COPYRIGHTS

Robert Maxwell acquired a scientific publishing company in the ruins of post-war Germany and soon made a scientific discovery: scientists had to have the literature whatever it cost. He also found that in ‘the republic of science’ a scientist can keep the credit for a discovery only by giving it away and publishing his knowledge. The body of science lives and grows through the circulation of the scientific literature. With the bomb and the cold war, science also became militarily important and the cozy pre-war world of gentlemanly science vanished. Control of the literature meant control of science and commercial publishers began to oust the impoverished learned societies.

Thus began the absurd system we have today. The state provides money for scientific research, scientists do the work, write the papers and ‘submit’ them to a publisher. The publisher has them refereed by other scientists, who are not paid for their work, and if a paper is deemed suitable, then it may be published in the publisher’s own good time (try asking a lawyer or doctor or plumber for his professional opinion and note the invoice). The publisher then sells the journal back to the scientific community at a high price, because usually there are only a few specialist readers and the price is simply tailored to what the market will stand. The authors are forced to publish in this way because their careers depend on it.

Authors are thus compelled to publish and to accept humiliating conditions. The author must hand over the copyright without payment. One major publisher even requires a warranty that the matter of the paper is not libellous, obscene or dangerous and requires the author to indemnify the publisher against legal claims made if these warranties are incorrect, although my knowledge of libel law, trademarks and patents is such that any warranty I might give is totally worthless. Eventually Maxwell sold Pergamon for some 446 million pounds, a huge sum which must have been extracted from the scientific community. His exploitation of scientists in the USSR, where copyrights were differently handled, is another matter.

200 years ago common land in Britain was enclosed and became private property. Today information is becoming enclosed as private property to be bought and sold. Databases are being captured as land was captured in the colonial era. The traditional practices in scientific life of freely sharing information are obsolete in the present global economy.

Fortunately we are now at a critical stage where this tyrannical situation may be rectified. Science invented the Internet (like electricity and penicillin, as a free gift to society) and electronic journals are now beginning to appear, some of them free of the grip of traditional publishers. With modern desktop publishing almost anyone can produce professional publications. The problem is the status of the traditional top journals, which claim that they must have copyrights because their editing, publicising and refereeing process (provided free by the scientific community itself) provides ‘value added’. But universities are now under pressure to make money from the intellectual property which they generate. Accordingly, demands for the free transfer of copyright are now being resisted with the support of major employers of scientists. Librarians too are combining to produce journals.

Publishers are thus under pressure and now is a good time for scientists to re-assert their ownership of the fruits of their work but the support of universities and other employers is needed.

What can individual scientists do?
Support non-profit learned society journals both paper and electronic. Some new refereed all-electronic journals paid for by authors’ fees give free access in perpetuity.

Show ‘transfer of copyright forms’ to their employers and ask for legal advice as to whether they should sign them. Raise the matter in academic committees. Cross out what you do not like. One way is to renounce the copyright and declare the matter of the paper to be in the public domain while continuing to assert the right to be recognised as the author.

Press through professional organisations for the same rights of ownership as are normal in the literary world.

Support critiques of the professional assessment methods used by ‘masters of business administration’.

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EUROSCIENCE AT THE EUROPEAN PARLIAMENT

The EUROSCIENCE Science Policy Working Group has organised a debate with members of the European Parliament in the presence of the media. It will take place on the eve of the European elections on 15 April 1999, from 15.00 to 17.00, at the Palais de l’Europe in Strasbourg. The debate will be centred on major science and technology policy issues for the next Parliament. F P

EC–RUSSIA CO-OPERATION AGREEMENT

On December 28, the Russian government adopted the Agreement on Co-operation in Science and Technology between the E.C. and Russia. This will open the door for Russian researchers and institutions to participate in projects funded by the E.C., and vice-versa. The co-operation covers a number of areas, including environmental and climatic research, biomedicine and agricultural research, industrial technologies, material science, non-nuclear physics, transport, information technologies, social science, science and technology policy, and the education and exchange of researchers.

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FURORE OVER GENETICALLY MODIFIED FOOD

Genetically modified (GM) food has been hitting the headlines recently. The media debate has been particularly heated in the UK where there has been a great deal of confusion with a variety of ‘scare stories’ in current circulation.

The Royal Society, the UK’s national scientific academy, made its position clear in September 1998 in a statement entitled Genetically Modified Plants for Food Use. This aimed to inform the debate by setting out what is and is not known presently about GM plants and providing policy advice to regulators on the issues involved. It concluded that genetic modification has a great deal of potential for further beneficial developments in agricultural practices, food quality, nutrition and health.

However, the associated concerns must be addressed seriously if society is to exploit the new technologies. Moreover, continued research, funded in part from public sources with the results made openly available, is essential if the uncertainties are to be properly addressed, the risks understood, and the full potential of the new technology made clear. Consumer confidence, based on an appreciation of the scientific evidence and the regulatory checks and balances, is central to whether GM plants will contribute to feeding the world’s rapidly expanding population.

In December 1998 the UK Government announced a consultation exercise on biotechnology regulation in the UK. The Royal Society’s response in February 1999 stressed the importance of the provision of sound scientific advice to policy makers, and highlighted recommendations already made in both its September 1998 statement and in its earlier publication The Scientific Advisory System (June 1998). In particular it highlighted the need for scientific advice to Government to be made publicly available unless it is demonstrably against the national interest to do so.

The issue of GM food hit the UK headlines in February 1999 as a result of experiments carried out on GM insect resistant potatoes containing a gene for the GNA lectin from snowdrops. In August 1998, press releases from the Rowett Research Institute described feeding trials which appeared to indicate that the GM material affected both the growth rate and the immune response of rats. Here was considerable confusion regarding what data was available which culminated in the Institute failing to renew the contract of the scientist involved. The Royal Society called for all relevant data to be submitted for peer review.

The affair was resurrected in February 1999 when twenty scientists from 14 countries announced their support for the scientist concerned. As a result, the Royal Society has established an independent expert group to examine the issues related to possible toxicity and allergenicity in genetically modified plants for food use. Eminent scientists will be asked to review published and unpublished data. Their views, reached individually and independently, will be considered by the panel, which will subsequently publish a report which will be made freely available.

For further information, or to obtain copies of the Royal Society’s publications, contact Rebecca Bowden at the Royal Society (rebecca.bowden@royalsoc.ac.uk); all publications are also available on the Society’s web page.

LISBON CONFERENCE

Circumstances beyond EUROSCIENCE’S control have led to the conference on New Science- and Technology-based Professions in Europe, which was to be held in April 1999, being postponed. It will now take place on 20-22 October 1999 at the Gulbenkian Foundation, Lisbon. Full details of the programme and speakers – which remain the same – can be found on the EUROSCIENCE Web site www.euroscience.org. F P
SCIENTIFIC FRAUD

Dr Philip Campbell, the editor of Nature, led a discussion on Scientific Misbehaviour with some fifteen UK EUROSCIENCE members on 10 December 1998. Many forms of misbehaviour were mentioned and commented on: knowingly publishing false results, adding non-contributing names to the list of authors of a paper, stealing ideas from papers seen for refereeing, withholding useful or relevant information from colleagues, suppressing information which might contradict an argument being advocated, etc.

There was agreement that the publication of falsified results probably occurred in only a few tens or hundreds of papers among the millions published annually. Because this proportion is so small and because the sciences are eventually self-correcting, several of those present at the discussion argued that these instances of scientific “crime” were of no great importance and the scientific community should not worry about them. However, concern was expressed that when such falsification was detected the offending papers were not always appropriately annotated in archived lists of abstracts.

The reasons for the misbehaviour of research scientists were also discussed. Participants recognised that institutional pressure (for personal advancement, for departmental prestige, to meet the conditions of grant awards, etc.) was probably the chief inducement for researchers to cheat. But mental sickness no doubt also plays a part and the question was raised as to whether all such instances were not examples of chronic or temporary mental disorder.

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SCIENCE FUNDING IN EUROPE

On 17 March 1998, The Royal Society held a Discussion Meeting on Science Funding: the European Dimension. A number of scientists and politicians from across Europe contributed to an interesting and stimulating set of presentations and discussion. The talks presented, together with a summary of the discussion, have now been published, and can be obtained from The Royal Society.

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British Association Festival of Science 1999

The British Association Festival of Science, to be held 11-17 September this year in Sheffield, UK, is a unique annual event. By bringing together scientists, public and private sector professionals, students and the public, the Festival fosters discussion of developments in many areas of science, engineering and technology and their possible applications. Anyone can come to the festival. Many visitors come every year to rub shoulders with the country's leading scientists and engineers and prominent figures from public life. Many scientists attend to meet and debate with their peers the scientific and ethical questions that they face.

In 1998 the Festival attracted around 7,000 visitors including hundreds of young people taking part in hands on activities.

The Festival’s theme this year, ‘Prospering through Science’, will focus attention on the opportunities created by scientific advances for improvements in quality of life and creating new wealth. Seven strands will contribute to the overall theme: economic prosperity; health and quality of life; building scientific awareness and understanding; sustainable environment; cultural enrichment; learning from the past and exploring new frontiers. Each morning of the Festival will see a keynote speaker from industry addressing the main theme in a plenary session. Throughout the rest of the programme top scientists from the UK and abroad will focus on the various strands in relation to their particular specialities.

Amongst the diverse range of sessions in all areas of science are: From big bang to eternity – understanding the cosmos, Mission impossible – feeding the world, Designer foods, Biology and crime, and Global environmental change – Armageddon in the next millennium? Over 300 world-class speakers from all areas of science and engineering will take part including Lord Robert Winston, Professor Ian Stewart, Professor Sir Martin Rees and Nobel Laureate Professor Sir Harry Kroto.

In addition to the main programme of lectures and seminars, the Festival also includes exhibitions, debates, hands on activities for young people, special evening lectures and a social programme to reflect all that Sheffield has to offer. As plans for the Festival develop the programme will be updated on the British Association web site at www.britassoc.org.uk. Special registration rates are available for British Association Members, students and pensioners. Student bursaries to attend the Festival are available through some universities.

For further information contact:
Sandra Koura +44 171 973 3075 or see the British Association web site www.britassoc.org.uk.
Two recent conferences addressed problems of Russian science, technology, and education. The following reports of these two meetings give some interesting perspectives on the problems facing Russian science today.

REFORMING RESEARCH AND HIGHER EDUCATION IN RUSSIA AND EAST GERMANY: A COMPARATIVE STUDY*

This Russian-German conference held in St. Petersburg in October 1998 was dedicated to comparison of reforms in research and university education in Russia and East Germany. Russian and German participants of the conference were representatives of federal and regional bodies, science foundations, universities, research institutes and societies, historians and sociologists of science, and journalists. There were 45 presentations discussing the following issues in the transformation of the Soviet model of research and higher education in the former USSR and GDR:

- the role of the state: reforming from the top or self-organisation;
- the degree of centralisation/decentralisation;
- the relationship between the federal and the regional levels;
- competition-based funding and the role of foundations;
- links with world science;
- changes in human resources;
- links between research and production;
- governmental and non-governmental sectors in research and higher education;
- the role of non-governmental (social) organisations in science policy;
- status of science in the public view.

The transformation of the Soviet model of research and higher education in the former GDR proceeded in several stages (1990–1992). At the political level, a clear model for the organization of research and higher education was adopted. This followed the West German model: decentralisation and de-monopolisation of management, increase of the university sector, etc. The reform was supported legally and financially. At the administrative level, all research institutes and universities of the GDR were evaluated and restructured (closing, merging, transformation, transfer to a different government department). Personnel in every organisation were evaluated, resulting in almost total replacement of the former administrations, significant personnel cuts, and re-orientation of personnel. The remaining staff received increases in pay, while those dismissed received social security (new vacancies, pensions, etc).

Due to the transformation, the structure of research and higher education underwent serious changes. State academies (GDR Academy of Sciences and the agricultural academy) completely disappeared; the university sector was significantly increased through development of former universities and increased support of technological schools. Research institutes, mostly those from the GDR Academy of Sciences, were redistributed among seven segments of German research. They were mostly incorporated into the three non-university associations: Max Planck Society (basic research), Fraunhofer institutes (applied research) and the so-called “Blue List” of institutes forming a new union. All sectors of research are closely connected with universities, and have a multi-channel scheme of funding, including state (federal and regional) and private funding (industries, foundations).

The transformation of research and higher education in Russia is sluggish and has no clearly defined model. The de-militarisation of the economy and withdrawal of state support for science resulted in a critical deformation of research and higher education, which was especially destructive in applied research. The current systemic crisis of Russian science consists in the impossibility of reforming it from above for political, financial and socio-psychological reasons. Not only are the government structures and the greater part of the science administrators not prepared for a serious and controlled transformation, but also the staff of research institutions and universities is largely passive. Only a smaller fraction of scientists continue their work by adapting to the new situation (typically using Russian and foreign foundations).

The principal goals of reform of research and higher education in Russia, announced by the leadership of the nation and of the respective government departments, have not been achieved for various reasons. Among the failed goals are development of innovation processes (links between research and production), integration of education and research, and support of basic research. At the same time the science and technology policy can be credited with some positive results like the creation of the system of research foundations, international cooperation (openness of science), and the development of a legal basis.

The role of research foundations in Russia has been more important than in Western countries, despite their paucity and smaller share of total funding. This is due to the fact that the foundations became the key (and virtually the only) positive factor in the transformation of the science landscape in Russia. At the same time the fact that the foundations are institutionally built into the existing science system, the low level of funding as well as some peculiarities of their ways of cooperating with researchers seriously impair the reformist potential of the foundations and narrow the social base for their support from the science community.
The separation of research from education has not been overcome; indeed it is increasing. Among the reasons are administrative separation of decision-making for research and higher education, the lack of established mechanisms for real integration, lack of funding for an integration programme, and departmental egoism. The lack of state support for research in universities (except for grants) hinders “internal integration” of research and teaching within universities.

The crisis of science in Russia is caused not only by poor funding. It is also related to the changes in social motivation for support of science and to the disintegration of the science community into groups with different value systems. The conflict of values within the society arises from the fact that funding of science used to be motivated by goals external to science (military parity, ideology, etc.). Part from that, there was an increasing discrepancy between the status-based and cognitive hierarchies of scientists, resulting in inefficient management of science and a tendency to find other ways of self-identification. Hence, in contrast to Germany, where the Soviet model was superseded by the more flexible Western model, Russia saw a sharp increase in self-organisation processes.

This is similar in many respects to the paradoxical institutional growth of science during the severe crisis of 1918–1922. However, while the prevailing tendency of those years seemed to be creation of new research institutes, now the tendency is for new universities.

It was also noted that supporting self-organisation of science by a system of competition-based funding and selection of the best might lead to important positive changes in science and education. The non-government sector in research and education might occupy a niche similar to that of small and medium-size enterprises in the economy. Non-governmental organisations in research and higher education can and should take a greater role in science and education policy. No reforms in science and education can succeed without interaction between government offices and the scientific community.

In Eastern provinces of Germany, former research institutes and technological universities managed to successfully incorporate themselves into the Western system of science and economics. Changed policies and management led to improved infrastructure as well as project quality. They also became properly linked to industries. Indeed, the activities of those institutes incorporated into the Fraunhofer Society resulted in considerable profits. Nevertheless, even in this situation, state support for such institutes is important for laying a basis for future developments, since activities restricted to current requirements from industries can impact adversely on the institutes’ research potential.

In Russia, the situation in applied research is extremely difficult, and high-level research is virtually dead; innovation activities in the current situation (after August 17, 1998) are all but futile. However, some suggestions were made for mechanisms not just for a competition-based distribution of funds to promising research-intensive companies, but for a creation of a system of foundations and their controlling unitary enterprises. Contracts with the government empowering them as agents for specific resources might provide, on a venture basis, funding for the most promising projects.

It was also noted that, unlike Germany, where science and higher education are supported both from the federal and regional budgets, in Russia the regions have essentially stepped back from supporting science, though the Constitution of the Russian Federation defines science as a domain of shared control between the federation and a region.

The experience of reforming science and higher education in East Germany cannot be transferred to Russia due to fundamental socio-political differences between the countries. In the reform of the Soviet model in the former GDR in the united Germany there was a clear political will (reform “from above” and “from the West”), significant funding, a ready model, skilled experts, administrators and managers from Western provinces, as well as clear mechanisms for transforming organisations within the rich and mature market economy and a stable state. Nevertheless, the reform required far greater efforts and funds than expected.

In Russia, such conditions do not exist. However, some elements of the German experience might be beneficial. The conference noted that the key aspects of reform in research and higher education are:

- increase in the state financial, economic, and legislative support, both at federal and regional levels;
- real integration of research and higher education;
- support of innovation;
- greater involvement of the science community in policy-making for research and higher education.

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Translated by Gregory Tseytin
SPASS Foreign Learned Secretary

* Organised by the St Petersburg Association of Scientists and Scholars (SPASS), St Petersburg State University, and Russian Foundation for Basic Research, with support from the Russian Foundation for Humanities, Public Council on Science, State Duma Committee on Education and Science, together with the German organisations DFG, Max-Planck-Gesellschaft, Fraunhofer-Gesellschaft, Goethe-Institut St Petersburg, Deutsches Generalkonsulat in St Petersburg.
THE FUTURE OF RUSSIAN SCIENCE: PROBLEMS AND PRIORITIES

This workshop was held in Moscow in December 1998. The participants included Russian policy-makers, foreign experts from OECD† countries, and managers of science co-operation schemes such as ICST, CRDF, INCO-Copernicus and INTAST†. Representatives of diplomatic bodies, big companies, the Academy, and Russian Foundations were also invited.

Priority setting (M. Oborne)
The OECD Head of delegation stressed that priority setting in S&T is a long, complex, iterative process, not a top-down set of decisions. It calls for government-level consultations, then controversial debate, then consultation with a wide base of users organised by non-governmental bodies. Promotion by the media accredits the idea that science is important for the future. Thus all stakeholders should be associated with forming the final consensus.

Foresight (Vice-minister V. Alimpiev)
In the Soviet system, Foresight is undertaken within the planning process, is run centrally, and incorporates sectoral and regional aspects. Russia does not lack experience in Foresight. However, since the change from a planned to a market economy, the questions one should address are: a) the mechanisms by which to implement Foresight in the public domain, and b) how to influence the non-State regulated part of the economy.

The management function of science (Minister M. Kirpichnikov)
In the face of present world trends, science needs to play an increasing role in international organisations and conferences, in information technology, in developing a strategy for the society and in elaborating managerial decisions.

The parameters for S&T policy in Russia (Minister M. Kirpichnikov)
These should be quality of life, education, S&T potential, natural resources, and preservation of natural integrity. The goal is to use S&T for the good of society.

How is the Russian science system evolving quantitatively? (L. Mindeli)
In 1996, there were about 4,100 (public and private) research institutes, and 990,000 people working in science (scientists, engineers, technicians), of which 485,000 were researchers (cf. 1,943,000 R&D personnel in 1990). The number of scientific employees who emigrate is decreasing: 1900 left the country in 1996.

Universities receive 4.8% of the total R&D expenditure. The government sector share of 25.9% represents a considerable decrease. 5.6% of the total resources come from foreign aid. The Academy has had a stable budget in constant money from 1991 to 1998, representing 15 to 18% of the civil federal R&D budget. The Russian Foundations for Basic Research, and for Research in Humanities, receive respectively 3% and 0.5% of the federal science budget. Large-scale programmes such as space absorb about half of the civil R&D budget. However, the federal science budget decreased in real terms by a factor 10 between 1990 and 1997. The total R&D expenditure was 0.86% of the Gross National Product (GNP) in 1996, an increase over the 0.73% in 1995. It was 2.03% in 1990.

How has democratisation affected Russian science? (former Minister V.E. Fortov)
It was suggested that the democratisation process has driven the present disaster, or at least that one accompanied the other and that people should be saved first. The two Foundations mentioned above represent one of the major reforms since 1991. They are independent organisations which run science programmes in the Western, peer-reviewed style.

Possible ways forward (former Minister B. Saltykov)
The Russian paradox was emphasised: economically Russia is weak ('lower middle economy'), but scientifically it holds the 6th or 7th place in the world. Besides government supported basic science, the only sectors which could survive after 1991 were those oriented to international demand: raw materials, gasprom, the gas industry. Today even these technologies are lost: there were many technologies developed, but few finished products, no strong management, and nobody looking for new markets. Thus there are only two options: Russia could either return to autarchy, relying on its own forces or be integrated into the world science and technology arena. Both views are held across the scientific community.

Would one restore central planning?
Although this point was not discussed openly, it underpinned some of the interventions. The Vice-minister was clear: no, this would not happen. Russia’s real strengths are its human capital and technological capability; it is the management know-how that is missing. The question was raised of the role of the State, and who should study the market for research-intensive products. One of the experts (J. Dyker, U.K.) warned against the temptation to “pick winners” centrally.

Can Russia learn from foreign experiences in Technology Foresight?
Some Russian experts have concluded that the forms of Technology Foresight developed in the United Kingdom, Japan, and Germany are not appropriate for Russia today. They prefer Russia to look at its resources and solve its problems by
its own methods. The necessary ‘ground base’ is lacking: there is no internal market for technological products, and a fortiori no international market, with Russian technologies being considered uncompetitive. A representative of the economics ministry argued that Russia’s first task is to stimulate investors as much as consumers. Regulations are being prepared to encourage this.

How can private capital be attracted for S&T projects? (I. Bortnik)
The 40–50,000 ‘Small Innovative Businesses’ (SIBs) represent 1 to 2% of the GNP. They provide 40% of the tax revenue, employ 380,000 people, and have turnovers of 20,000 to 1,000,000 U S$/year each. In this sector, many products come from big science. However, neither society nor the authorities consider this sector as important. Consequently, appropriate legislation and financial assistance are lacking, interest rates are too high, and the State does not pay its bills. The speaker insisted that this sector is adapted to the market economy in spite of the difficulties.

A representative of the government-owned Sherbank, B. Yurlov, noted that banks have only very recently funded S&T projects. Due to a major reorientation of banks, funding conditions will hopefully improve. Venture capital should develop. Results obtained by SIB are considered by this bank to be very positive.

How does the market influence the development of Russian technologies?
H. Topsoe (DK) argued that Russian technologies are competitive only and at best on the local market. In order to transform the situation within ten years, state of the art technologies must be implemented, and an international network of technology suppliers established. Funding must come initially from tax and export of raw materials – funding from the West ‘is peanuts’. Another expert (J. Dyker, U K ) commented that too much foreign direct investment is dangerous (as witnessed by the August 1998 crisis). He pleaded for “deep integration” of the Russian economy with the world economy, in order to create quality new business (good organisation, good technology). SIBs are an essential part of this landscape.

The competitive programmes of ICST, CRDF, INTAS etc.
Programmes submitted to foreign funding bodies help the discovery of good technology sectors. The Head of INTAS, D. Gould, quoted materials, lasers, biotechnologies, and certain fields of chemistry. INTAS provided 60 M Ecus during the 4th Framework Programme, FP4. That 25% of the grants went to university researchers was seen by Gould as a sign of their quality. ICST, said its Head A. Gérad, focuses on targeted R&D. The poles of excellence it identifies through peer review are confirmed by the demands of the technology market. The key role of collaboration with Western and Asian institutions was underlined. The European Union programme to help Russian science provided 120 M Ecus to Russia over the four years of FP4.

The State’s role in S&T development
Self-organisation of the scientific community to create small enterprises was not really discussed. And only one Russian representative was present from small business. However non-state funding of science is more and more on the agenda. The public officers agreed that one major problem is management of a complicated general situation and micromanagement in different types of enterprises, and that attracting private capital for innovative projects was urgent. In order to create a climate favourable to innovation without the State creating special institutions, and also to ensure social input to S&T development, M. O borne proposed that a workshop should be devoted to the clarification of the role of State in the new context.

Conclusions
Presented by J.E. Aubert (O E C D) referred to the continued decline of scientific potential since 1991. At the same time, an innovation potential is emerging, with an increasing number of small innovative enterprises. Questions that had arisen from the conference included:
- How can the reform process be accelerated? It has been relatively slow and disorganised since the transition began. Foresight exercises can usefully contribute to reform if they are understood as a societal process, and focus on innovation rather than on science.
- How many scientists does the Russian Federation need?
- How did the integration of Academic Institutes and Universities really progress?
- Should research funding rest on base financing or more on grants?
- How do State institutes participate in the innovation process?
- How should industrial involvement in the innovation process be fostered?

M. Aubert underlined that there are limits to technology transfer from abroad, and that management methods need urgent improvement. A framework for alliances with foreign companies needs to be developed. And an effective legislative framework, including enforcement mechanisms, is essential for innovation and must be thought about.

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† OECD: Organisation for Economic Cooperation and Development; ICST: International Centre for Science and Technology, Moscow; CRDF: Civilian R&D Foundation, United States; INCO–Copernicus: co-operation programme of European Commission with Eastern Europe; INTAS: International Association for the promotion of co-operation with scientists from the New Independent States of the former Soviet Union.
IN TOUCH

CONCEIVING AND IDENTIFYING THE INFANT VENTURE: AN ESF WORKSHOP

This workshop, which took place in December 1998 in Jülich (Germany), was organised by the European Science Foundation (ESF) as part of a series exploring Partnership between Research and Risk Finance in Europe.

The ESF president Sir Dai Rees introduced the Workshop by reviewing positive and negative forces involved in application of scientific discoveries. Broad thrust areas with a high potential for applications are relatively easy to identify, even though specific applications are more difficult to anticipate in detail. Scientists are also more motivated to pursue them than is usually assumed by industrialists or science managers. On the other hand, the practice of science implies a high level of dedication, in which intellectual fascination keeps distracting scientists from applied constraints, especially in the absence of a sustained, application oriented environment. Unlike North America, European academic cultures are not favourable to such environments; they are handicapped by "clannish" habits, in which agents in charge of research, development, marketing, testing, production or sales come from quite discrepant training backgrounds. Sir Dai stressed the need to add feedback loops to the conventional, linear model of development (Research – Development – Testing – Production – Market), thus promoting more intimate, reciprocal contacts between each step.

A review of strategies used by different European operators to overcome this handicap was the objective of the workshop, in particular the creating of application friendly environments, or in helping young people to access complementary training schemes.

The Incubator Concept

Among approaches used by various European institutions to foster science and technology based development, a few examples of networking between scientists, developers and economists around both academic and targeted research were reviewed. Most efficient models were the German start-up "incubator" of Jülich, and the proactive approach used by the British Medical Research Council (MRC) and Biotechnology and Biological Sciences Research Council (BBSRC). The strategies used rely on identifying discoveries with a potential for applications within specialised incubators, such as collaborative centres for applied development or networks of associated laboratories. Multicompetence teams then take up these discoveries with their inventors, in order to achieve technological evaluation, management and business planning. Such teams build up nuclei of either "external" or "internal" (i.e., renting in-house facilities) start-ups.

For instance, six full time scientists operate the Business and Innovation Unit of the BBSRC on a budget of 700 kEuros, while a comparable strategy has led the MRC to establish eight independent companies based on its own technologies. In the early stages they are funded by the Council, which employs directly around two hundred start-up scientists. When success comes the Council manages to raise outside money to help them achieve their autonomy.

Filling Training Gaps

The Workshop also reviewed schemes aimed at extending the skills portfolio of young scientists. For example, the Young Entrepreneurial Scientist scheme in Nottingham provides additional training in business awareness, marketing strategies and financial planning during graduate or postgraduate studies; students can create a virtual company on the technological achievement of their choice, and the best ideas are rewarded at governmental level. Similar schemes exist in other countries, for instance the Doctoriales in France (see EUROSCIENCE News nos 4 and 5), but Europe clearly needs many more initiatives of this kind.

A second workshop, focussed on nurturing the Infant Venture, will take place in London in May. The objectives of the workshops are indeed quite close to Euroscience's concerns, as expressed for instance in the Working Groups on Transfer of Technology. This should offer good opportunities for cooperation with the ESF, in analysing complementary aspects of the topic and in continuing to spread awareness elsewhere.

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COPY FOR THE NEXT ISSUE SHOULD REACH THE EDITOR, PREFERABLY BY EMAIL TO J.FINNEY@UCL.AC.UK, BY THURSDAY 10th JUNE 1999

Euroscience on the Web: www.euroscience.org