance of information disseminated by *Outlook* is made evident in the editorial warning accompanying each issue: "The editors and publishers do not accept any responsibility for any claim or dangers or damages, consequential loss, or loss of profit arising from the use of information."

I do not know what or whose damage or loss the editors have in mind. Are they worried about possible damages caused by de-

fining the situation in Eastern Europe as revolutionary? I do not think so. Social scientists have not as yet agreed upon the necessary, constitutive elements which ennoble some forms of social change to the ranks of a "revolution". Personally I feel attracted by a view which requires the presence of an unspeakably frenetic, joyful, irrational enthusiasm. Whatever happened in Eastern Europe, there are no signs of such emotions on the pages of *Outlook*. And I do not think it is the result only of the British phlegm. Editors of other journals in the field also react with more or less restrained worry about who is going to pay for the cleanup-operation.

But there is good news: "The Soviet Academy granted independence as the break from the state was made through 'a surprise decree' by President Gorbachev". "There will be also an 'all-union research fund' administered by governing council representing the Academy and the Academies of the individual republics." (*Outlook*, October 1990: 102).

The Union dissolved a year later, however, and the Russian Academy took over the responsibilities of the Academy of the USSR. The Academies of the individual republics won independence from the patronage, but lost the funds. If you look at the situation of the unfunded scientists from a "brain gain" perspective you might see some bright points: "This (migration of Russian scientists) is a unique opportunity for the university and for Israel as a whole to assure our scientific future." - said Prof. Dan Amir, Dean of Exact Science Faculty, as "... some 2000 scientists are expected this year." (1990). But unfortunately, "... the Tel-Aviv University would find it difficult to absorb more than ten of them." - "... cuts in higher education began in 1973", said the Dean (*Outlook*, March 1990: 35).

The Royal Society of London concentrates its efforts on the, now possible, free information exchange and will send, without charge, copies of the Society's journal and of *Science and Public Policy* to the Russian sister institution. USA's NASA, being a more

affluent organization than the Royal Society, negotiates for the sale of Soviet space technology. "MIR-2, Soviet's unused space technology is under offer for about US\$ 700m." (*Outlook*, Nov. 1991: 113).

Although the collapse of science policy in the Eastern European countries has many features in common, each country's misery has shadows of its own.

If you assume that it takes time for "a system" to "collapse", you can hardly say that the elaborate bureaucracy supervising scientific research of the GDR ever had enough time. The administrative responsibilities for the scientific organizations of the late GDR were taken over by the authorities of the FRG without time-consuming debates. The only question left is how to split the bill for the take-over operation between the Bundesregierung and the Governments of the Länder. (Which is not an easy question because of the traditional autonomy of the Länder in science policy spendings.)

The late GDR - in spite of everything, had, during the decades of an internationally acknowledged existence, constructed a network of "really existing" scientific institutions which, overnight, found themselves situated in the five new Länder of the United Germany.

The responsibility for the take-over sale of the industries of the late GDR was placed in the hands of one of the World's biggest corporations - the Treuhand Gesellschaft. The late GDR has for decades taken the doctrine of "science as a productive force" even more literally than FRG. Only 10.4% of GDR's R&D personnel were employed in the university sector which has notorious marketing difficulties everywhere (compared to 16% in the FRG).

The rest of the "scientific labour force" was employed in the industrial laboratories or in some of the 62 institutes of Die Akademie der Wissenschaften, which watchfully supervised the compatibility of their research plans with those of the industry.

A flawed, and intellectually impoverishing habit of dividing science into two book-keeping categories (the "basic" & "the applied"),

carried in the GDR into excess, backfired in the new five Länder. The Treuhand Gesellschaft and the invisible hand of the market made thousands and thousands of the applied researchers redundant as their industrial research proved uncompetitive.

The rest of the R&D personnel working in "pure" or basic" sciences is going through a process of unification of science policy in the New Germany, which according to Professor Hans F. Zacher, the President of Max-Planck-Gesellschaft is "... a difficult task because of the deadlines imposed on the operations by the political and economic considerations." (*Science and Public Policy*, 19, 2, 1992: 71).

The commodity markets of the FRG and the late GDR were separated. So were the academic markets. According to Prof. Hans F. Zacher the barriers between the academic communities of West and East Germany were "almost impermeable." (*Science and Public Policy*, 19, 2, 1992: 71). Max-Planck-Gesellschaft is one of the authorities entrusted with the difficult task of evaluating the scientists working within the areas of somewhat lesser immediacy for the FRG's industrial competitiveness. Nothing equals the value of a peer-review as the means of quality assessment of academic work – says the widely accepted doctrine of the social studies of science. But no one can come up with procedure for establishing an acknowledged hierarchy of peers between two scientific communities impermeably separated for generations.

If you are prepared to see the ongoing evaluation process from the point of view of its subjects, you have once more to leave the serene language of science policy journals: "The ongoing political purge at German Universities is the third one in this century. The first took place in 1933 when the National Socialists rose to power, the second in 1945 at the fall of the Third Reich. Any influence left by the former DDR on today's universities has been rapidly erased, and in some respects the changes have been more radical than during the previous purges", writes a Finnish eye-witness of the "difficul-

ties" met by the President of Max-Planck-Gesellschaft (Hentilä, 1991).

### Negotiating the future

The opening chapter of Alexander Zinoviev's (1978) famous book tells us that once upon a time at the Kosmonaut's Square in Moscow a big, concrete & stainless steel, slogan was erected: "*Vive le communisme, avenir radieux de tout l'humanité*".

I would not be surprised if some day we were to come across an other novel telling us that after the collapse of the Soviet space program, the Kosmonaut's Square was renamed the Astronaut's Square, and that another future is reassured by an equally huge neon advertisement: "*Vive le capitalisme, avenir radieux de tout l'humanité*".

Futurology is, as far as I know, even less accepted as an academic subject than the SSS&T. Although the academic community still refuses Ph.D.-degrees in the futurology I have quite often found *The Futurist* cited as a source of information in SSCI.

I was unable to follow *The Futurist's* drafts for the future beyond its November-December issue of 1990. My university library cancelled the orders by the end of 1990.

A somewhat antiquated (1 1/2 years old) future forecast from *The Futurist* is a very authoritative one. William L. Halal, Professor of management from George Washington University and A. L. Nikitin from the Soviet Academy of Sciences looked into the future, and as you have probably already guessed, courageously reject the US State Department's Fukuyama's The End of History claim – and put forward a radiant version of the future being a synthesis between "New Capitalism and The New Socialism based on the same realities of the Information Age." (*Futurist*, Nov./Dec. 1990: 9).

In my eyes the intellectual merits of the above mentioned synthesis amount to spelling the Zinoviev's slogan partly in Latin letters and partly in Cyrillic. But of course you can never tell. There are already some reassuring symptoms of fusion between Amer-

ican industries and the industrial effort of the late Empire of Evil. Mac Donald's and Coca-Cola have already for some time commercialised their products based on Russian natural resources. But I am afraid that the scientific spin-off effect of their entrance on the CIS market is negligible.

*Interdisciplinary Science Reviews* (ISR) is probably the heaviest journal in my collection – measured by the number of the Nobel Laureates, Fellows of the Royal Society and other academic luminaries composing the editorial board of this quarterly. I do not know why this international and even intercontinental journal does not appear more often in the *SSCI*, than journals with a less illustrious editorial board.

It seems that the composition of the editorial board is quite often a window-dressing important for marketing purposes, and that the editorial burdens of the famous names are not heavy ones. However, the unexpectedly moderate citability of the *ISR* might have something to do with the social construction of academic merit. Many authors and certainly most of the editors of the *ISR* are already merited enough to take the possible benefits of being quoted lightly. Academic merits capitalized in a Nobel Prize or FRS make it relatively easy to refuse the use of disciplinary blinkers. And as the citation-rings are mostly a disciplinary affair, they probably do not even bother to enter them.

I am not sure, either, to what extent the *ISR* is recognized as a journal of the SSS&T; its explicit editorial policy to offer "... a forum for the discussion of minority point of view ... since historically the progress of science has frequently been advanced by the unorthodox thinker", seems to be at odds with the understandable and strong efforts to establish the SSS&T as an orthodox academic subject.

But of course it is relatively easy to be an unorthodox thinker if you can shield and support your opinions by a Nobel Prize. And the titles might even be important as the *ISR* "... addresses itself to the decision-makers at universities, in industry, in government agencies and foundations."

I have previously mentioned hardships caused by Speaking (unorthodox) Truth to Power. One of the members of the editorial board of the *ISR*, Sir Eric Ashby, FRS, describes another privations: "The President of the Royal Society was asked: 'Will the government departments 'come to The Royal Society and ask for opinions or advice or fact? Is it so frequent as to be a daily experience or so infrequent as to be a memorable occurrence?'. The President's reply was: 'It is perhaps nearer the latter than the former' The Select Committee on Science and Technology, a body established nine years ago to keep Parliament (English) informed about matters which need public debate, has had an even more unpleasant experience: "The capacity of Government to absorb advice without betraying any sign of being affected by it is a quality of which the Select Committee have long experience." (*Interdisciplinary Science Reviews*, 14, 4, 1989: 333).

Faced with a not unusual situation where the decision-makers either do not ask for advice or do not listen to it, the *ISR* could follow the practice of other journals and go theorizing on the general problems of utilization and dissemination of scientific information matters of great importance in the Information Society. But fortunately *ISR* has chosen a different policy. It keeps telling the important truths.

An editorial in the first issue of the quarterly after the opening of the Brandenburg Gate in December 1989 throws a bucket of icy water on the futurists sniffing opportunities to extend a properly organized scientific market to the territories hitherto governed by somewhat imperfect market laws.

"Is there any chance that peace will ever break out? " asks the editor of the issue (*Interdisciplinary Science Reviews*, 15, 1, 1990: 1). Since peace broke out for the last time in 1945 there have been at least 80 wars and between 15-30 million people have been killed, and at least an equal number made refugees.

And he continues: if peace breaks out, it "... will mean to the world-wide armaments



industry the loss of two good customers and need to diversify - not swords into ploughshares but diversification of their markets towards the Third World. The capital invested in this profitable trade, the prestige of the scientific-military establishments and the employment of millions are factors which cannot be changed overnight." And the magnitude of the problem is only illustrated by the fact that "... about half of the World's scientists and engineers are engaged in armaments research." (p. 1-2).

I wonder why predicting the future is so popular in spite of it being so unrewarding. Kassandras are certainly neither listened to nor much liked. Policy planners from the governmental think-tanks live their anonymous lives dangerously untenured.

And even the most precise prophecies are always only partially right. The above mentioned *ISR* editorial ends with a warning against the possibility of "joint projects" between the CIA and the KGB - referring to the widely publicized initiative of KGB General Kryuchkov to provide some measures of mutual job protection for both agencies - if peace breaks out.

At present, at least, General Kryuchkov cannot be considered as co-ordinator of any joint ventures since he, as the leader of the group who organized the August Coup of 1992, awaits the verdict of the court. So the editor was right warning us against the enterprising general but he could not foresee the surprising and very promising reaction of the people once dubbed "homo sovieticus".

Compared to *ISR's* unpleasant vision of a morbid and world-wide commercialisation of the scientific-military competition, the winner of my private citability contest - quarterly *Issues in Science & Technology (IS&T)* has a much more salonfähig conception of the future. Well, I must shamefully admit that at first I thought about excluding *IS&T* from my collection as a not properly international journal. But I came to my senses very quickly and realized that it would be childish to consider a quarterly edited by the USA's National Academy of Sciences as a journal of merely

local interest.

Appearing in the Social Science Citation Index three times as often as the number two journal, *IS&T* not only wins the citability contest but it also contains an example of a piece of advice on which the political decision-makers would certainly like to rely.

Jonathan B. Tucker, an analyst in the International Security and Commerce Programme of the Congressional Office of Technology Assessment has in no. 2 of vol. 7 (1990) of the *IS&T* a beautifully marketed piece of future. Although there is no royal way to success in marketing, like in other intellectual disciplines, it is important not to put the customers off by an unnecessary language barrier.

*IS&T* advertises J. B. Tucker's article on its front page as follows: "After an investment by the West in rebuilding the S&T infrastructure of the East, another 'German miracle' could emerge." And who would not like to buy a reissue of economic miracle, especially at a time of crisis in Western science, simply by "... integrating the scientific and technological (S&T) establishments of the two Germanys." (*IS&T*, 7, 2, 1990: 74).

And it also sounds reassuring that "The integration will have to be done along the lines of the West German model: a flexible, largely decentralized system based on a federalist political system and a free-market economy." Since it is a case of a predominantly national miracle, "... West Germany will have to foot much of the bill for modernizing and rebuilding the crumbling infrastructure and poorly equipped research facilities of East Germany."

In spite of some people calling it a dismal science, economics can, by the flexibility of a free-market, extend the benefits of the national miracle to other countries. Jonathan B. Tucker promises that, "... Europe as a whole stand to benefit significantly from the transition to an integrated German S&T establishment."

But what about the benefits of his patrons. Will they again be asked to contribute to the second reconstruction of Germany risking that the European miracle might "divert Ger-

man interest and funding from transatlantic projects.”?

Fortunately, “These fears have not materialized.” In contrast, “... German-American collaboration is likely to intensify in the microelectronics sector as both countries struggle to compete with (guess whom) the dominant Japanese industry which now controls 90 percent of the world semiconductor market.” (*IS&T*, 7, 2, 1990: 79).

Besides the proper lingo, a successful marketing requires the ability to create an impression of being realistic. It is usually done by dividing the future into two departments: “In the short run” and “in the long run”.

The author executes the division as follows: “Unification will contribute little in the short run to German technological know-how ...” (p. 80). Mostly because the “... great majority of the 57.000 scientists and engineers in the former GDR are not as productive or motivated as their 140.000 counterparts in the West.” (p. 80) But, “... over the long run term, the rebuilding of the East German infrastructure should offer enormous business opportunities.”

Taking into consideration the above mentioned high citability of the *IS&T*, I think J.B. Tucker may improve his academic visibility. And we should not worry about his career as an accredited analyst.

I do not know whether Mary Kalldor, a research Fellow of Science Policy Research Unit, University of Sussex has ever read J. B. Tucker’s over the long run, reassuring prophecy, but she certainly knows her Keynes, as she quotes his famous sentence: “In the long-run, we are all dead”. She joins a very exclusive company of analysts trying to see the future from the perspective of the people being restructured, and she warns us: “In the 1950s, East Europeans were asked to endure low living standards in order to construct socialism. Now they are asked to endure low living standards in order to construct capitalism. The transition to the market, unaccompanied by real restructuring of industry and technology, could be a semi-permanent process.” (*Science and Public Policy*, Dec. 1991: 372).

And she warns us: “A tragedy may be unfolding in Eastern Europe. Its beginnings are to be observed in Yugoslavia. The same could happen in the Soviet Union and Czechoslovakia. Authoritarianism is developing in Poland. We in Western Europe cannot insulate ourselves from this tragedy.”

### Looking the other way

The sentence: “We in Western Europe cannot insulate ourselves from this tragedy” makes me wonder: Does the author mean that it is “physically” impossible to fence Western Europe against the “waves of economic and political refugees” which is the short-run result of the integration of the markets? If so, I am inclined to think, that this somewhat technical problem will be adequately solved by the combined police forces of the EEC.

If the author means that “insulation” is a reproachable state of moral bluntness, she unexpectedly leaves the neutral fields of science and enters the besieged territories of value judgement.

But maybe Mary Kalldor is not openly moralizing. Maybe she only says that ‘we’ (i.e. people working in the field of social studies of science) on “purely professional” grounds are unable, to ignore the problem of such magnitude.

If this is what Mary Kalldor means, I must unfortunately say, that she is quite wrong.

If my journey through the journals tells anything, it tells us that the reformation of the East European power structures and their scientific service stations attracts very little interest.

As my journey approaches its end I have to make a semi-methodological confession. Being unable to keep up regularly with all the leading journals of the field I decided to start the journey with a quarterly which, for God’s sake must be a leading one. It certainly has the longest title: *Science, Technology & Human Values (ST&HV)*. Journal of the Society for Social Studies of Science

(Incorporates *Science & Technology Studies*).

Speaking about “iron curtains”; the editors and the authors of the twelve prematurely dusted copies of *ST&HV*, covering the period of 1989-91, seem totally unconcerned with the fact that the Iron Curtain is temporarily lifted or gone altogether. Only Bruno Latour – writing about “... the partition between the social scientists and the natural scientists ...” – “... this shameful Yalta Pact that keeps all of us, hard and soft scientists ... trapped on two sides of one of the only Iron Curtains that remain ...” – seems affected by the events outside the disciplinary universe of the social studies of science (16, 1, Winter 1991: 7). Latour seems to hope that the impact of the last decades of theoretical work in the field of social studies of science may erase this shameful “partition” and even revolutionize political philosophy(!).

Considering the scope of resources in terms of power and money invested in keeping up and maintaining this shameful partition of knowledge, Latour’s hopes looked so exaggerated to me that I decided that this time he might be joking.<sup>2</sup>

But as I do not consider the events in Eastern Europe a laughing matter – irrespective of whether you call it a “tragedy” or a “modernization and integration of S&T establishments” – I turned to a somewhat more serious analysis of the state of social studies of science which might explain this strange insulation of the field from the outside world.

For many years, the community of social studies of science emphasized its academic respectability by awarding J.D. Bernal Prize, the Nobel Prize of the field.<sup>3</sup>

Dorothy Nelkin received her Bernal Prize in 1988. Upon receiving the Prize she plays a role, which she dislikes, of “an elder statesperson”, and tells us some unpleasant truths about the last decades’ development in the field: “Social studies of science focusing on social, political, and ideological aspects of science ...” are very rare. “The concept of ‘social’ is still mainly defined in terms of the interaction and discourse among scientists. Moreover the field is still turned inward, into

itself, creating its own language with too little reference to the outside world. There are relatively few studies concerned with those aspects of science emphasized by Bernal – namely, its social relations outside the laboratory context. Rare are the studies that focus on the ideologies embedded in science because of its political and economic relationships, and its proximity to centers of power.” (*ST&HV*, 14, 3, 1989: 305).

Theodore J. Lowi has done something very similar to Dorothy Nelkin. Stepping back as the President of the American Political Science Association he looks at his discipline in retrospect: “This presidential pilgrimage is over, and I can report that the American Political Association is alive and well. But a pilgrimage is not a journey of happiness. A pilgrimage is a search, and no pilgrimage is fulfilled until the pilgrim returns and shares the pains of discovery”. (*American Political Science Review*, 86, 1, 1992: 1).

The painful discovery which Theodore J. Lowi feels obliged to share with us concerns multifaceted conditions of speaking truth to power. Summing up he states: “Every regime tends to produce a political science consonant with itself.”

My unambitious journey through the fields of social studies of science is over. The conclusion is equally sad. The international community of social studies of science thrives well.

But the experienced travel-guides I was looking for proved to be slightly disguised fellow-travellers or commercial travellers of Power.

## NOTES

1. It seems to be nearly an impossible task to construct a generally accepted list of core journals in the area of social studies of science.

Seduced by its title, I expected *Knowledge and Society*. The *International Journal of Knowledge Transfer* – to be a journal central to the area.

By Spring/Summer 1991 the journal changed its title, and since then it is called *Knowledge and Policy*. The *International Journal of Knowledge Transfer and Utilization*.

I could not figure out whether this change meant that the journal is leaving the core area of social studies of science or whether it moves closer to it.

The statement of the editorial policy was not of much help. The editors only say that the journal through the change of title enters the field of "policy sciences" which "... has expanded dramatically, with some 500 or more scholarly and professional journals available to academics and practitioners."

Since I did not find anything on the Eastern European upheaval, either in *Knowledge and Society* or in *Knowledge and Policy*, I left the question of the journal's disciplinary denomination unsolved.

2. Bruno Latour has a flair for witty titles and an undeserved reputation as a joker. The *Pasteurization of France* is certainly a witty title for a very serious book. Olga Amsterdamska reviews another of his books (*Science in Action*) and concludes: "Surely You are Joking, Monsieur Latour! (*Science, Technology, & Human Values*, vol. 15, no. 4, 1990, pp. 495-504) I do not find the title *Science in Action* particularly funny and the content of the book is no joke at all. But I do find his hopes concerning the impact of social studies of science if not a joke at least an exaggeration.
3. Both Alfred Nobel and John Desmond Bernal before their names became beatificated were very controversial characters.

Alfred Nobel, a pioneer of high explosives, was one of Europe's wealthiest industrialists and "Though his invention greatly increased the destructiveness of military weapons, he was an ardent worker for the cause of peace." (Williams, 1974, p. 10)

Alfred Nobel resolved the intellectual and emotional paradox of his career by an act of faith: He believed that his inventions will precipitate the "... day when two army corps will be able to destroy each other in one second ... (and) all civilized nations will recoil from war in horror and disband their armies." (p. 60)

John Desmond Bernal (1901-1971) was one of the most prominent British crystallographers and at the same time one of the most outstanding Western intellectual friends of Communism (see Caute, 1988).

Bernal was not only FRS but also a member of the Academy of Sciences of the USSR and most other Eastern European academies. He was the laureate of the Royal Medal, Royal Society, 1945 and Lenin Peace Prize 1953.

In a loving and living biography of J.D. Bernal, Maurice Goldsmith characterizes him as follows: "Bernal was chosen, without knowing it, to perform a special role in the development of science. He touched both earth and stars in the process, and could not find true tranquillity. ... About his genius there was never any doubt." (Goldsmith, 1980)

Goldsmith also tells us that: "He [Bernal] had no doubts that the Soviet achievement was the nearest practical embodiment of the ideals for which scientists worked." (p. 67)

We shall never learn what made it possible for Bernal to maintain such an opinion throughout his whole life. Although Bernal travelled extensively to the Soviet Union from the thirties to the sixties he probably never really got there and he resolved the unavoidable intellectual and emotional conflicts by an act of faith.

Maurice Goldsmith says on this subject: "... the Soviet Union was really a world Bernal had invented when young, long before the 1917 revolution: it remained always for him his Utopia, thus it presented a reality of a special kind: the hardships barely seen as possible injustices, were regarded as a price necessary to pay for an inevitable future of well-being." (pp. 231-232).

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## APPENDIX

Since the field of social studies of science is still inadequately delineated, it is exceedingly difficult to construct a creditable list of the field's core journals. Consequently the enclosed list of journals which I rifled through for comments on the collapse of the Eastern European political and scientific institutions does not aspire to any degree of representativeness.

Among several dozen social science journals which

sometimes do publish material relevant to different aspects of social studies of science I have selected the following 20 journals almost entirely on expediency criteria:

The journals consider themselves as belonging to the field, and they have appeared regularly at least since 1987.

They explicitly address the international public. They appear in English - a widely accepted lingua franca of the field.

I have selected only the journals to which I have an immediate access, i.e. at least their 1990-92 volumes are on the shelves in my library.

The titles are arranged alphabetically, and those marked by an asterisk (\*) had in the period January 1990 – June 1992 published material which explicitly reflects some degree of interest in the Eastern European upheaval.

*Bulletin of Science, Technology & Society.*

Editor in Chief: Rustom Roy  
Published bimonthly since 1980 by the STS Press, The Pennsylvania State University's Materials Research Laboratory.

\* *Interdisciplinary Science Reviews.*

Editor: Dr. Anthony Michaelis  
Published quarterly since 1975 by The Institute of Metals, London.

\* *Issues in Science and Technology.*

Editor: Steven J. Marcus  
Published quarterly since 1983 by the National Academy of Sciences, Washington, D.C.

Knowledge: Creation, Diffusion, Utilization.  
Editor: Robert F. Rich, University of Illinois  
Published quarterly since 1979 by Sage Publications.

*Knowledge in Society: the International Journal of Knowledge Transfer.*

Editors: Williams N. Dunn, University of Pittsburgh; Esther K. Hicks, Netherlands Universities' Institute for Coordination of Social Science Research  
Published quarterly since 1987 by University of Pittsburgh and Rutgers University; since 1991 also by University of Groningen.  
Since 1991 it appears as *Knowledge and Policy: the International Journal of Knowledge Transfer and Utilization*.

*Minerva: a Review of Science, Learning and Policy.*

Editor: Edward Shils  
Published quarterly since 1962 by Minerva Quarterly Review Ltd., London.

\* *Outlook on Science Policy.*

Editor: Dr. Maurice Goldsmith, International Science Policy Foundation, London  
Published monthly, except August, since 1978 by Beech Tree Publ., Guildford.

*Prometheus: the Journal of Issues in Technological Change, Innovation, Information Economics, Communication and Science Policy.*

Editor: Prof. Don Lamberton  
Published twice yearly since 1982 by CIRCIT (Centre

for International Research on Communication and Information Technologies), South Melbourne and University of Warwick.

*Research in Philosophy & Technology.*

General Editor: Frederick Ferre, University of Georgia  
European Editor: Walter Ch. Zimmerli, Otto-Friedrich Universität, Bamberg.  
Published annually by JAI Press, Greenwich, Connecticut.

*Research Policy: a Journal Devoted to Research Policy, Research Management and Planning.*

Editors: A.S. Bean et al.  
Published quarterly since 1971 by Elsevier Science Publishers.

\* *Science and Public Policy.*

Editor: Dr. Maurice Goldsmith, International Science Policy Foundation, London  
Published bimonthly since 1973 for the International Science Policy Foundation by Beech Tree Publ., Guildford.

\* *Science & Society: an Independent Journal of Marxism.*

Editor: David Laibman  
Published quarterly since 1936 by Guilford Publications, New York.

*Science as Culture.*

Editor: Robert M. Young  
Published quarterly since 1987 by Free Association Books, London.  
Previous title: Radical Science Journal.  
Science in Context.  
Editor: Gideon Freudenthal, Tel Aviv University  
Published twice a year since 1987 by Cambridge University Press.

\* *Science Policy Studies and Documents.*

Published since 1965 by UNESCO, Paris.

Science, Technology, & Human Values: Journal of the Society for Social Studies of Science.

Editor: Susan E. Cozzens, Ransselaer Polytechnical Institute  
Published quarterly since 1974/75 by Sage Publications.  
Previous title: Science and Technology Studies.

*Scientometrics: an International Journal for all Quantitative Aspects of Science, Communication in Science and Science Policy.*

Editor in Chief: T. Braun  
Published several times a year since 1965 by Elsevier, Amsterdam and Akademiai Kiadó, Budapest.

*Social Epistemology: a Journal of Knowledge, Culture and Policy.*

Editor: Steve Fuller, Center for the Study of Science in Society, Virginia Polytechnic Institute, Blacksburg, VA.  
Published quarterly since 1986 by Taylor & Francis Ltd., London.

*Social Studies of Science: an International Review of Research in the Social Dimensions of Science and Technology.*

Editor: David Edge, Science Studies Unit, University of  
Edinburgh  
Published quarterly since 1970 by Sage Publications.

\* *Technology in Society: an International Journal.*  
Editors: George Bugliarello and A. George Schillinger,  
Polytechnic University, New York  
Published quarterly since 1978 by Pergamon Press.

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