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European Science Foundation

ANNUAL REPORT 1994

The European Science Foundation is an association of its 56 member research councils, academies and institutions devoted to basic scientific research in 20 countries. The ESF assists its Member Organisations in two main ways: by bringing scientists together in its Scientific Programmes, Networks and European Research Conferences, to work on topics of common concern; and through the joint study of issues of strategic importance in European science policy.

The scientific work sponsored by ESF includes basic research in the natural and technical sciences, the medical and biosciences, the humanities and social sciences.

The ESF maintains close relations with other scientific institutions within and outside Europe. By its activities, ESF adds value by cooperation and coordination across national frontiers and endeavours, offers expert scientific advice on strategic issues, and provides the European forum for fundamental science.

EUROPEAN SCIENCE FOUNDATION

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Annual Report 1994

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My predecessor as President, Professor Colombo, said in his speech to the Assembly in 1993 that he had tried "to revitalise the Foundation's structures and to expand its areas of interest ... we still have to earn the place in the European Science system that is our due".

The progress in those endeavours is demonstrated in the changes that have taken place during 1994, both within ESF and its methods of working, and in the general debate.

The reappraisal of ESF's strategic mission proposed by Member Organisations, discussed with them and approved at the Assembly of 1993, has begun to be put into effect during the year. The implementation report gives us a detailed account of what has been put in place. In particular, each of the Standing Committees has studied how it may best introduce strategic matters into the areas of science within which we should operate; and each of the Committees put a report before the Assembly on that subject.

In terms of the Foundation's external relations, the links with the European Union through the Commission have been strengthened. We were delighted to have Professor Ruberti with us in November as Commissioner for Research; I thanked him on behalf of ESF for the keen interest he had taken in ESF, and the care with which he had studied ESF's proposals for a more formal participation in the Commission's discussions. ESF has worked with the Commission to help in setting up the new European Science and Technology Assembly, ESTA, and specifically in the selection of the first members. There is considerable and gratifying overlap in membership with ESF, not least with Dr Borgman – a member of ESF Executive Council until 1993 – as President of ESTA, and Professor Donnelly – a Vice-President of ESF – as Vice-President of ESTA also. I am myself pleased to be a member of the Assembly and Bureau, and our Secretary General is a member of the Assembly.

It has been very natural that we in ESF should have thought long and hard about our relationships with the European Union through the Commission. As we have celebrated our 20th Anniversary, we have recalled that ESF was founded when the research responsibilities of the European Commission were small and restricted to the applied technologies. There was therefore an opportunity and a need for ESF as an organisation to help the coming together of European science by promoting the collaboration and mobility of scientists and scholars.

Since that time our place in the world has changed. The Commission's Framework Programmes have evolved major and comprehensive plans to cover many of Europe's needs for collaboration in key areas and for promotion of mobility and cohesion within the research community. I think the Commission would agree that it has been helpful in the achievement of all this to take advantage of the networks and programmes which ESF had put in place on a small scale, and indeed the Commission still does entrust us with a responsibility for Euroconferences in those areas in which the best results need planning on the basis of detailed knowledge of the scientific fields and the scientists for leading them. But they have now established themselves as a major influence on the funding of European Research and Training. ESTA has been established as an instrument of the Commission, as an assembly of independent scientists, though they are not, as in ESF, representatives of Member Organisations. What then is the role of

ESF? Should we in ESF say that we have done our job and now go into graceful retirement? The research budgets of member countries have been squeezed and they look very carefully and critically at expenditures outside domestic priorities. It is natural for them to ask, therefore, whether they need and can afford the ESF as well as the programmes of the Commission.

One doesn't have to think long about the implication of saying "yes" to this question – should we go into retirement – to realise that it would be quite the wrong thing to do. Consider my own home organisation, a British Research Council. Should it really – in the Europe of 1994 – say that it has no common interest and common policies which it wants to develop with sister Research Councils in France, Germany, Italy, Spain, Netherlands, Greece, Sweden, Switzerland, Poland, Hungary and so on? That the British Research community in planning its own programme at home should not be taking account of what other Europeans are doing elsewhere? Or that we should not take a neighbourly interest and offer our co-operation to organisations in other countries, whether still developing scientifically or operating at the level of maturity, as they plan to be effective and excellent in today's competitive world? Obviously not! The new job description for ESF is to help member organisations to link up and be positive to this challenge.

While we applaud and encourage the role of the Commission in co-ordinating research collaboration in association with the Central Institutions of the European Union – the Council of Ministers and the European Parliament – ESF also has a part to play through the organisations in member states which by definition are outside those central institutions but must relate to them. The full development of European potential requires not only the activities of the Commission working from the centre outwards, but others such as ESF working from the outside inwards.

The development of European Science is therefore so important that there is surely room for more than one body especially if relationships between them can be complementary and symbiotic. But the Commission, ESTA and ESF are by no means the only players in this game. Other bodies have also been formed in response to the important need to represent the voice of science in Europe. What are to be the relationships and divisions of responsibility between them? We acknowledge the Academia Europaea, of which Professor Hubert Curien is the new President, and the Association of European Academies (ALLEA), whose President, Professor Paul Germain we were pleased to have with us at the Assembly. We join with both these bodies in valuing and honouring excellence and achievement in science and humanities. The Board of ESF meets annually with the President and Vice-Presidents of the Academia Europaea. The Secretary General and I attended the meeting of ALLEA in Paris in March 1994, which I was honoured to be invited to address. Also, the European Rectors Conference, of which Professor Seidel who participated in our Assembly discussion is a Past President, and whom we join in honouring education and scholarship. Last but not least is EuroHORCs – the European Union Heads of Research Councils which, like ESF, is a coming together of research funding organisations. I am happy to report that, at a EuroHORCs meeting in November 1994 in Madrid to which the Secretary General and I were invited, ESF and EuroHORCs arrived at a very good plan for future working relationships. It was

agreed that our roles are complementary. EuroHORCs' central emphasis is on organisational strategies for science. They have a strong interest in how the direction of the Framework Programmes can be related to national priorities, and vice versa. The formulation of this top level overview is complementary to ESF's approach beginning with individual priorities and programmes within the member countries, and seeking to link these together in bottom up fashion. We agreed that the President of ESF should therefore become a member of the EuroHORCs Steering Committee, and that the Chairman of EuroHORCs should become a member of the ESF Board and Executive Council. Both the Secretary General and President of ESF will be members of the Assembly of EuroHORCs.

If ESF is no longer alone in representing the community of scientists in Europe, we have a very important and central mission. This has been sharpened by our dialogues with the other European bodies I have mentioned and we have been very greatly encouraged in our conversations with them that we, the ESF, have a separate and distinctive job to do.

I have said that the job of the ESF is to facilitate and catalyse Member Organisations in coming together to make progress with important problems that we all face. I suggest that these problems exist at three levels. First, scientific problems which are important to all of us and that we can tackle better together than separately. This is mainly the job of the Standing Committees. Next we find when we work together in this way on scientific programmes that policy or organisational problems frequently arise to threaten the health of science and therefore potentially the effectiveness of our joint efforts. We must define these, work out solutions, and try to improve the way science is funded, administered and managed in member countries in Europe. For the sake of the future of European science we must be resourceful and energetic in identifying and delivering improvements in funding, in peer review, in careers for scientists, in scientific infrastructure and in working between disciplines.

Finally and at the top level is the question of our relationships with Governments. We have all perceived that the nature of relationships between scientific communities and their Governments is changing. There is increasing top down control of research objectives coloured by greater politicisation and utilitarianism in government thinking about science. These pressures are already felt acutely in some member countries. They are certainly felt in the formulation of the research activities of the European Union. Eventually they are likely to be important in all member countries. We must respect the legitimate expectations of society from the scientific community, but the needs of science must also be understood and provided for. We can promote this understanding better by sharing our experience so that we can help each other to develop stronger and more persuasive arguments in each member country and also within the European Union.

I was very happy to report to the Assembly that there has been considerable progress in ESF at all three of these levels for the past year. The Assembly heard from the Standing Committees about their impressive progress in organising themselves to develop important scientific themes for Europe. I was glad to report that the ESF Executive Council had agreed on the urgency of addressing the issues for Europe in the three key areas of Science

and Society, the Health of Science, and Science and Government. I believe that it has put its finger on key questions on which we must work to improve the environment for the scientific enterprise in Europe. An *ad hoc* working group has been charged with the task of crystallising these ideas into specific action plans, intending to complete the work in January for approval by the full Executive Council in May 1995.

The first twenty years of ESF has been a full and satisfying chapter, which has now come to a close. We have developed a clear new vision with which to embark on the next twenty years and I am confident that we will do great things. I thank all the members of the Board, Executive Council, Standing Committees and of course the Office who have worked to such good effect to bring us to this stage. The Assembly joined me in expressing special thanks to our Secretary General who has done such great things in managing the overall process.

Sir Dai Rees
President of ESF
ESF General Assembly
Strasbourg, November 1994

This has been a year notable for the substantial implementation of the reappraisal of its strategic mission, to which the ESF Assembly, Executive Council, Standing Committees, Member Organisations and Office had devoted much time and thought in the previous two years. The President has described the context in which this has taken place. On the one hand, the European Union through the Commission has begun to exert a more powerful influence upon the direction of scientific research in Europe, in its applied but also in its fundamental aspects. On the other hand, more groups have come together to express the views of scientists and scientific organisations concerning the direction European science should travel. ESF has taken a full and active part in many discussions. This has made the ESF appraisal yet more timely and purposeful. I was able to report to the 20th Anniversary Assembly of ESF that we could claim that during the year 1994, a new strategic dimension has been introduced, and emphasis placed on operational activities with a strategic relationship.

Major strategic themes have been identified, advice on science policy matters given, symposia and workshops have been initiated, and studies of research priorities begun. ESF has set up an *ad hoc* Strategy Committee, reporting to the Board; and on an administrative level, a small Strategy Unit has been established in the Office.

This has been done while maintaining the previous level of activities and instruments, which are of considerable importance to ESF's Member Organisations, and to the individual scientists from the wider Europe who participate in ESF's activities. We are also glad to welcome as observers a number of distinguished scientists from other parts of the world: for example, some ESF Scientific Programmes and Scientific Networks provide a European complementarity to work in kindred fields in the United States, with whose scientific bodies (such as the National Science Foundation) we are glad to have good working relationships. Within Europe, the programme of European Research Conferences continues to demonstrate the expanding practical association that has been built up for several years now with the Research Directorate, DGXII, of the European Commission.

Other well-established areas of science in which ESF continues to play a significant role include the provision of Fellowships, mainly in association with Scientific Programmes, and the encouragement of scientific publications resulting from ESF-supported work.

During 1994 ESF has endeavoured to find ways to help scientists from central and eastern Europe. It remains the hope of ESF that more institutions from these countries will find it possible to meet the criteria required of ESF Member Organisations; in the meantime, ESF has been glad to welcome a number of individual scientists from these states, many scholars of distinction, to participate in its Programmes and Networks.

The ESF Board has been strengthened and will develop the Foundation's scientific policy; it will maintain and deepen the dialogue with the Chairmen of ESF's Standing Committees. This is entirely in conformity with the strong view within the Reappraisal that greater influence should be exerted by the Standing Committees (not least in consultation with the Member Organisations) in the major decision-making procedures of the Foundation.

The ESF Statutes have been amended to allow for these changes, and the amendments were approved by the 1994 Assembly.

Another major change has been the division of the European Science Research Councils (ESRC), ESF's Standing Committee for the Natural and Technical Sciences, into two separate but associated Committees, the Standing Committee for Life and Environmental Sciences (LESC) and the Standing Committee for Physical and Engineering Sciences (PESC). It had been agreed, not least by participants in ESRC, that that Committee had become so large, and so burdened with decision-making, that there was too little time for rational discussion and informed scientific debate. We trust that the two new Standing Committees, which begin work during 1995, will resolve this difficulty and while maintaining close contacts, will make a useful contribution to European Science.

To effect the many changes recommended during the Reappraisal, the ESF office has been considerably reorganised and reoriented. A Finance Controller is now in post, and one of his tasks will be to review (in cooperation with ESF's newly-formed Finance Committee) such vexed problems as the scale of national contributions to ESF budgets, a question that is challenging many Member Organisations in times of national financial pressures.

The ESF office has been glad to provide a home in Strasbourg for two bodies making a significant contribution to European science. One office houses the Ocean and Polar Secretariat, organising pan-European cooperative programmes for the future with the support of ESF and the European Commission. The other organisation that now has a base at 1, quai Lezay-Marnésia is the European Union of Science Journalists' Associations (EUSJA), which links together around 2,500 science journalists in 22 countries.

Finally, the considerable task of conducting and implementing the Reappraisal of ESF's Strategic Mission has not been completed without much dedicated work by many people, particularly in our Member Organisations. My thanks go to them. But I would also like to record my personal gratitude to my colleagues in the ESF office, scientific, administrative and secretarial staff, for their considerable efforts in advancing the implementation process which, we believe, will result in a positive benefit to European science.

Peter Fricker
Secretary General
Chief Executive

The number of Member Organisations of the European Science Foundation in 1994 was 56, from 20 countries.

At the end of 1994, ESF had in operation the following groups of activities, which are described in detail later in this report:

- **Four Standing Committees:**

European Science Research Councils
European Medical Research Councils
Committee for the Humanities
Committee for the Social Sciences

- The ESF Assembly 1994 agreed that from 1 January 1995 the European Science Research Councils' (ESRC) functions will be taken over by two new Standing Committees:

Standing Committee for Life and Environmental Sciences (LESC) and **Standing Committee for Physical and Engineering Sciences (PESC).**

- **Five Associated Committees:**

Advisory Panel on Environmental Change (APEC)
European Committee on Ocean and Polar Sciences (ECOPS)
Committee on Radio Astronomy Frequencies (CRAF)
European Space Science Committee (ESSC)
Nuclear Physics European Collaboration Committee (NuPECC)

The first two are administered jointly with the Commission of the European Communities.

- A programme of **European Research Conferences** (many of which are jointly sponsored with the Commission of the European Communities).

- Thirty five **Scientific Programmes** that are fully active. Five new Programmes have been launched during the year; a further three are under consideration.

- Twenty three **Scientific Networks**; four completed Networks have been evaluated during the year.

Several of the Scientific Programmes have, as in previous years, been designed to carry forward work successfully initiated within Networks.

Scientific Programmes and Scientific Networks have some features in common, but differ in their purpose and structure. The differences between the modes are that Programmes almost always contain teams of scientists carrying out research, in the full normal sense of the term. Networks discuss, plan, innovate, analyse or even co-ordinate research, but seldom carry out large amounts of substantive research (though there are exceptions to this).

Programmes often take a long time to plan, operate and complete. Networks are quicker to plan: decisions to fund or not to fund can be made within a very few months, and Networks can be terminated, with complete success, after only three years.

Financially, Networks are funded from the Network Account, a part of the ESF basic budget. Programmes, except in their early developmental stage, are financed *à la carte* by those Member Organisations interested in them.

STANDING COMMITTEE FOR THE SOCIAL SCIENCES (SCSS)

1 Introduction

The Report of the Reappraisal of the ESF's Strategic Mission (November 1993) required that each ESF Standing Committee prepare a statement on its scientific and policy strategies and procedures for the assessment of proposals for scientific programmes. The SCSS prepared this statement as a result of extensive discussions at its February and October 1994 meetings and of the consultations held between the Core Group and senior research administrators from Member Organisations which took place in Oslo in May 1994. The structure and contents have also taken account of comments made by the ESF Executive Council at its September1994 meeting.

This statement sets the framework for SCSS activities over the next 2-3 years. As a "forward look" document, it presents a range of new scientific and policy issues which will be developed. Naturally, the priorities and procedures presented here will be subject to some adjustment and review as the work proceeds. The proposals build upon the experience of past SCSS activities and respond to the need for SCSS work to tackle the new challenges facing the social sciences in terms of both addressing priority research issues and developing research funding mechanisms and infrastructure at the European level.

2 SCSS Mission

The SCSS is ready to take on a larger role at both the strategic and operational levels and be responsive to the expressed willingness on the part of several Member Organisations responsible for the social sciences to undertake more extensive cooperation. In so doing, it will be essential for Member Organisations to be able to distinguish the SCSS's role from that of the European Commission and other bodies funding research in the social sciences. The raison d'être of the SCSS should essentially be:

i) to promote high quality basic and fundamental social science research at the European level;

ii) to bring "added value" to nationally funded research through European collaboration between ESF Member Organisations;

iii) to help support innovative research ideas and approaches emanating from the scientific community; and

iv) to play an institutional role in improving European social science research infrastructure.

Social science research is largely by its nature comparative and increasingly the research topics and issues being addressed are international in character. The importance of high quality comparative social science research is being emphasised by Member Organisations and there is a growing demand from policy-makers for European-level social science analysis. The social sciences have yet to reach, however, the degree of organisation at the European (and international) level that has been achieved in the natural and life sciences. In addition to the need for strengthened multilateral collaborative research and networking, there exists also a major concern to improve the quality and availability of data. These developments will need to proceed hand in hand with the strengthening of existing research infrastructure and the creation of innovative institutional links and new tools of research.

The SCSS is aware of the important role that ESF plays in developing research and

raising funds for collaborative projects in the social sciences at the European level. The SCSS has therefore welcomed the ESF Reappraisal report's recommendations, particularly the proposed strengthening of the role of the Standing Committees and the decision to establish a budget line for preliminary activities in the social sciences. As its general mission, the SCSS should serve a twofold purpose. Firstly, SCSS must strengthen its role and importance to act more effectively as a European body for the enhancement of strategic cooperation and the stimulation of innovative collaborative research amongst ESF Member Organisations responsible for funding social science research, based upon their national priorities. And secondly, SCSS procedures and operating methods should continue to allow some flexibility in order to provide an opportunity for researchers to approach ESF directly with proposals for European-level research.

3 The Impact of the ESF Strategic Reappraisal

In its written submission to the ESF Strategic Reappraisal (September 1993) the SCSS emphasised that in order to preserve its position in the forefront of sponsoring European social science research it would propose new initiatives to strengthen its effectiveness. A debate on the restructuring of SCSS had already begun one year before the ESF Reappraisal on the initiative of several Member Organisations responsible for the social sciences. The debate had been stimulated by two main factors. Firstly, while it was recognised that SCSS had promoted several programmes and networks that had successfully anticipated major European research trends and topics, for example socio-economic environmental research, urban and regional restructuring, transport, etc., it was felt that there was a strong need to create greater synergy between SCSS activities and nationally funded research efforts. Social science researchers depended largely upon national funding and hence the strengthening of European-level organisation would need to build more firmly on the foundations of nationally based research efforts.

Secondly, the scope for European funding of social science research was changing significantly. In particular, the European Commission began to give attention to a potentially expanded role for social science research in the context of its Framework Programmes, and similar developments took place in other bodies such as COST, which established a new Technical Committee for the Social Sciences. The growing demand for social science reflected the fuller recognition that human and behavioural factors should be integrated within interdisciplinary research addressing major policy areas such as the environment and technology development.

The SCSS demonstrated its capacity to develop effectively an independent advisory role to the European Commission on the scope for the inclusion of social science research in the Framework Programme through two commissioned reports undertaken for DGXII in 1991 and 1993. In the case of the COST Technical Committee, a complementary role with ESF/SCSS was defined in the terms of reference of the new Committee and reciprocal observer seats were established on both the COST Committee and the SCSS.

The SCSS has also sought to align its own scientific and policy priorities more closely with the collective interests and strengths of its Member Organisations,

and to act as a regular forum for the development of complementary approaches to the shared goal of enhancing European social science research. The impact of the ESF Reappraisal on SCSS over the past year has been to focus its attention on defining the priorities and procedures to put these new policies on a firm footing for future years. The following sections address the results of these efforts.

4 Scientific and Policy Strategy

The SCSS will aim to identify European research topics that have a regional dimension that is greater than the sum of its national parts. To achieve this goal, the SCSS will employ two procedural mechanisms, i) the new exploratory grant scheme, and ii) strategic programmes that tackle "frontier research" topics and create "added value" across the priority activities and orientations of Member Organisations. The first mechanism would operate under the responsive mode and offer the facility for researchers to come forward with promising proposals for research projects. The second mechanism would enable the SCSS to adopt a pro-active role in enhancing cooperation between nationally funded research teams.

4.1 New Exploratory Grant Scheme

The purpose of the exploratory grant scheme is to offer researchers the facility to test innovative ideas for collaborative research projects. The scheme should produce proposals for potential SCSS scientific activities at a quicker pace than that achieved under previous procedures. It is envisaged that each grant would cover the costs of small exploratory workshops and planning group meetings and be valid for a duration of up to 12 months. The grant would be made to a university or established research institute. A "call for proposals" would be issued once a year in October and the closing date for applications would be the end of May. The present guidelines on eligibility of applicants governing the ESF Network Scheme would be operated. Applications would need to demonstrate innovative multilateral research collaboration and indicate a planning group of researchers who would be responsible for the exploratory activities. The SCSS will examine the results of these small exploratory grants and then, in the case of those judged to have been particularly successful, decide whether or not to encourage their development as *à la carte* scientific programmes or as proposals for scientific networks or European Research Conferences.

In preparation for the launching of the new grant scheme, the SCSS circulated a questionnaire to Member Organisations, requesting advice on the main lines of research in which SCSS could play a future role in enhancing European research cooperation. The general aim of the questionnaire has been to gather concise information which will enable the SCSS to orientate all its scientific activities, including the new grant scheme, towards the priority research fields identified by Member Organisations. The questionnaire posed three questions:

A For which of your existing national projects do you judge there exists an important European dimension that could be taken up and/or strengthened?

B What are the main lines of research foreseen by your organisation over the next three years?

C Which projects or new lines of enquiry (ref. to A or B above) would you regard as most appropriate for development at the European level by ESF/SCSS?

The questionnaire achieved a high response rate from Member Organisations

and the results showed considerable diversity of advice on choices of priority research topics for European-level analysis. The SCSS agreed that the responses should be grouped within a few broad research headings, which would form the basis of a "call for proposals" under the exploratory grant scheme. Selection of the broad research headings was governed by the following criteria: Firstly, the focus of the topics should be of a basic research nature which would invite innovative approaches on the theoretical and methodological levels. Secondly, the choice and profile of the topics should be distinguishable from those selected within the European Commission's Fourth Framework Programme and COST programmes, which would be led largely by policy related issues. Thirdly, the new responsive mode exploratory grant scheme should not include research topics currently being pursued as potential strategic, pro-active, SCSS scientific programmes (see para. 4.2 below). An analysis of the questionnaires was undertaken to identify research priorities on which there was a consensus amongst Member Organisations. In particular, the "call for proposals" will invite applications in the following three broad topic areas:
1 European economic performance: employment, market integration and regional economic development;
2 European institution-building: governability, legitimacy and the role of national and regional governments;
3 New family and household patterns: gender roles and generational change.
The new scheme will be introduced on a "pilot" basis in 1995 and the call for proposals will be disseminated through Member Organisations.

4.2 Strategic Scientific Programmes
The SCSS is currently giving priority to the following topics in its pro-active role. It is felt that this pro-active approach should aim to produce interdisciplinary research initiatives meriting stimulation and cooperation between existing national research efforts from both within the social sciences and across the disciplinary boundaries to other ESF Standing Committees.

(i) Health and Health Care
On 12 September 1994, the European Medical Research Councils (EMRC) and the SCSS held a small brainstorming meeting involving prominent researchers drawn equally from the medical and social sciences, to consider research topics of prime importance for interdisciplinary collaboration. The meeting aimed to prepare the ground for a series of workshops designed to develop research projects for European-level funding. Both EMRC and SCSS prepared broad "statements of interest" on the potential for interdisciplinary collaboration, and these statements provided the basis for the debate at the September meeting.

The SCSS statement of interest emphasises that the concepts of health and disease are as much social constructions as medically defined conditions. From a social science perspective, it can be argued that concepts of health and disease constitute interesting avenues to the study of any society. For example, ideas and attitudes regarding health and health care can serve as markers of social development and social organisation, and the level of expenditure on health care is a good index of economic development. The distribution of indicators of ill health across social strata is an important descriptive statistic of the society in question. However, the interest in health issues in social science is not restricted to this aggregate level, but also extends to the importance of

social processes to the health of individuals. For example, there is good evidence to suggest that social factors such as marital discord are related to immune functions. Thus, the social sciences can contribute both to the understanding of health processes and to the analysis and improvement of health care systems. In other words, both the demand for and supply of health care have social dimensions that can be fruitfully investigated from a social science perspective.

The interface between the social and biomedical sciences provides one of the currently most active and exciting frontiers of health research. Much of the impetus and activity in this area originates in the United States, but important contributions have also been made by European countries. However, further efforts are needed to activate European researchers and hence the EMRC/SCSS initiative will seek to play a productive role in this field.

The brainstorming workshop highlighted three potential areas for research collaboration:
a) health expectancy, focusing on social variations,
b) health care technological innovations and their evaluation, and
c) organisation of health care.
Also addressed were wider issues such as building a science-led research agenda and future funding mechanisms for cross-European collaborative research. The SCSS and EMRC will exchange views on the report's recommendations with the aim of preparing a final version as a joint SCSS/EMRC document. In preparing this statement, a major consideration will be the respective post-Reappraisal strategies and policies of EMRC and SCSS which reflect different scientific constituencies and cultures. The statement will try to harmonise these strategies towards realistic goals for European interdisciplinary collaboration between medical and social sciences, given existing research expertise and interest.

(ii) Social Science Research on the Environment
The SCSS scientific programme *Environment, Science and Society* (1990-92) was a pioneering programme in the field of social science research on the environment. The programme successfully established European networks of researchers and had an important impact upon the subsequent development of other European initiatives, e.g. the European Commission's Socio-Economic Environmental Research programme (SEER), and major international conferences (Bergen 1990, and ASCEND, Vienna 1991). In these respects, the ESS programme has played an instrumental role in helping to achieve a wider interdisciplinary approach to research in the environmental sciences. The academic results of the programme are now being published as a series of volumes by Kluwer Academic Publishers.

In the light of the experience of the ESS programme, and the responses to the questionnaire from Member Organisations which show that the field retains high priority, the SCSS proposes to continue to develop social science research on the environment as a strategic area for future activities. However, the SCSS is well aware that any future activity must perform a necessary role as perceived by Member Organisations who, in most cases, are now sponsoring major national programmes of socio-economic environmental research, often involving some measure of international cooperation. The SCSS is in a key position to bring together these national

programmes and projects at the European level to facilitate networking initiatives between the various teams, and generally to create a regular forum for dialogue on research directions and the cross-fertilisation of ideas.

The overall research theme Tackling Environmental Resource Management (TERM programme) is proposed and encompasses the current range of research topics covered by national programmes and projects. The TERM programme would offer fixed calendar events over a three/four-year period which could take the form of summer institutes, workshops focusing on debates with invited policy-makers, and debates on interdisciplinary issues with the natural sciences. Some emphasis would be placed on providing a forum for young researchers (PhD and post-doctoral) to present and debate their work in a European context and thereby provide important linkage between research and training in a field in which there is a clear need for the next generation of researchers to adopt an international "trans-boundary" perspective.

In Spring 1995 the SCSS, hosted by Dutch Member Organisations, will convene a consultative workshop with leading social scientists conducting the relevant national programmes in order to discuss common research interests and the scope of the new initiative. The SCSS has approved the report of a planning meeting held on 9 September 1994 at the Royal Netherlands Academy of Arts and Sciences, Amsterdam, which provides the framework for the consultative workshop and the TERM programme. The SCSS has recommended to Member Organisations that the unspent balance from the ESS programme be allocated to these new activities from 1995 onwards.

(iii) Research Cooperation in the Social Sciences between Western and Central/ Eastern European countries on the theme "Transformation to Democracy". In 1993 the SCSS convened a consultative meeting with representatives of Member Organisations to take an overview of present bilateral arrangements and new initiatives and the main research topics and projects covered by these initiatives, and to discuss the scope for the SCSS to provide a wider European framework of research cooperation that would be complementary to Member Organisations' activities. The meeting report identified the need for the development of linkage between researchers to discuss the experiences and lessons of their collaborative projects and recommended that ESF/SCSS was well placed to perform this valuable role.

Acting upon the report's recommendations, a workshop will be held in Spring 1995, hosted by the Polish Academy of Sciences' Institute of Political Studies, Warsaw. The purpose of the workshop will be to provide a European forum in which to discuss the various models of collaboration in order to identify "best practices" and possible sub-topics for future multilateral comparative projects. The workshop will be limited to a maximum of 24 researchers and the main criterion for their selection will be their prominent involvement in relevant research projects funded by Member Organisations on the overall theme of "Transformation to Democracy". Participants from the new ESF scientific network on *Social Transformations in Central and Eastern Europe* will also be involved in this initiative.

Five years have elapsed since the historic collapse of Central and Eastern European communist systems and many teams of researchers have been studying the processes of transformation in the various countries. The SCSS holds the view that it

would be timely to take a strategic initiative on behalf of ESF Member Organisations, in order to compare results and methodologies of the projects undertaken and to make a diagnosis of future research needs.

(iv) Nationalism, Ethnic Conflict and Conceptions of Citizenship
The SCSS is supporting a workshop on the above topic to be held at the European Research Centre on Migration and Ethnic Relations, University of Utrecht, Netherlands, on 24-25 November 1994. The aim of the workshop is to define research themes, theories and methodological approaches, with a view to developing a collaborative research programme. The workshop will discuss research directions appropriate to addressing the following social phenomena:

(i) to determine the intensity of nationalist feelings among the populations of Eastern European countries compared to countries from Western Europe;
(ii) to measure the incidence of nationalist feelings among the populations and their occurrence in terms of regional differences, age structure, degree of urbanisation, level of education, religious denomination and political affiliation;
(iii) to determine the coincidence of nationalism with negative attitudes towards other nationalities and ethnic minorities;
(iv) to determine which are the social factors conducive to nationalist feelings, negative attitudes to ethnic minorities and which factors reinforce willingness to support or participate in nationalist organisations; and
(v) to relate nationalism and negative attitudes towards ethnic minorities to concepts of democracy and citizenship in Western and Eastern Europe.

The SCSS is interested in the recommendations of the workshop in terms of the feasibility of a social survey and other social science approaches designed to produce valuable scientific results and insights into these important topics in contemporary European affairs.

The above four strategic scientific programme activities obviously cannot be tackled simultaneously. Some are at a more advanced stage of development than others, and once given SCSS approval they are, of course, subject to final consideration by Member Organisations under the normal *à la carte* contribution procedure. Therefore, they will be taken forward in a phased manner in order to take account of the overall size of the portfolio of SCSS *à la carte* activities and of the need to keep within the financial resources available from Member Organisations.

4.3 Priority Policy Issue: Social Science Databases
The SCSS also wishes to address policy issues that are of central importance to the development of the necessary infrastructure for European social science research. The SCSS intends to focus as a priority on presenting the case for the development of integrated social science data for European comparative research. The creation of European social science databases will meet the equivalent need for the social scientist that the "large-scale facility" does for the natural scientist. Such European databases, however, will not need to be based in new, physical centres, but could be made available to the research community through existing facilities, national data archives and European agencies such as Eurostat. Social scientists need comparative data for hypothesis testing and measurement of European socio-economic phenomena and trends. At present, it is commonly

acknowledged that Europe is data rich at the national level, but that the European database is not well integrated for several reasons. Clearly, this issue represents a long-term task which will involve action and investment on many levels and by many agencies.

For its part, the SCSS proposes to take two initiatives that can draw upon the experience of its own scientific programmes, i.e. *Beliefs in Government (BiG)*, *Regional and Urban Restructuring in Europe (RURE)*, and *GISDATA*, and of its commissioned reports (1991 and 1993) prepared for the European Commission (DGXII) on social sciences in the context of the Framework Programmes.

(i) A European Social Survey
The SCSS has decided to establish an "expert group" to conduct a feasibility study on the scope for the establishment of a European Social Survey as a social science database. The expert group would prepare a set of recommendations for consideration by ESF Member Organisations. The survey might be conducted, for example, in collaboration with the European Commission's Eurobarometer survey and could provide systematic and regular data on topics of major interest to the European social science community. Such a survey might be funded jointly by the European Commission and a consortium of national funding agencies (i.e. ESF Member Organisations). The expert group will be concerned to identify procedures for ensuring that the surveys, their design and analysis are scientifically sound and conducted by qualified research teams. The expert group, chaired by SCSS member, Professor Max Kaase (Berlin, Germany) will complete its work over twelve months.

(ii) European Urban Data Workshops
With the increasing growth and concentration of populations in cities, the centrality of urban social and economic problems to contemporary societies has become more marked. This is reflected in public concern over the deterioration of the quality of life in the urban environment and the polarisation and marginalisation of weaker sections of the urban population, currently expressed in the political debate on "social exclusion". Research experience, including that of ESF scientific programmes RURE and NECTAR, has demonstrated that the current dynamics of economic change are deeply affecting the European urban landscape. Basically, the changes involve modifications in the economy derived from innovations in communications and transport and the greater mobility of capital, commodities and individuals.

A few months ago, the SCSS held a brainstorming workshop which pooled expertise from ESF and other research activities to discuss these new dynamics of urban change with the aim of establishing a European framework for the future interdisciplinary development of urban research. The SCSS has concluded that an appropriate basic research role for the ESF should be to prepare the ground for further empirical analyses of these changes using large databases. A first step should be to organise a small series of "Urban data confrontation workshops" which would be focused towards demonstrating practical results. The aim of the workshops would be to identify the possible levels at which data analyses across Europe could be performed. Invited participants should be limited to researchers with access to large databases who have extensive experience of urban data analysis. The workshop series would, therefore, build upon the collective experience of completed research projects which had already identified the type of

data needed and sought to gather the data from secondary sources. The workshops would address the central problem for urban researchers of how to create the conditions for access to and analysis of the data at the European level on key urban problems such as youth unemployment, etc.

This proposed basic research activity will be designed specifically to be complementary to policy-led European research programmes, i.e. the COST CIVITAS concerted action, and the "social exclusion" component within the Targeted Socio-Economic Research theme of the European Commission's Fourth Framework Programme.

5 Modes of Operation

5.1 SCSS Budget Line

The SCSS has welcomed recommendation 3.8.12 of the ESF Reappraisal report which states that a "budget line" should be created for preliminary activities in the social sciences through the transfer of existing resources under the "Year Zero" mechanism. In its first year of operation (1995), the SCSS budget line will be drawn from the ESF General Budget to finance the new exploratory grant scheme and the preparatory work for the new strategic activities listed in section 4 above. The SCSS budget line for the exploratory grant scheme will amount to a maximum of 1 million French Francs (i.e. a total of five grants, each to a maximum value of FF 200,000). 1995 will be regarded as a "pilot" year which will allow the SCSS to assess both the demand from the research community for the new scheme and the quality of the proposals. Following this assessment, Member Organisations will be asked to decide whether they wish to contribute additional "matching" funds to the SCSS budget line from 1996 onwards.

The SCSS is well aware that if the new grant scheme is successful in stimulating proposals for high quality comparative research projects, this may lead to a potentially increased demand for *à la carte* contributions to SCSS scientific programmes. Careful attention will need to be paid to the proportional balance between the size of the SCSS budget line for exploratory grants and the potential level of funding that could be committed by Member Organisations to SCSS *à la carte* scientific programmes. This point is crucial for essentially two reasons:
i) there are limited resources available within Member Organisations for European activities and there exist competing demands for them, and
ii) there is a need to avoid raising expectations in the research community that a well conducted exploratory grant would lead automatically to the funding of a larger *à la carte* scientific programme. The call for proposals has been carefully worded to meet these concerns and constraints.

5.2 Quality Control and Peer Review

In launching the exploratory grant scheme, the SCSS recognises that new procedures for quality control and peer review will need to be implemented. Member Organisations will be invited to nominate scholars to undertake peer reviews of the applications received in the chosen research topic fields. A maximum of five reviewers per topic field will then be selected by the SCSS Core Group. The review procedure will be undertaken by correspondence and administered by the ESF office. The proposals will obviously be judged primarily on their academic merits and potential contribution to the research field. Further guidelines will be made available to reviewers which place emphasis on the main criteria chosen by SCSS in selecting the broad topic headings, namely:

(i) "European added value" should be demonstrated;
(ii) basic research issues of medium/long-term importance should be addressed, in order to avoid duplication with more applied, policy-led research taken up in the context of EC and COST programmes;
(iii) new theoretical and methodological approaches should be encouraged, with the aim of improving understanding of problems and issues;
(iv) the utilisation of existing data and the development of common data sets for comparative analysis should be encouraged.
The SCSS will make final decisions on the grant applications at its Autumn meetings.

5.3 Interdisciplinary Research Collaboration with other ESF Standing Committees
The SCSS has agreed to proceed with three initiatives. Firstly, it will explore the possible scope for a joint initiative with the EMRC (European Medical Research Councils) in the field of health and health care research (para. 4.2 (i) above).

Secondly, the SCSS has agreed to support the proposal from the Standing Committee for the Humanities to recommend the establishment of a Committee for Advanced Asian Studies. SCSS support for this important and timely initiative has been given on the understanding that social science expertise in the committee membership would be strengthened and that there would be consultation between the two Standing Committees on future scientific activities.

Finally, the SCSS has decided to take the lead in exploring the scope for a new interdisciplinary activity on the topic of "the role and impact of the mass media". Consultations will be held with the Standing Committee for the Humanities and expert reviews will be undertaken to identify the potential "added value" of a new ESF activity.

5.4 The Strategic Dialogue between SCSS and the European Commission
The SCSS will aim to continue to develop its independent advisory role as has already been successfully pursued with the joint SCSS/Economic and Social Research Council (UK) report to DGXII on *The Social Sciences in the Context of the European Communities* (1991), the expert evidence on *Assessing the Role of the Human and Social Sciences in European Research* presented to the European Parliament (1993), and the recent commissioned report *Social Science Frontiers in European Research* (1993), which commented on the Fourth Framework Programme proposals for the new theme on Targeted Socio-Economic Research. Such strategic work will also be further developed through SCSS nominating members to the joint ESF/CEC advisory committee APEC (Advisory Panel on Environmental Change). The SCSS would also be interested in establishing new joint ESF/CEC committees in areas of strategic importance to its work, particularly in relation to data policy and data integration issues (see para. 4.3 above concerning social survey and urban data).

5.5 International Cooperation beyond Europe
The SCSS remains particularly aware of the need to retain and strengthen its traditional links with researchers from the United States and other regions of the world. Consultations with the National Science Foundation and other US funding agencies have revealed a growing convergence of views on research priorities and issues in the social sciences. The SCSS will continue to build new

mechanisms of research collaboration such as joint summer schools, as recently achieved with the NSF concerning the GISDATA programme. In particular, its future work on social science research on the environment is a priority area in which further consultations are planned.

6 Structure and Membership

6.1 SCSS Membership

Member Organisations have been invited to appoint new members or reappoint current members from this year according to the new guidelines on criteria for membership (established in the SCSS written submission to the ESF Reappraisal), which emphasise the preference for the nomination of social scientists who hold prominent positions within a Member Organisation's relevant decision-making body. Member Organisations have responded positively to this invitation.

6.2 SCSS Core Group

The SCSS has traditionally operated a small Core Group, but this has now been reinforced and enlarged in order that it may play a more pro-active role in policy-making and agenda-setting. The Core Group now comprises ten members: one member from each of the four "big" countries (France, Germany, Italy and the United Kingdom), plus four members from the other regions (Nordic, Southern, Central/Eastern and Western/Benelux). The other two members are the SCSS Chairman and the Executive Council representative on the SCSS.

6.3 Consultation with Member Organisations

The SCSS has acted upon the need to improve the linkage and information flow between Member Organisations and the SCSS on new activities, priorities and programmes. The practice of holding an annual consultative meeting of the SCSS Core Group with key science administrators from ESF Member Organisations has been inaugurated. The first joint meeting was held on 10 May 1994, hosted by the Research Council of Norway in Oslo. The meetings will aim to strengthen the linkage between the SCSS agenda and the agendas of the decision-making bodies of the Member Organisations.

The report of the Oslo meeting has been circulated to ESF Member Organisations responsible for the social sciences. Feedback on the value of the Oslo meeting has been most positive and the proposal to hold such consultative meetings on a regular basis has been welcomed. Spanish Member Organisations have offered to host the next annual meeting between SCSS Core Group members and senior research administrators in June 1995.

STANDING COMMITTEE FOR THE HUMANITIES (SCH)

1 Introduction

The Standing Committee for the Humanities of the European Science Foundation is the platform that represents the strategic and scholarly interests of the Human Sciences in Europe. The Committee is composed of more than twenty scholars, including observers from Israel and the US, and sees as its main task the independent scientific evaluation of collaborative research proposals emanating from the scholarly community. Besides this responsive task, the Committee also has a pro-active function in the identification of priority research areas. The Committee wishes to play an integrative and co-ordinating role by creating linkages between research communities which in the humanities are often small and fragmented.

The Standing Committee for the Humanities is aware that the ESF is the only European agency where the Humanities have a place next to the other sciences and where European Humanities projects are reviewed, developed and subsequently operated. From a European perspective, the Humanities are in a vulnerable position. There is no overarching Humanities policy and not (yet) a co-ordinated lobby for stronger international support of fundamental research in the humanities. Such a policy becomes the more urgent in the light of developments in other disciplinary areas, which do receive support from the European Union (DG XII). At present DG XII support is open to some areas in the field of - mainly applied - linguistic research. It is, in the view of the Committee, a fundamental mistake to exclude all other fields of humanistic enquiry from the support to science if science is thought to contribute to a stronger, unified Europe. Given the poor prospects for humanities disciplines in the fourth Framework Programme of the European Commission, the Committee considers it all the more important for the ESF Standing Committee for the Humanities to be heard as the voice of the Human Sciences in Europe and to continue pleading for a more prominent place for the Humanities in the scientific landscape. The ESF has 15 years of experience in the development and management of humanities projects on a European basis. Experience has demonstrated that the results of this work can bring considerable extra value and that there is ample scope for further collaborative work.

2 The impact of the Strategic Reappraisal

At its meeting in 1993, the ESF General Assembly reached a broad general agreement on the direction ESF activity should take in the coming years. The final report of the reappraisal of ESF's Strategic Mission presents a list of recommendations, which were adopted by the General Assembly. The main recommendations were the following: ESF should adapt a more strategic viewpoint; ESF should continue with its present modes of scientific activity, but activities should in future be more closely linked to ESF's strategic role; ESF's Standing Committees should play a more prominent role in the affairs of the ESF; Membership of the Standing Committees and of the Executive Council should involve closer liaison with Member Organisations; ESF will develop a strategic dialogue with the CEC.

In accordance with the wish of the ESF Member Organisations to strengthen the role of the Standing Committees, the Standing Committee for the Humanities

(SCH) has reviewed its own role and discussed ways to promote research in the humanities at a European level. The Committee discussed its agenda for the next – the fourth – mandate period (1994-1998), taking account of the research priorities of the Member Organisations represented on the Committee. The Committee also reviewed its procedure for the assessment of proposals for Scientific Programmes and decided to produce an explicit statement on its practices of assessment and on the requirements of proposals for ESF Scientific Programmes in the Humanities. A relatively new task for the Committee has been an examination of the possibilities and the necessity of strategic work for the Humanities in Europe. After a discussion in the full Standing Committee in June 1993 and in February 1994 and in the Core Group in June 1994, the main lines of the Standing Committee's policy for the coming years were laid down in the present statement. This text was discussed and commented upon by the Executive Council in September 1994. At its meeting in October 1994, the full Standing Committee for the Humanities, taking account of the comments made, decided on the final shape of the text that will constitute the guideline to the Committee's work in the fourth mandate period.

3 Strategic Issues

The humanities' contribution to Europe
The Standing Committee takes as its starting point the view that the humanistic study of cultures, languages, systems of values and beliefs, is an essential element in the overall contribution of scientific knowledge to society. Pointing out its immediate relevance to policy-makers and – to a lesser extent – to the general public is a continuous concern. The omission of cultural, linguistic, historical, religious, mental and emotional dimensions from the analysis of politically and socially relevant items, would reflect a dangerously reductionist view of man and society. It is the task of the academic world and of international research organisations such as ESF, to demonstrate the social and political relevance of the humanities disciplines with which it is concerned, without waiting for the agenda to be set by others.

The European cultural heritage
The first and foremost task of the humanities, then, is the study of and the care for the common European cultural heritage. This includes the study of material remnants of the cultural expressions of European peoples in the past, such as monuments, land- and cityscapes and extends far beyond the concern of mere preservation. Furthermore, the language, arts, literature and the systems of values, norms and beliefs of the various cultural groups form the natural object of the Standing Committee's interest, both in history and in the present. Obviously, its scope is not limited to the culture of the elites nor to that of dominant groups: its interest is focused on the circulation of cultural phenomena throughout the various strata of societies. It is in the relation to other peoples, that populations gave expression to their views of the world. The study of the cultural heritage is not an accumulation of static knowledge of the past, it is a constant and dynamic process of reassessing evidence in the light of the changing political and social circumstances that affect the interpretation of history. The importance of such fields as the study of linguistic phenomena and value systems is, as a matter of course, not limited to Europe, but has intrinsic scientific value that extends beyond the European geographical context.

4 Priority Scientific Activities

Setting the humanities' agenda
Setting the agenda for ESF activities in the humanities is a procedure that has to take into account a range of different factors that influence its outcome. First and foremost there is the valuable experience of the projects the Humanities Committee has developed in the past and brought to a conclusion so far. Second, there is a constantly shifting emphasis on topics of direct relevance to present-day society on the one hand, and on the need to extend analysis to more remote cultural periods and the *longue durée* on the other hand. Thirdly, also the aspect of subsidiarity, or doing only things complementary to what is being done at the national level and leaving everything else to the national circuits, is a flexible and changing criterion, that is viewed differently in European countries. Accordingly, the best route to follow seems to be, on the one hand, building on past experience and maintaining a certain continuity in the choice and development of activities; on the other hand, exploiting the flexibility of ESF procedure and introduce new areas of priority, of course on the same basic principal criteria as high quality and interest on the part of a majority of Member Organisations. The Humanities Committee would like to keep the possibility to react spontaneously to good proposals from the academic world (bottom-up) as well as provide a framework with criteria for new activities that the Standing Committee will develop with the support of the Member Organisations, but which are more clearly directed (top-down). The following paragraphs address the scope of ESF humanities work in some more detail, and describe how the SCH sees its essential task in the coming five years.

Earlier activities
In the course of its earlier activities, the SCH developed a view on the priorities of research in the humanities at the European level. Programmes and Networks on *Government and Non-dominant Ethnic Groups*, *Origins of the Modern State in Europe*, *Language Typology*, *Classical Tradition in the Middle Ages and Renaissance*, *Palaeolithic Occupation of Europe*, *Concepts and Symbols in 18th Century Europe*, all reflect a common search to define the essential characteristics of European civilisation. They are all in some way concerned with questions of identity, transcending national boundaries and time periods.

Dialogue with other cultures
Typical for Europe, for its identity and for European scholarship is its traditional openness to explorations of and to influences from other civilisations. In this respect, the activities *History of the European Expansion*, *Individual and Society in the Mediterranean Muslim World* and *Asian Studies* all fall in the category of Europe's dialogue with other cultures. Coherence of choices and the attempt to build up a well-balanced portfolio of humanities activities has thus been a concern in the SCH for several years; the agenda for the coming five years can build on this tradition.

Subsidiarity
Apart from the general concern with the characteristics of truly European civilisation in its dialogue with other civilisations, there are other requirements determining the priority of some particular fields of research in the humanities. Research sponsored by ESF should be subsidiary to activities and priorities of the ESF Member Organisations. Only in this way, can ESF play its co-ordinating and complementary

role, adding the value of comparison to views and research methods developed in a particular national or cultural context. ESF has the mission to build bridges between linguistic, national and disciplinary areas, to link quotation circles in order to achieve a more general and higher level of explanation.

Interdisciplinary work
Interdisciplinarity is a characteristic of most activities the SCH has sponsored until now. Many ways of approaching particular problems are confined by scientific specialisation. For the sake of a new comprehension, disciplinary boundaries have to be challenged over and again. Within the humanities, this task is already enormous, as the programme *The Transformation of the Roman World* shows. Collaboration with the social sciences is obvious for the *Asian Studies* just as for *Individual and Society in the Mediterranean Muslim World*. Other fields of close collaboration may be developed. The connection with natural sciences is standard procedure in archaeological techniques and in the conservation of archaeological monuments; some techniques are applied by art historians as well (dendrochronology, x-rays, reflectograms, chemical analysis of paintings). In the programme *History of Chemistry*, the interaction is more focused on the development of scientific thought and its application. The history, the methodology and the ethics of science should continue to be areas of collaboration between the humanities and the natural and medical sciences. Breaking through disciplinary boundaries will remain a central feature of ESF projects initiated by the Humanities Committee.

Links with key problems of the present
Very probably, the importance of research in the Humanities will be more widely acknowledged and acclaimed if its essential links with key problems of the present world are formulated more explicitly. The Members of the Committee are convinced that this link is always existent, even if often left implicit. Examples are reflected in the choice of programmes such as *Individual and Society in the Mediterranean Muslim World*. The actual relevance of the results of humanistic enquiry can be strongly enhanced by making clear what are their implications for today's world. This does not imply any servitude to the priorities of the rapidly changing political agenda; it simply means a stronger emphasis on the value of the results of our work for the present-day world and an attempt at creating a greater awareness of this connection.

Open perspective
This requires an open perspective and a clear presentation: the scientific relevance of the humanities' approach is worth being brought to the fore with more emphasis.

So, the research agenda of the Standing Committee for the Humanities contains on the one hand a number of themes inherent in its primary mission of studying and conserving Europe's cultural heritage and, on the other hand, themes more directly connected to the key problems of the actual world. Besides questions arising from scientific development itself, hot topics in the political, social and cultural field may and should equally generate themes of scientific reflection.

Definition of new priority areas
The Humanities Committee chooses its activities in accordance with the general priority areas defined in the "renewal" documents which form the basis of each mandate period. For the previous mandate

period, key issues have been disciplinarity and multidisciplinarity, comparative studies, humanities and computing, and the dialogue between human and natural sciences. This has proved to be a useful basis for the selection of ESF activities and will, in a sense, continue to be so. The new and more 'strategic' direction which is now taken by the organisation as a whole, however, warrants a more explicit definition of priority areas.

Circulation of persons and cultural goods
Actual political problems are deeply rooted in European history, given the great cultural variety which constitutes its hallmark. From this perspective, no correct understanding of actual problems can be reached without consideration of the historical and cultural dimensions. It is an essential task of the Humanities to demonstrate that the circulation of persons, goods and knowledge has been a common feature throughout European history. Languages, churches, as well as economic systems crossed political boundaries for nearly two millennia, giving rise to various complex patterns of interaction. Elites were always mobile and linked their cultural consumption from Portugal to Russia. Their dialogue with the great variety of local and regional cultures remains one of the most fascinating phenomena through which national identities were created through the centuries. On the other hand, various popular cultures equally displayed an intensive interaction between regions and social classes. The analysis of the ongoing process of cultural exchange needs to encompass all forms of expression to detect their meaning and functions. Contributions are expected from comparative literature, history of the arts and architecture, disciplines which have been under-represented in ESF activities until now, without however limiting the scope to 'high' culture, as has often been the case.

Messages and effects of mass media
As a prime mission of the Humanities, a focus on common European cultural phenomena remains central. Such issues can be addressed in many ways. Its implementation may vary from the study of the role of religions, to that of literature and the arts. Cultural transmission between linguistic areas, different social strata and media, may become a field of fruitful international research. The Standing Committee for the Social Sciences will address this field. The Standing Committee for the Humanities, from its own disciplinary perspectives, intends to collaborate on this issue and could, for instance, contribute to a study of the construction of 'imagined communities' (nationalisms) by examining the problem of the impact of the mass media on changing cultural patterns and political behaviour. This would include the impact of new forms of communication such as those introduced by electronic consumer applications. The analysis would involve, e.g., the study of texts and visual representations and would also entail the (historical) study of intended publics.

Teaching of a European history
The Standing Committee also wishes to address the problem of the teaching of an integrated, pluralistic European history. The problem is whether it is necessary or even possible to overcome the evident national biases in the existing teaching (and research) traditions, and how to avoid a meta-nationalistic 'integrated European history'. Given the impact the teaching of history and languages has exercised since the last century on the emergence of a national self-consciousness, this item seems to be of primary importance.

Multi-cultural societies and linguistic multiplicity
The diversity of languages, political

systems, life styles, identities and value systems forms a basic feature of the European societies. The study of these topics is of concern both to social scientists and to humanities researchers. The issue of multicultural societies and linguistic multiplicity and the development of sociocultural conditions of creative and peaceful interaction, must be addressed through different disciplinary avenues, of which the linguistic, historical, religious, and ethical perspectives fall in the humanities domain.

Inter-action with non-European cultures
The Humanities Committee wishes to underline – as in the previous mandate period – the importance of (the study of) interaction with non-European cultures. Activities which were initiated recently, like the development of a scientific programme on *Individual and Society in the Mediterranean Muslim World* and the strategic attention given to cultural and scientific contacts in Asia, will be pursued in the coming years. Although an ESF Network on the *History of European Expansion*, addressing the study of European Colonialism and its aftermath, is now concluded, the Standing Committee wishes to remain active in the study of the interaction with the world outside, including the links between Europe and Latin America and those between Europe and Africa.

Information technology
In its previous mandate period, the Standing Committee established an expert group on Humanities and Computing and commissioned a report about the prevailing problems in that area. The Committee is aware that the new developments in information technology affect a wide range of humanities disciplines (study of texts, archaeology and art history, linguistics, philosophy, historical data files) and wishes to continue paying attention to the effects of information technology on the humanities' research practices, in close co-operation with the ESF Member Organisations.

Support for scholarship in former communist countries
The Humanities Committee is aware that, in the countries of Eastern and Central Europe, fundamental research in the humanities is facing problems at least as great as in the other sciences. In its attempts at forging or strengthening a truly European research community, the Standing Committee for the Humanities wishes to pay special attention to attracting scholars, particularly junior researchers, from the former communist countries.

5 Modes of Operation

Type of activities
The Committee holds the view that activities should continue to be developed through all available modes of operation: programmes, networks, conferences and smaller scale activities. Not all the Humanities work can or should be organised in large-scale programmes. Given the flexibility of the ESF network scheme, the Committee thinks there is considerable scope for more networks in the humanities. It also appreciates the value of even smaller scale activities such as one-off workshops on particular well-focused themes, which in the past have proved to bring high-quality results.

Euroconferences
The Committee further wishes to play an active role in the development of proposals for European Research Conferences (EURESCO), especially in fields where CEC funding can be expected.

6 Structure and Membership

Composition

The Standing Committee for the Humanities should remain a scientific committee, composed of scholars nominated by the Member Organisations, except the chairman, observers and invited specialists. Committee members should hold positions within Member Organisations' decision-making bodies and preferably serve for a minimum of three years to ensure continuity in committee policy. The details of committee membership are outlined in another, more general document. The Committee will continue to meet twice a year, or delegate decisions to the Core Group if a meeting of the full Committee is considered not necessary.

Core Group

From the Committee a small Core Group is selected. This Core Group is composed of the Chairman and four members, including representatives from both the large and the smaller countries. Core Group membership will rotate every three years. The role of the Core Group is to set an agenda for the full Standing Committee and to take decisions on the delegated authority of the Standing Committee. The Core Group will normally meet once or twice a year or whenever the chairman so wishes. It is further envisaged that the Core Group will maintain a more regular contact with the chief science administrators in the Member Organisations, for instance through one annual meeting.

LIST OF ACTIVITIES

Programmes

- Language Typology
- Transformation of the Roman World
- History of Chemistry
- Concepts & Symbols in 18 C. Europe
- Individual & Society in the Mediterranean Muslim World (*in preparation*)
- History of Music and Musician in 17-19 Centuries (*in preparation*)

Networks

- History of European Expansion
- Semantics of Classical Hebrew
- Classical Tradition in the Middle Ages and Renaissance
- Palaeolithic Occupation of Europe
- National Socialist Occupation Policy

Other

- Information technology and its effect on humanities research
- ESF Asia Committee and a programme in Asian Studies

EUROPEAN MEDICAL RESEARCH COUNCILS (EMRC)

Introduction

The European Medical Research Councils represent the major national funding organisations in fundamental medical research. The founding of EMRC in 1971 predates that of ESF. EMRC became a Standing Committee of ESF in 1975. EMRC has served as a forum for discussion, information exchange and development of joint policies and initiatives in close linkage to ESF Member Organisations. Often EMRC delegates are heads of the respective national research councils, ensuring an effective implementation of decisions taken by EMRC.

The Mission of EMRC

The European Medical Research Councils can be characterised by two main features:
(i) mission orientation: the objective is human health, and research undertaken (predictive, preventive or therapeutic) should have an endpoint in human health. This objective is attained through two complementary mechanisms: promotion of strategic science and promotion of high level basic science.
(ii) relative homogeneity of the group of end users.

In answering its remit, EMRC is oriented towards transdisciplinarity and multidisciplinary collaboration: to align strategies, provide co-ordinated input to European science policy debates, to illuminate problems, to answer researchable questions through pooling of collective expertise and to promote articulated research and training in selected priority sectors. EMRC Clinical Collaborations, the EMRC Panel on Medical Ethics, the European Neuroscience Programme, and the Programme on Toxicology Fellowships are examples of operational activities reflecting aspects of EMRC policy.

The Impact of the Strategic Reappraisal

From the outset EMRC has consciously approached issues in a strategic context, the formulation of which has been greatly facilitated by the fairly straightforward remits of EMRC and its Member Organisations. Within EMRC it has therefore been possible to find common ground both in the strategic and operational domains. In the policy domain EMRC strongly interacts with other international organisations concerned with research and its policy (e.g. EC, and WHO).

EMRC has also over the years produced a number of reports and recommendations on major issues in medical research: *Animal Experimentation and Alternatives in Biomedical Research* (1981), *Clinical Research Training* (1990), *Report on Human Genome Research* (1991), and *Misconduct in Medical Research* (1994) are some examples of this EMRC activity.

The continuous debate and definition of areas where EMRC can intervene and contribute in a subsidiary way to the benefit of research and human health placed EMRC in a position where the legitimacy and importance of the ESF Reappraisal was quickly recognised and enthusiastically supported. The Reappraisal process has materially contributed to a honing down and focusing of EMRC strategy and policy on issues necessary for the continuing health of medical research. The process of consultation across EMRC Member Organisations and the present status of EMRC development of strategy and

policy are outlined in the subsequent sections of this report.

Future Policy Strategy of EMRC

The context in which research councils operate today is characterised by:
– an expectation of policy makers that science provides a stronger, more direct, more visible and more rapid contribution to economic and social objectives;
– a scarcity of resources in relation to opportunities which promotes more complex and larger units of investigation, no longer optimally delineated by national boundaries;
– a globalisation of science through many bottom-up mechanisms producing a strong demand from the scientific community to which research councils apply prioritisation and adapt to some extent.

This context bears a particularly strong impact on the EMRC membership which is never entirely separated from societal expectations.

The EMRC have intensified their efforts in determining the main policy orientations and potentially the most promising activities to undertake in meeting the present and future challenges facing fundamental medical research. In March 1993 the EMRC organised a workshop on "EMRC in the changing European Research Environment: Strategy and Action", which resulted in a definition of the main roles of EMRC compatible with and supportive of its remit. Through consultation and iterative reflection on the issues involved the EMRC Executive Group – mandated by the EMRC – defined the major elements to include in a specific EMRC Policy Strategy. These include:
– identification of policy issues of major importance to the development of European medical research;
– identification of policy issues of major importance to EMRC and which transect the competencies of several Standing Committees;
– the complementarity of EMRC activities with those of national and international funding agencies;
– the identification of research topics that have a regional dimension greater than the sum of its national parts;
– definition of how strategic science could be best furthered through EMRC;
– indication on which scientific foresight activities should receive attention.

The EMRC, at its Annual Meeting on 2-3 June 1994, subsequently unanimously endorsed the document emanating from these discussions: "EMRC's Scientific Policy Strategy". The document, presented in the format of five theses is presently being further developed through dedicated working groups.

Thesis No 1 expresses the EMRC intention to participate actively in the formulation of policy strategy: within EMRC, through co-ordinated discussions with other Standing Committees and as a contributor to the formulation of ESF policies.

Thesis No 2 delineates the main functions of EMRC in promoting better strategic co-operation between its membership and its expression in common operational priorities and articulated promotion of research and training activities.

Thesis No 3 addresses the need for a balanced approach to bottom-up and top-down activities, where it is essential to preserve a large space for free high level scientific research. The interventions of EMRC should in this respect be complementary to other initiatives and of limited duration.

Thesis No 4 outlines steps to be taken towards a coherent medical/health research and health action strategy through developing sets of models, indicators, and impact measurements which can help policy making and decisions from new orientations in research.

Thesis No 5 relates to the systematic optimisation of expert input into formulation of medical and public health policies through rapid and punctual deployment of the collective expertise extracted from the medical research community.

The implementation plan of the above five theses was discussed and endorsed at the 28 September 1994 meeting of the EMRC Executive Group. The implementation plan proposes a number of concrete actions to be taken in the near future involving both ESF Board and Executive Council, Standing Committees and the EMRC membership.

Priority Scientific Activities

In context with the discussion on EMRC policy strategy the EMRC has defined a number of priority sectors. In the analysis performed, these were recognised to play a central role in the future development of EMRC strategies for research and their impact on policy making at a European and international level, as well as creating the knowledge infrastructure necessary to meet future challenges for medical research.

The following position papers, prepared by EMRC Member Organisations, were discussed at the June 1994 EMRC Annual Meeting:

– *Infectious Disease (INSERM)*
Resurgent and emerging infectious agents which are refractory to classical treatment regimes present a major health hazard. Europe represents a significant scientific and medical resource in this field and historical links to developing countries should place Europe at the forefront in terms of research. This is at present only partly the case due to a number of factors:

– absence of a coherent co-ordinated and anticipative policy in Europe in epidemiology of infectious disease
– insufficient integration of basic science in the study of infectious disease which emerges as slow progress in drug and vaccine development
– lack of transdisciplinary approaches
– insufficient infrastructure for the required technology transfer
– lack of mobility within the research community

A fully developed proposal on future EMRC action on this issue is in preparation.

– *Joint EMRC/SCSS Initiative on Interdisciplinary Research on Health (MRC)*
Health Care Systems and epidemiological profiles show marked regional differences across Europe. Priorities in Health Care and the variety of social organisation provide research with a natural laboratory for investigating e.g. the importance of social factors in health and health care, relative cost effectiveness of different forms of health care provisions, and definition of medical and social outcome measures.

EMRC and the Standing Committee for the Social Sciences (SCSS) have put in place a working group which met on 11-12 September to determine the precise topics to pursue and to propose further measures to bring the initiative forward. The meeting report proposes a number of

workshop themes and a mechanism of consultation between Standing Committee Chairmen to ensure that thematic development is aligned to the strategic objectives of both Standing Committees.

– *An Agenda for Research on Health and the Environment (DFG/MRC)*
It is recognised that the health and well-being of modern societies are dependent on a wide range of environmental factors. The field of environment and health is in need of a strategic overview. The ESF/EMRC therefore submitted to ministers taking part in the Second European Conference on Health and Environment a position paper outlining in broad terms a European Research Agenda on this topic. The Conference resolution invited ESF/EMRC and WHO to develop the initiative further in concert with the European Commission. EMRC has constituted a planning group to provide the ESF/EMRC input to this process. A first meeting between WHO, ESF, DoE (UK) and MRC representatives held on 22 July agreed the general timetable and framework for this initiative. An ESF Planning Group, chaired by Professor J Huttunen, Director of the Finnish National Public Health Institute, met on 14 November 1994 to define the precise issues to be taken forward. The future development of this initiative will offer opportunities for collaborative involvement with other ESF Standing Committees.

– *Research on Human Reproduction (MRC)*
Medical advances (prenatal diagnosis, assisted conception, etc.) over the past 15 years have transformed aspects of reproductive health care. Upwards of 20% of all health care costs in Europe involve reproductive medicine. The global implications of massive population growth and attendant health risks are well known. The sectors appropriate for further development through EMRC will be identified through a workshop which is now in its planning stage.

– *Demography-related Health Research (DMRC)*
The Demographic and Epidemiological transition stages that European populations are moving through present many challenges to health care provision and to its underpinning in research. The major research challenges related to the impact of the above transitions include:

– research on "forgotten" disease groups (e.g. allergies)
– social inequality in morbidity and mortality
– life style changes
– dynamic epidemiological modelling of risk factors
– register based studies in epidemiology and demography

The issue will be taken forward through a first workshop on "Register based studies" to be arranged in 1995.

– *Research relating to Developing Societies*
A survey of EMRC Member Organisations' involvement in this sector of research was conducted in 1993-1994. Health provision and the required research to cope with the exigencies of developing societies have many common links to research on Infectious Disease. The EMRC therefore intends to jointly develop both themes through a working group.

The above described initiatives are in their first stages of implementation. It is expected that the 1995 EMRC Annual Meeting will be in a position to take a final decision on their future directions.

Modes of Operation

Delegates to the EMRC Annual Meeting are nominated by ESF Member Organisations each year. The EMRC holds its Annual Meeting normally in May-June. Day to day business is carried forward by the EMRC Executive Group which meets 2-3 times per year, and specific issues are taken forward by dedicated Working Groups as appropriate.

EMRC takes an active part in ESF affairs: proposals for Programmes, Networks, European Research Conferences are reviewed and when appropriate supported by the EMRC membership. EMRC is represented on the decision making bodies of EURESCO and the Network Committee. EMRC in addition furthers medical research integration through direct funding of EMRC Clinical Collaborations. The EMRC Panel on Medical Ethics proposes recommendations and guidelines on a variety of issues relating to its remit. EMRC is further represented in international bodies such as the WHO Advisory Committee on Health Research, the Council of Europe Steering Committee on Bioethics, and the UNESCO International Committee on Bioethics. EMRC also intervenes as appropriate in the formulation of directives of the European Union where they impinge on the conduct of medical research.

EUROPEAN SCIENCE RESEARCH COUNCILS (ESRC)

1 Introduction

The reappraisal document was approved in 1993 by the General Assembly. It envisages a stronger role for the Standing Committees in defining priorities and strategies for the ESF in their own scientific fields, and advocates that the ESRC be subdivided into more homogeneous committees so as to be more effective in setting targets and charting the way for future activities.

The implementation of this specific recommendation was the object of another agenda item in which the Assembly was asked to establish two new Standing Committees, one for ***Life and Environmental Sciences*** and the other for ***Physical and Engineering Sciences***, to replace ESRC which would then cease to exist.

This circumstance must be kept in mind for the ideas expressed below are in a way the legacy which ESRC is leaving to its successor committees. It is the task of the new Standing Committees to bring forward some of the issues they inherit and to address new ones.

2 The Mission of ESRC

As the ESF Standing Committee for natural and technical sciences, the ESRC Committee has striven to realise the overall aims of the Foundation. In this endeavour, the ESRC has promoted the advancement of basic and strategic research in natural and technical sciences by pursuing the following objectives:

– identifying for the ESF opportunities for collaboration, coordination and exchange of scientists;
– advising the ESF on priorities based on peer review and input from the national members;
– reviewing progress in joint activities funded or coordinated through the ESF and advising the ESF on developments;
– promoting joint activities between the national members;
– contributing to the harmonisation of science policy among its national members;
– publishing results and supporting follow-up activities which encourage their application.

Similar objectives, although expressed with different emphasis, are to be found in the terms of reference of the proposed new Standing Committees which will replace ESRC.

3 The Impact of the Strategic Reappraisal

The ESF reappraisal exercise was carried out in collaboration with the Standing Committees which were formally asked to provide an input. This has also meant that the ESRC Core Group and the full membership were led to analyse their own structure and *modus operandi*. Although there were many positive aspects in the original organisation of the ESRC which helped bring to fruition so many successful initiatives, the committee detected features which would not be suited for carrying out the task required from the ESF and its Standing Committees in the future. Thus the most evident effect of the reappraisal has been a firm decision to reform the ESRC and an acceleration of this process of restructuration.

The role of the ESRC and its successor committees in determining the scientific priorities and policies for the ESF and Europe has been at the centre of the

discussions instigated by the reappraisal. The establishment of more focused disciplinary committees will give greater visibility to the activity of the Foundation in the field of natural sciences and will enhance the work in the "strategic field" which, to a certain extent, the ESRC has carried out in the past. Certainly the recommendations contained in the reappraisal report are quite specific and will have a special bearing on the selection of scientific programmes which must be screened on the basis of agreed priorities in the future. However, this in itself is a question of policy: how much science should be "targeted" and how much left to the ingenuity of scientists is one of the first questions which needs to be tackled. Traditionally, the ESF has played an important role in the support of basic science.

4 Strategic Issues

In 1985, the ESRC and the US National Science Foundation sponsored a Symposium on the "Rise and Fall of a Priority Field" which conducted an in-depth study of the process by which some pieces of "free basic research" moved slowly to become "targeted research". If the analysis were extended to the present, it would become apparent that the tendency is to move ever more towards "utilitarian" and "wealth producing" kinds of research.

These strategic choices are the result of complex interactions between political, economic, social and scientific needs. There is general agreement that the scientific community should go as far as it can in setting priorities and then advise the political sector of its recommendations and the reasons behind them. This the ESRC has done in the past and is doing now. Its successor Standing Committees will pursue these aims in the future with even greater determination.

– In June 1978, an *ad hoc* committee for the ***European Synchrotron Radiation Facility*** was set up with the purpose of preparing the scientific and technical case for such a facility. This ESRC committee was the driving force behind all the preparatory work necessary to convince twelve European Governments to support the building of this facility. This committee operated until 1985 when the final decision on the Grenoble site was reached. It is interesting to note that the official inauguration of this European research facility took place on 30 September 1994. This is a reminder of how much lead time is needed before an idea is brought to its realisation.

– As for the near past and near future, it is worth mentioning how important a role is played by the natural scientists in the ***Joint ESF/EC European Committee for Ocean and Polar Sciences (ECOPS)*** in setting priorities, in advising national and supranational research organisations and in preparing proposals for Grand Challenge projects requiring vast international cooperation. The recent "European Conference on Grand Challenges in Ocean and Polar Science" held in Bremen on 12-16 September 1994 offered the possibility of developing long-term strategy for research in the oceans and the poles, and of setting up organisational structures and mechanisms of coordination and cooperation within Europe, to scientists and administrators from all European countries.

– In 1994, the ESRC discussed and recommended that the ESF launch a two-fold scientific-strategic effort (***ESNS Studies***) of about 3 years duration with the goals of (a) evaluating the scientific case of neutron methods and neutron

sources for future European science and technology development (taking into consideration the advent of synchrotron radiation), and (b) investigating the scientific case of a next-generation very high-intensity European neutron source based on accelerator-driven nuclear spallation – parallel with an EC-Network on the conceptual design of such a neutron source. In September 1994, the ESF Executive Council decided to follow this recommendation and launch the ESNS Studies. It is understood that the ESF will restrict its activities in the ESNS Studies to the development of the scientific-strategic case as a base for future neutron source(s) in Europe for fundamental scientific and technology research.

– The ESF and ESRC have also been approached with a similar request to investigate the scientific-strategic case of a ***European Large Magnet Field Facility***. This task would be related to an EC Network on "100 Tesla-Magnet Technology" which was launched last year. The ESRC and its successor Committee for Physical and Engineering Sciences are to review the background and implications of such a suggestion before discussing a formal proposal.

– The ***Ocean Drilling Program (ODP)*** is an international endeavour which is supported in Europe by France, Germany and the United Kingdom as full members, and by twelve other European countries through an ESF Consortium for Ocean Drilling. Taken together, the Europeans are the largest non-US group of ODP members. While the scientific participation is very satisfactory and in keeping with the terms of the agreements underwritten, it is felt that there is room for a greater European participation in the technological development. The ESF has played a role in this by calling for two meetings of a small *ad hoc* Group for ODP Technology Development, to establish the potential for Europe in this field and to encourage greater coordination among the various national research efforts. Another meeting is planned for next Spring.

5 Priority Scientific Activities

For some years now, the ESRC activities have been carried out within its Framework Plan which was first adopted in 1989. In particular, a list of opportunities was used as a base for developing ideas and preparing proposals for scientific programmes and networks. Member Organisations have contributed to this list with suggestions which in many cases resulted from their own priorities.

So far no attempt has been made to set overall priorities for the entire ESRC field of competence, perhaps due to the perceived difficulty of such an exercise. From time to time, however, a particular field of science has received special attention. An *ad hoc* committee for Life Sciences was operating from 1989 to 1992; the result was an increase in the number of good programmes and networks proposed and launched in this field. Subsequently, greater emphasis was placed on basic aspects of technical sciences. The establishment of a small *ad hoc* committee resulted in a number of meetings of experts who proposed several activities, two of which (COSY and NANO) were launched as ESF Scientific Programmes in November 1994.

Quite often the programmes proposed by the ESRC represented the European contributions to large international programmes, such as the International Geosphere Biosphere Programme (IGBP), the Global Ocean Observation System

(GOOS) and the International Lithosphere Programme (ILP). For example, the ***European Geotraverse (EGT)*** was conceived as part of the ILP, while the ***European Palaeoclimate and Man (EPC)*** and the ***Greenland Ice core Project (GRIP)*** have made important contributions to the IGBP Core Project: Past Global Changes (PAGES).

Similarly, the ESF is now involved in the preparatory work for the ***European Project for Ice Coring in Antarctica (EPICA)*** and the ***European Lake Drilling Programme (ELDP)***, both of which could provide essential data for understanding past climatic fluctuations. With some assistance from the ESF, through ECOPS, a number of European institutions have held meetings and discussed the modalities for participating in the GOOS programme. A ***Euro-GOOS Memorandum of Understanding*** was signed early in December 1994 by oceanographic institutions from at least eight European countries.

6 Modes of Operation

The ESRC has utilised all modes of operation consistent with the Statute and with established ESF practice. Exploratory meetings and workshops are tools to prepare or improve proposals for future programmes. When significant scientific or policy matters require discussion, the ESRC or its Core Group call for special meetings or conferences.

The scientific programmes based on the *à la carte* principle are certainly the predominant mode of operation at the moment; there is a portfolio of 22 programmes which originated and are monitored by the ESRC.

The ESRC list of opportunities also includes subjects which may become Networks; other proposals are submitted to the Network Committee independently from the ESRC but are reviewed by the ESRC Core Group.

On occasion, a programme's Scientific Steering Committee may instigate a bid for a EuroConference series, to address more speculative kinds of discussion based on previously acquired data and results.

It is expected that the new Standing Committees will continue to use these same tools in the future, but in a different way and proportion. Perhaps they will be more pro-active in pursuing certain priority goals, which would mean a larger number of small exploratory workshops and some larger conferences, convened to thoroughly discuss emerging fields of science or to focus on sharper priorities. They might come forward with novel ways of setting priorities and choosing programmes.

7 Structure and Membership

Until now, the ESRC members were the Research Councils, each nominating a small delegation to represent them at the annual meeting. Typically, the ESRC spring meeting would assemble about 75 people, among them heads of Member Organisations, top administrators and their collaborators. An ESRC Core Group with 7-8 members has met two-three times per year to prepare the annual meetings and to implement decisions made by the full ESRC meeting.

In the future, each new Standing Committee will have a stable membership of about thirty representatives. They should be top, experienced scientists with managerial responsibilities. They should serve in the committee for a period of three

years. A small Executive (Core) Group will be established to keep momentum going between one full committee meeting and the next.

EUROPEAN SPACE SCIENCE COMMITTEE (ESSC)

The European Science Foundation has been involved in the area of space science since it was set up in 1974. The main aim of the present committee (ESSC) is to give independent advice at the European level on matters related to space science; thus it is mainly concerned with activities of the European Space Agency (ESA) and the National Space Agencies. ESSC has strong links with its equivalent in the United States of America, the Space Studies Board of the National Academy of Sciences; frequent discussions with similar bodies in the Soviet Union have always been, and continue to be, sought.

Presently, the Committee is articulated in three panels: Earth Observation, Space Physical Science and Microgravity. Professor F Becker and Professor H Schnopper were appointed Chairman and Deputy Chairman, respectively, by the 1993 Assembly for the period 1994-1996.

Of the other six members, four have asked to be confirmed until the end of 1995, and the remaining two have asked to be confirmed until the end of 1996. Thirteen new members are proposed for appointment for the period 1995-97. Therefore, the Committee will be largely renewed in order to meet new missions in space science which are rapidly evolving. Emerging scientific personalities and new scientific challenges will soon require further renovation and rotation in the leadership of the Committee and the Panels.

In 1994 the Committee met in Rome at the CNR Headquarters on 17-18 February and again in Paris at ESA Headquarters on 19-20 September. During these two meetings the ESA Directors presented their activities. As well as discussion on the role of ESSC and its subdivision into three panels, the potential new members present made brief presentations of their activity and research in their institutes.

COMMITTEE ON RADIO ASTRONOMY FREQUENCIES (CRAF)

The Committee on Radio Astronomy Frequencies (CRAF) was established by the Executive Council in 1988 for a three-year period. In 1991, the term of the Committee was extended until the end of 1992. In 1992 the Executive Council conducted an abbreviated Review of CRAF and decided to renew the term of the Committee for three more years, until end 1995.

ESF-CRAF is made up of representatives of the major radio astronomical observatories in Europe. An important part of its work is to assist the Inter-Union Commission on the Allocations of Frequencies for Radio Astronomy and Space Research (IUCAF). CRAF attempts to co-ordinate the representations made to the various national and supranational radio regulatory bodies, within Europe for the protection of the Radio Astronomy Service (RAS). It operates both at an administrative and at a technical level, so that it is for instance also concerned with setting up programmes of interference monitoring and seeks to develop technical means for the protection of radio astronomical observations.

Among the achievements in radio astronomy there is the Very Long Base Interferometer (VLBI) at Dwingeloo, Netherlands. VLBI is a European Consortium for interferometric radio astronomy, in the birth of which ESF has had a prominent role.

CRAF has acted on several fronts to protect the RAS. Its work has been inter alia to:
– communicate and cooperate with the appropriate World and European Bodies in charge of radiocommunications to ensure good management of the radio spectrum;
– correspond with the Radiocommunications Agency of the British Ministry of Trade and Industry, DTI, concerning the use of television channel 38 (608-614 MHz) for radio astronomy;
– work in close collaboration with IUCAF and with kindred bodies, towards the preparation of a concerted radio astronomy position for the recent World Administrative Radio Conference, WARC-92. The conference recommendations were as a result positively favourable to the Radio Astronomy Service.

With regard to membership of the Committee, Dr B H Grahl has now retired; Turkey has requested membership of CRAF and a possible candidate is Dr M Ennun Ozel; Dr A Sanches de Magalhaes (Portugal) is encountering difficulties in attending CRAF meetings and action has been taken by ESF to ensure the presence of a Portuguese representative.

A technical document will be produced, *CRAF Radio Astronomy Handbook*, as an ESF publication, which will be a reference book on radio frequency used in astronomy.

The Committee met in Torun, Poland, on 11-12 April 1994. One of the major issues discussed was the need for radio astronomy for bands 100% free of interference. The status of radio astronomy in Poland was presented, and the general status in each of the European countries discussed. The need for a pan-European Committee for Radio-Astronomy was once more stressed.

The Committee met in Madrid on 17-18 October 1994. Actions taken or to be further implemented for the radio astronomy status in Poland were discussed and matters arising from the European Radiocommunication Office and the Radiocommunication Bureau were presented. Further questions on the agenda were the handbook for Radio Astronomy, an ESF-CRAF *Newsletter*, new members and chairmanship.

NUCLEAR PHYSICS EUROPEAN COLLABORATION COMMITTEE (NuPECC)

NuPECC develops and pursues scientific and strategic topics in the fields of nuclear physics in Europe, including nuclear physics applications, with emphasis on international co-ordination and co-operation.

In 1994 the Committee held three regular meetings. A continuing and main activity of NuPECC is the editing and publishing, together with the European Physical Society, of *Nuclear Physics News*, a widely known and well-acknowledged quarterly periodical with a circulation of 4,000 copies. Its distribution is to be extended now to the US with 1,000 additional copies supported by NSF and US-DOE. Two scientists from the US will join the editorial board.

Special activities in 1994 were:
- NuPECC Workshop, and NuPECC Special Report: *Impact and Applications of Nuclear Science: Opportunities and Perspectives.*
From 2-6 February 1994, NuPECC organised a workshop at Dourdan,

France, sponsored by the EC with a grant of 35 kECU, in order to prepare a scientific strategic report on this subject. About 100 experts from the selected fields – Nuclear Astrophysics, Particle Physics, Atomic Physics, Condensed Matter Physics, Medicine, Radiobiology, Industry, Energy Generation, Environmental Studies, Arts and Archaeology – met at Dourdan to present their projects and to exchange views with the members of NuPECC. Ten Working Groups prepared comprehensive reviewing documents on these fields, describing present activities and future perspectives which will be worked on and completed by NuPECC into a final report. This Special Report will be published.

– *ELFE: an Electron Laboratory for Europe.*

A NuPECC Sub-committee, charged with the task of examining the ELFE project, met in July 1994 in Garching, and worked extensively on this proposal. A draft was discussed by NuPECC at its meeting in October 1994 in Copenhagen.

NuPECC Membership and* à-la-carte *financing

Since its association with the ESF in 1991, the Committee has consisted of 21 members from 17 Member Organisations of NuPECC in 14 European countries. In 1994, the membership fee has moderately increased by 9% to 30,520 FF. The rolling replacement (or re-nomination) of Committee members continued in 1994. As decided by the 1992 Assembly, the activities of the NuPECC Associated Committee will be reviewed at the 1995 Assembly.

EUROPEAN COMMITTEE ON OCEAN AND POLAR SCIENCES (ECOPS) / JOINT ESF/EC COMMITTEE

This Associated Committee was established in 1990 to advise the European Science Foundation and the European Commission on matters of scientific priority and policy in the domain of ocean and polar sciences.

The high point of ECOPS' activities in 1994 was the European Conference on ***Grand Challenges in Ocean and Polar Sciences***, which was held in Bremen on 12-16 September 1994. This conference gave the opportunity to more than 300 scientists and administrators from all European countries to develop a long-term strategy for research in the scientific fields of marine and polar science.

The four Grand Challenges formulated by ECOPS for presentation in Bremen are:

– *Operational Forecasting of the Ocean and Coastal Seas*: Through the operational capability of predicting the state and behaviour of the global ocean and the coastal seas, it will be possible to forecast regional and global weather and climate in the time range from seasons to decades.

– *European Project for Ice Coring in Antarctica (EPICA)*: The Antarctic ice cover is the largest store-house of the most representative palaeoclimatic proxy data. EPICA shall become one of the great European projects aiming at better understanding the cause and effect of past climate changes.

– *The Deep Sea Floor as a Changing Environment:* Contrary to the view commonly held until recently, the sea floor is a very active environment and this affects, for example, our understanding of the impact of waste dumping and mineral

exploitation. Europe is in the forefront of deep sea exploration and important breakthroughs are expected from multidisciplinary programmes using common deep sea tools enabling long-term observations.
– *The Arctic Ocean*: For intrinsic natural difficulties and for political reasons, the Arctic Ocean has been almost inaccessible to international research. Concerted efforts are now planned to study the interactions between ocean, ice and atmosphere, including bio-geochemistry and palaeo-oceanography.

Except for EPICA, in all other Grand Challenges there is a strong biological component. Special attention has been given to Biodiversity and Production in the Ocean which may develop into another major project.

In order to provide the coordination necessary to carry out these and other large projects, the Ocean and Polar Secretariat was established and became operational on 1 September 1994. It is staffed with two science administrators and one assistant. This team will collaborate closely with European ocean and polar Boards which will include the major marine and polar institutions operating in Europe.

In preparation for the Bremen conference, the following special Euroconferences were held:
– February 1994, *Deep Sea Floor as a Changing Environment*, San Feliu de Guixols, Spain.
– May 1994, *Biodiversity and Production in the Ocean*, San Feliu de Guixols, Spain
– September 1994, *The Arctic Ocean Grand Challenge*, Helsinki, Finland.
Up to 80 scientists participated in these Euroconferences and similar attendance was recorded for the three conferences held in 1993. This gives an idea of the large base of scientists consulted for the formulation of the scientific goals of each Grand Challenge.

Following the conference in Bremen, a calendar for *ad hoc* implementation group meetings was set up for the last part of 1994 and early 1995:
– *The Arctic Ocean*: Kiel, Germany, 29-31 October 1994
– *European Project for Ice Coring in Antarctica:* Strasbourg, France, 9-10 November 1994
– *The Deep Sea Floor as a Changing Environment*: Brussels, Belgium, 5-7 December 1994
– EPICA Preparation for MAST proposal, Paris, 9-10 February 1995
– *Biodiversity and Production in the Ocean*: Amsterdam, The Netherlands, 1-3 March 1995

Furthermore, a Working Group on the *High Resolution Benthic Exchange and Trans-formation Study* held a meeting in Bremerhaven, Germany, 3-4 December 1994.

Other smaller meetings and workshops held in 1994 were:
– *EPICA Drilling Group* meeting, Copenhagen, Denmark, 13-14 January 1994
– *Technology for the Grand Challenges* Workshop, Brighton, 7-8 March 1994
– *EPICA Core Group* meeting, Col de Porte, Grenoble, France, 28-29 April 1994
– *EUROGOOS* Pre-Foundation meeting, Paris, France, 18 July 1994
– *EPICA Core Group* meeting, Rome, Italy, 31 August 1994
– *Sea Ice Zone* Workshop, Kiel, Germany, 9-11 September 1994
– *EUROGOOS* Preparatory meeting, Bremen, Germany,14 September 1994.

ADVISORY PANEL FOR ENVIRONMENTAL CHANGE (APEC) / JOINT ESF/EC COMMITTEE

The Advisory Panel is a joint initiative of ESF and CEC and comprises approximately ten leading European scientists. Its terms of reference are to advise on future directions for basic research as well as on research in support of policy needs which arise from environmental change and its consequences for man. The Panel's advice is a significant element in the development of new ESF Scientific Programmes and in the implementation of relevant aspects of the EC's Framework Programme (1990-1994).

For the purpose of the Panel's work, the term of environmental change encompasses research concerning the effects of human activities on the environment and the understanding of the phenomena involved (e.g. the critical physical, chemical biological processes); research on the direct and indirect impacts of these activities on human health, social and economic factors; and, most crucially, research on the range of possible responses through technology, institutional adaptation, economic adjustments and changes in lifestyle.

The Advisory Panel draws upon expertise from both the natural and human sciences. Its membership includes scientists working on climate, ecological effects of pollutants, technology and health as well as on social, economic and legal matters.

The members of the Panel are appointed jointly by the ESF, in consultation with its Member Organizations, and by the CEC. Other international research programmes and organizations may be invited to send observers to Panel meetings on an *ad hoc* basis.

The following pages contain reports on the year's work within ESF Scientific Programmes that still continue, or are awaiting review. They are grouped within areas of work by Standing Committee:
SCSS (the social sciences)
SCH (the humanities)
EMRC (the medical and life sciences) and
ESRC (the natural and technical sciences).

REPORTS ON CONTINUING PROGRAMMES IN THE SOCIAL SCIENCES

BELIEFS IN GOVERNMENT (BiG)

The programme was launched for a five-year period from January 1989. Eleven ESF Member Organisations contributed to this *à la carte* programme, which operated on an annual budget of 1 MFF per year. The SCSS agreed to extend the programme through 1994 in order to enable the completion of the editorial work on BiG publications. This extension has not entailed any request for supplementary funding.

Scientific Objectives

The programme studies the structure of, and changes in, the orientation of Western European States towards their liberal-democratic modes of government. The research is undertaken in four working groups structured along the following four sub-topics: (i) *Attitudes towards Democratic Government*, (ii) the *Internationalisation of Government*, (iii) the *Scope of Government*, and (iv) the *Impact of Values*. This programme was the first case of a comparative European research study that relied entirely on secondary analysis of data collected on the national level on public attitudes to government. Research councils individually invest substantial sums of money on national surveys of public attitudes, voting behaviour, etc. This programme pools this data and draws upon the expertise of the national teams to undertake comparative analysis of the data. The programme has also brought together the efforts of national data archives to establish common data sets for analysis by the research teams.

Recommendations will emerge from the programme on how to ensure the better quality and compatibility of collected data for future comparative analysis at the European level.

Events in 1994

The Steering Committee met in June 1994 to review and finalise the contents of the five volumes arising from the programme. A contract has subsequently been signed with Oxford University Press (OUP) for the publication of the volumes as a series. Final editing of the volumes is now taking place.

Planned Activities

The Steering Committee will hold a final meeting in February 1995 in Berlin, Germany, to prepare its final report on the organisation of the programme and the lessons learned for future comparative social science research involving the handling of substantial data sets. The final report will be submitted to the SCSS October 1995 meeting. It is planned that a presentation on the results of the BiG programme will be made to the 1995 ESF General Assembly, to coincide with the publication of the OUP series of volumes. Dissemination events on the publications are also planned to audiences of policy-makers at the national and European level.

REGIONAL AND URBAN RESTRUCTURING IN EUROPE (RURE)

The programme was launched for a four-year period from January 1990. Twelve ESF Member Organisations contributed to this *à la carte* programme, which operated on an annual budget of 1 MFF per year. The programme was extended through 1994 in order to hold the final RURE Conference and to finalise publications, but this extension has not entailed any request for supplementary funding.

Scientific Objectives

This programme links human geographers and planners together with regional economists to study processes of change in the production system in Europe; the strategies and operations of transnational corporations; population movement and regional responses to these changes. A major network of over 70 researchers from across Europe was established, and addressed both the theoretical and empirical challenges of studying issues of economic integration and the globalisation of the European economy. The unique contribution of ESF has been to weld together such an interdisciplinary group which has brought new perspectives in a field of crucial contemporary importance, given particularly the broader European context including restructuring processes in Central and Eastern Europe.

Events in 1994

The final (fourth) RURE General Conference and Joint Sessions took place in March 1994 in Rome at the CNR and the Italian Geographical Society. Within the conference a plenary session was held on the topic of *Restructuring Processes in Italy*; the guest speakers' papers have subsequently been published as a volume by the conference hosts.

The final meetings of the Steering Committee and Management Committee were held in Rome in March and in London in July respectively. The Management Committee was charged with the responsibility of drafting the RURE final report and with finalising

publication arrangements with editors. The RURE final report will be presented to the SCSS's April 1995 meeting. Nine volumes have arisen from the RURE programme, two of which have already been published, and six special editions of academic journals are in preparation.

GEOGRAPHIC INFORMATION SYSTEMS: DATA INTEGRATION AND DATA BASE DESIGN (GISDATA)

The GISDATA programme was launched in January 1993 for a four-year period (1993-96). Fourteen ESF Member Organisations contribute to the *à la carte* annual budget of 1,326 kFF.

Scientific Objectives

The GISDATA programme has the following objectives:
1 to enhance existing national research efforts and promote collaborative ventures overcoming Europe-wide limitations in spatial data integration, database design and social and environmental applications;
2 to increase awareness of the political, cultural, organisational and technical and information barriers to an increased utilisation and inter-operability of GIS in Europe;
3 to promote the ethical use of integrated information systems, including GIS, which handle socio-economic data by respecting the legal restrictions on data privacy at the national and European level;
4 to facilitate the development of appropriate methodologies for GIS research at the European level;
5 to produce results of high scientific value;
6 to build up a European network of researchers with particular emphasis on young researchers in the GIS field.

Main Activities

The GISDATA programme has three main sets of activity:
– a series of 12 *specialist meetings* on key research topics clustered in three areas of major concern at the European level: database design, data integration, and socio-economic and environmental applications.
– two *strategic reviews*, at the half-way point and at the end of the programme respectively, to bring together the experience of the three clusters, review progress and identify new research agendas.
– an active collaboration with the American National Science Foundation and its National Center for Geographic Information and Analysis (NCGIA). This collaboration includes two joint *summer institutes* for young researchers taking place in 1995 in the USA and in 1996 in Europe, and a transatlantic exchange of research experience throughout the programme with the participation of American researchers in the GISDATA meetings and European researchers in the NCGIA-led initiatives.

Progress to date

Six of the twelve specialist meetings scheduled have already been held on the following topics:
Database Design
Generalisation and GIS (December 1993, Compiègne, France)
Conceptual Models for Geographic Objects with Undetermined Boundaries (June 1994, Baden, Austria)
Data Integration
GIS Diffusion in Local Government in Europe (October 1993, Knutsford, UK)
European Data Strategic Review (July 1994, Malgrate, Italy)
Applications
GIS and Spatial Analysis (December

1993, Amsterdam, the Netherlands) *GIS and Multimedia* (May 1994, Rostock, Germany)

A total of 120 researchers from 17 European countries and 11 from the USA have participated in these meetings. Almost a third of the participants have been young researchers completing or having recently completed their PhD dissertations.

The results of these meetings include an up-to-date review of research in Europe on each of the selected topics, the identification of achievable research agendas for new collaborative efforts and doctoral research, publications in international journals and a GISDATA book series to be published by Taylor & Francis, publishers of the *International Journal of GIS.*

The mid-point GISDATA Strategic Review took place in September 1994 in Aalborg (Denmark) and was attended by Steering Committee members, specialist meeting leaders, young researchers and observers from relevant European institutions. A meeting of the GISDATA Steering Committee on 8-9 November considered the results of the review and adjusted accordingly the programme of work for the final two years.

Organisation is well advanced for the first ESF GISDATA-NSF/NCGIA Summer Institute which will take place in Maine (USA) in Summer 1995. About 50 researchers will attend the Summer Institute, of which half are sponsored by the ESF-GISDATA programme and half by the NSF. Given the strong teaching and training component of the Institute, 15 of the 25 places sponsored by the ESF have been reserved for young researchers selected by open competition. The competition was announced in March 1994 at the EGIS conference in Paris and was widely publicised through the specialised press, the GISDATA Newsletter and on the Internet. As a result there were over 120 enquiries from young researchers from all over Europe. The fifteen fellowships were awarded by the GISDATA Steering Committee in November 1994.

GISDATA Newsletter

The *Newsletter* has worked as a vehicle to develop the network of European GIS researchers and to promote the GISDATA programme activities. Four editions have been published. In addition, GISDATA is increasingly using the Internet to disseminate its activities and output.

EUROPEAN MANAGEMENT AND ORGANISATIONS IN TRANSITION (EMOT)

In November 1992 the ESF Assembly decided to launch a Scientific Programme on the organisation and management of European firms. The Programme was born around the core idea of an interdisciplinary and comparative study of changes in organisation and management.

Two key research themes have been identified:
1 The comparative analysis of different forms of economic organisation in Europe and how these are changing;
2 The comparative study of inter-regional and international integration as firms respond to the challenges of internationalisation in Eastern and Western Europe.

Five sub-themes are focused on the following inter-related and complementary issues:

1 *Changing Forms of Economic Organisation: Firms, Markets and Work Organisation*. Co-ordinators: Dr Peer Hull Kristensen (Denmark) and Professor Risto Taino (Finland);
2 *The Institutionalisation and Change of Managerial Practices: Knowledge, Agency and Organisational Learning*. Co-ordinators: Professor John Child (UK), Professor David Knight (UK) and Professor José Luis Alvárez (Spain);
3 *Processes of Industrial Transformation*. Co-ordinators: Professor Gert Schmidt (Germany), Professor György Lengyel (Hungary) and Professor Károly Balaton (Hungary);
4 *Forms of Inter-Organisational Networks: Structures and Processes*. Co-ordinator: Dr Mark Ebers (Germany);
5 *Internationalisation and the Management of Corporate Strategic Change*. Co-ordinators: Dr. Ash Amin (UK) and Professor Arthur Francis (UK).

From September 1993 to October 1994, the Programme held six workshops, two in Berlin, one in Nuremberg, one in Strasbourg, one in Paris and one in Como. Over 150 academics from Europe and a small number from the USA took part in the workshops. Book contracts for the publication of revised versions of the best papers from four of the workshops have been agreed upon, with publication dates in 1995 and 1996. Full proceedings of the Berlin workshop on Interorganisational Networks were published in conjunction with the University of Paderborn and circulated to all participants and other interested parties.

On 21 April 1994 the Programme Steering Committee met in Berlin. Different workshop proposals were evaluated and agreed upon for theme groups as well as further Programme-wide activities.

Three editions of the EMOT *Newsletter* have now been published.

During the year from October 1994 to September 1995, six workshops will take place. In May 1995, an Interim Programme Review will take place in Manchester. This will bring together Theme Co-ordinators and Members of the Steering Committee to discuss the findings of the first half of the Programme and their applications for the structure and functioning of the second half of the Programme. Plans for Doctoral Student Summer Schools in 1996 will be finalised in this period as well as the proposals for a final Programme Conference in 1997. In May 1995 the responsibility for the administration of the Programme will be transferred from Manchester Business School to the Università Commerciale Luigi Bocconi in Milan.

LEARNING IN HUMANS AND MACHINES

In November 1993 the ESF Assembly decided to launch a Scientific Programme on human learning. The Scientific Steering Committee of the Programme including the Task Force leaders met for the first time in January 1994 and a second time in June 1994.

The Programme has been structured into five Task Forces:
1 *Representation Changes in Learning*, (co-ordinator: Professor Lorenza Saitta (Italy)
2 *Multiobjective Learning with Multiple Representations*, (co-ordinator: Dr Maarten van Someren (The Netherlands)
3 *Learning Strategies to Cope with Sequencing Effects*, (co-ordinator: Professor Timothy O'Shea (United Kingdom)

4 *Situated Learning and Transfer*, (co-ordinator: Professor Paul Light (United Kingdom)
5 *Collaborative Learning*, (co-ordinator: Dr Pierre Dillenbourg (Switzerland)

The Scientific Steering Committee decided on the publication of a regular *Newsletter*. Its first objective is to serve as a link between the participants of this enterprise, but equally, to become an instrument of communication and information for and of the scientific community. The Newsletter will provide regular information on the running of the Programme, its timetable of activities, the progress of the Task Force groups and will report on the scientific content of the work undertaken through contributions from Programme participants.

The objective of the second Scientific Steering Committee meeting, held in Brussels in June 1994, was to evaluate the candidates for the 21 fellowships for Junior Scientists. Based on their scientific interests, the 21 Junior Scientists were spread out among the five Task Forces.

A Starting Conference was planned for November 1994 for all the task force groups to hold their initial meetings. The first day would be a Conference, where organisational issues pertaining to the Programme as a whole would be discussed and plenary presentations given. The two following days would be devoted to Task Force workshops, with an expected interchange between Task Forces. Moreover, the final draft of the book planned during the "Year Zero" was to be presented and discussed by the participants.

ENVIRONMENT, SCIENCE AND SOCIETY (ESS)

The programme was launched for a three-year period, January 1990-December 1992. Fourteen ESF Member Organisations have contributed to this *à la carte* programme, which operated on an annual budget of 2.3 MFF per year.

Scientific Objectives

This has been a pioneering programme addressing the environment and the social sciences. It concentrated on encouraging the development of environmental economics at the European level, and brought together political scientists, lawyers and sociologists to study "institutional responsiveness" to environmental challenges. From its beginning, it was designed to have a linkage with the natural sciences through a joint case study on persistent pollutants involving collaborative research between ecotoxicologists and economists. The programme broke new ground in encouraging interdisciplinary collaboration between the social and natural sciences and its Steering Committee was influential in the development of the CEC's programme on social and environmental research (SEER). The programme made a major contribution to international conferences aimed at achieving a wider interdisciplinary research approach in the environmental sciences (for example, the ICSU Conference on an Agenda for Environment and Development into the Twenty-first Century, Vienna, November 1991, which provided scientific input to the UNCED Conference in Rio de Janeiro in June 1992).

The programme was structured around six theory-building Task Forces addressing the related themes of

(i) *evaluation, risk and uncertainty*,
(ii) *management tools and policy instruments*, and
(iii) *international issues*.
These task forces were linked to pilot empirical research on the North Sea, which focused on waste disposal strategies and the management of eutrophication. In addition, groups of researchers working in the Mediterranean region were involved in two activities:
(i) a working group on *environmental and international cooperation in the Mediterranean region*, and
(ii) a project on *sharing scarce fresh water resources*.

Events in 1994

The SCSS has given some priority this year to assessing the results of the ESS programme and to considering whether to develop a second-stage programme for a further three/four-year period from 1995. At its February 1994 meeting, the SCSS established a sub-committee, chaired by Committee member Professor G A van der Knaap (The Netherlands), to undertake this task. The sub-committee was given the following terms of reference: to conduct a provisional evaluation of the ESS programme; to consider the means of dissemination of ESS research results; to consider the scope and nature of any further ESF/SCSS role in this field; and, finally, to make recommendations concerning the ESS programme's unspent balance.

The SCSS sub-committee met in April 1994 in Rome, hosted by ESF Member Organisation, ENEA. The Rome report was discussed at the SCSS Core Group meeting with Senior Research Administrators in Oslo in May 1994. The Core Group welcomed the sub-committee report and decided to proceed with the proposed recommendation to hold a consultative workshop with researchers responsible for Member Organisations' national programmes and projects. The purpose of the workshop would be to discuss the proposed framework of the new TERM programme (Tackling Environmental Resource Management), its research focus and the types of mechanism that would be valuable in maximising research collaboration and sharing research data and experience across these programmes. In consultation with ESF Member Organisations, a planning meeting for the workshop was convened in September 1994 at the Royal Netherlands Academy of Arts and Sciences, Amsterdam.

At its October 1994 meeting, the SCSS approved the recommendations of its sub-committee and discussed the report of the Amsterdam planning committee. The SCSS recommended to ESF Member Organisations that the unspent balance from the ESS programme be allocated to new activities developed within the framework of the TERM programme from 1995 onwards.

In consultation with Member Organisations, a new Steering Committee will be established for the TERM programme.

The ESS programme will be subject to normal ESF evaluation review procedures when the academic results are published. A series of six ESS volumes are being published by Kluwer Academic Publishers.

REPORTS ON CONTINUING PROGRAMMES IN THE HUMANITIES

LANGUAGE TYPOLOGY

The ESF Programme in Language Typology is now in its fifth year and will be completed by the end of 1994. The large majority of the contributions of the final volumes exist and are being discussed by the members of the individual Theme Groups, with a view to preparing revised, final versions of the papers by the end of 1994.

In spring 1994 the nine Theme Groups met together at the final Plenary Conference, held on 27-30 March at Le Bischenberg (near Strasbourg). The final round of meetings was held during the autumn. The nine Theme Groups, with the places and dates of their meetings, are as follows:
– 1 *Pragmatic Organisation of Discourse* (Co-ordinator: Giuliano Bernini, University of Pavia), Pavia, Italy, 24-26 November
– 2 *Constituent Order* (Co-ordinator: Anna Siewierska, University of Lancaster), Durham, United Kingdom, 17-19 November
– 3 *Subordination and Complementation* (Co-ordinator: Nigel Vincent, University of Manchester), Bangor, United Kingdom, 28-30 October
– 4 *Actancy and Valency* (Co-ordinator: Jack Feuillet, INALCO, Paris), Pornichet, near Nantes, France, 20 September-1 October
– 5 *Adverbial Constructions,* (Co-ordinator: Johan van der Auwera, University of Antwerp), Björstorp, Sweden, 5-9 October
– 6 *Tense and Aspect,* (Co-ordinator: Östen Dahl, University of Stockholm), Helsinki, Finland, 11-15 October
– 7 *Noun Phrase Structure,* (Co-ordinator: Frans Plank, University of Konstanz), Konstanz, Germany, 2-4 December
– 8 *Clitics and other non-lexical categories*, (Co-ordinator: Henk van Riemsdijk, KUB Tilburg), Venice, Italy, 27-29 October
– 9 *Word Prosodic Systems*, (Co-ordinator: Harry van der Hulst, University of Leiden), Utrecht, The Netherlands, 28-30 October.

The Plenary Conference took place at Le Bischenberg, near Strasbourg, on 27-30 March 1994. In addition to the sessions of the individual groups, plenary sessions were held featuring exemplary papers by members of the theme groups (one paper for each group, except for group 1) which reported on the results of one particular sub-project and thus conveyed a detailed yet representative impression of the work in that group to the other groups:
– 2 *Discourse configurationality*, Katalin Kiss (Budapest)
– 3 *The diachrony of complementiser systems,* Nigel Vincent (University of Manchester)
– 4 *Constructions avec un actant expérient,* Georg Bossong (University of Mannheim)
– 5 *On the internal structure of adverbial and complement clauses,* Kees Hengeveld (University of Amsterdam)
– 6 *The perfect* Jouko Lindstedt (University of Helsinki)
– 7 *Types of Typology: gender systems* Greville Corbett (University of Surrey)
– 8 *Clitics* G Cinque and A Cardinaletti (University of Venice)
– 9 *The relevance of intonation to word prosody* Carlos Gussenhoven (University of Nijmegen).

The Core Group (Programme Director, Theme Co-ordinators, and Scientific

Advisory Committee) met after the Plenary Conference to evaluate the conference and discuss remaining problems.

Negotiations with the publisher concerning the publication of the final volumes have been successfully completed. The volumes will be published in the series *Empirical Approaches to Language Typology* from Mouton de Gruyter (Berlin/New York). In addition to the nine volumes resulting directly from the work of the Theme Groups, there will be a tenth volume giving general background information on European languages and general articles summarising the results of the nine groups and putting them in a larger perspective. Work on the tenth volume also made progress in 1994; in particular, the EUROTYP Guidelines were published in working paper format, and the larger part of its contents may find its way into the tenth volume. Due to its summarising character, the tenth volume will appear somewhat later than the other volumes.

Several new EUROTYP Working Papers were published in 1994, bringing the number of Working Papers produced in the project to more than sixty. Since the year's work concentrated on the final contributions, fewer working papers were produced.

The impact of the ESF Programme in the field of linguistics seems undeniable. One of the most significant outcomes of the project is that European scholars working in the field of language typology have begun to feel a much greater sense of unity than existed before. A tangible sign of this sense of unity is the new Association of Language Typology (ALT), founded by two Theme Co-ordinators, which essentially grew out of the ESF project.

THE TRANSFORMATION OF THE ROMAN WORLD

The second year of the ESF scientific project on the Transformation of the Roman World has been a busy one. In the spring four of the teams held meetings, while September saw the project's first Plenary Conference. This provided the opportunity for further workshops, some of them being joint sessions, allowing two teams to discuss subjects of common interest. It also brought in scholars, who had hitherto not been involved in the project, as speakers and, more generally, as contributors to discussions, both in the plenary sessions and in the workshops.

Team 1 (*Imperium, Gentes et Regna*) met in Bonn in April to discuss forms of representation, literary and non-literary, and their significance for understanding the Late Roman Empire and the successor states – a topic which involved methodological consideration of such terms as 'rhetoric', 'discourse' and 'representation', as well as detailed discussion of specific texts, events and objects. The subject was also considered in an interdisciplinary manner, involving archaeologists as much as historians. The fact that Bonn is the academic home of a number of eminent Late Antique historians and archaeologists was also exploited, with an initial debate between Professor Chrysos and Professor Wirth on "*Foedera* - Rhetoric and Reality", a discussion which prompted comments from Professors Straub and Rosen.

Team 2 (*Settlement in town and countryside*) held its meeting during the afternoons of the Plenary Conference in Mérida in September.

Team 3 (*Production, distribution and demand*) met in April in Lausanne to

discuss aspects of distribution in the sixth century – and more specifically to discuss drafts of papers which will be published in a book planned by the group. General questions of change were addressed, so too were very precise issues relating to such matters as the distribution of Roman gold coins and the production and distribution of manuscripts during the period.

Team 4 (*Transformation of beliefs and culture*) meeting at almost the same time, but in Thessaloniki, took as its chief point of discussion 'Architecture and liturgy'. The foundation of churches and oratories, as well as their dedications, baptism and baptisteries, cenotaphs and burial places all provided points of discussion, some of which were linked very specifically to individual sites, such as St-Servais at Maastricht and the Hypogée des Dunes at Poitiers. This discussion was complemented by visits to the chief late antique and early Byzantine buildings of Thessaloniki, as well as a visit to the important sites of Philippi and Amphipolis.

Team 5 (*Power and society*) met in Strasbourg in May, taking as its subject the role of material culture in rituals of power and the significance and meaning of gift exchange. The meeting involved discussion of a text which had been read in advance, as well as the presentation of historical, art-historical and archaeological papers, many of which were drafts of chapters for a volume on ideological and symbolic aspects of informal power relations being prepared by the group.

All these teams held further meetings during the afternoons of the plenary conference in Mérida. Team 5 organised joint sessions on subjects of mutual concern, with Teams 1 and 4. For the most part, however, the meetings were concerned with continuing work on papers which will form the basis of the volumes which each team is preparing for publication. Here plans are well advanced, and it is expected that the first volumes will be ready to go to press in the early summer of 1995.

The publication plans of the individual teams were set out in a series of individual reports made to the Mérida conference. Also announced was the idea of organising a number of exhibitions, each relating to the theme of the project, in 1997. Several major museums have expressed interest in putting on 'in-house' exhibitions (that is exhibitions which will not involve the vast costs incurred by borrowing from other institutions), geared to questions relating to the Transformation of the Roman World. These exhibitions would have a joint catalogue, which would itself be a product of the scientific programme, and which would give the exhibitions themselves enduring scholarly value.

During the morning sessions the conference addressed the subject of *East and West: Modes of Communication*, a topic chosen to help ensure that Byzantium is properly represented within the project as a whole – even though the work of the teams is, for reasons of time and scale, focused on the West. The plenary sessions opened with a lecture on Mérida, itself a type-site for the understanding of the Transformation of the Roman World, by Javier Arce. He was followed during the week by a number of distinguished speakers, who delivered plenary addresses: Peter Brown, N. Oikonomides, Lennard Rydén, Averil Cameron, Beat Brenk, Niels Hannestad, Christian Hannick and Michel Banniard. Replies to these plenary addresses were delivered by members of the project, who

were able to draw on the work of their own teams. The papers and ensuing discussions proved enormously worthwhile, fulfilling the multidisciplinary aims of the project in their recourse to archaeology, art, history, liturgy, linguistics, literary models, etc. The proceedings of the conference are to be ready for publication in the early summer of next year, and will stand alongside the first volumes from the working groups, as an indication of the progress of the project. Already, however, the project has produced three *Newsletters* and a *Who is Who?* in the Transformation of the Roman World, which between them provide an account of the work of the teams and a list of those involved so far.

THE EVOLUTION OF CHEMISTRY IN EUROPE 1789-1939

This has been an important year for the programme. In November 1992 the General Assembly of the European Science Foundation decided to launch a programme in the History of Science; however, this has not followed a "Year Zero". Thus 1994 has seen the programme come into full swing.

Those in charge of the four thematic groups have successfully organized their workshops: the policy of the Steering Committee of the programme, which has been to conduct thematic workshops, linking each one to the next, will permit the possibility of publication before 1996. Thus, all the completed workshops are now in press.

Theme 1: *Communication: Finding a language for Chemistry* directed by Professor Bernadette Bensaude-Vincent and Professor Ferdinando Abbri, organised their first workshop on 9-10 May 1994 in Paris. May 1994 was marked by a number of events celebrating the bicentennial of Lavoisier's execution (8 May 1794). Thus, it seemed natural to organise a workshop on the theme *Lavoisier in European Context – Negotiating a New Language for Chemistry*. This workshop, relying on a rich international historiographical tradition on the chemical revolution, provided the first opportunity for active scholars in this field to gather and confront their respective results and views on the adoption of the chemical language established in France by Lavoisier and his circle in their respective countries. Collectively the 16 papers presented have amply confirmed the historiographical perspective. Careful case studies of the local traditions in Southern Europe (Spain, Portugal, and Italy) and in Northern Europe (Germany, Sweden, Belgium, Holland and Poland) clearly show a variety of local responses, conditioned by differences in the institutional structures within which the new chemistry was introduced and in the practical orientations (metallurgy, mining or pharmacy) of the chemists. The British case was described from different perspectives as was the reception of the new language in France.

Theme 2: *Making of the Chemist: the Social History of a Profession* directed by Professor David Knight and Dr Helge Kragh, organised with the help of Dr Bill Davis at Trinity College, Dublin their second workshop on the theme: *Development of Chemistry within National Boundaries*. During the course of the workshop, twelve precirculated papers were discussed: the development of Chemistry in France, Belgium and Italy; in Germany, Scandinavia and the Netherlands; in Great Britain, Ireland and Portugal; and in Poland, the Baltic and the Balkans. The national experiences and

histories were extremely diverse. There were central and peripheral countries in this story; rapid and slow changes; migrations back and forth. Nations won or lost independence; emphasis varied in educational systems between the liberal and the technical; disciplinary boundaries shifted, especially as chemistry was distanced from pharmacy; there were good or bad relations between scientists and the churches; and industry flourished or declined.

Theme 3: *Chemistry and Human Welfare: the impact of New materials* led by Professor Ana Luisa Janeira and Dr Javier Ordoñez, organised its first workshop during December 1994 in Madrid.

Theme 4: *Strategies of Chemical Industrialisation* directed by Professor Robert Halleux, Dr Ernst Homburg and Dr Harm G Schröter, organised its first workshop in Liège on the theme: *From Lavoisier to Bessemer, 1789-1856*. This workshop addressed a transition period which marks both the diffusion of post-Lavoisian chemistry in academic arenas and the beginning of the Industrial Revolution in Europe, in particular the ties between academic chemistry and the role of chemical processes in the development of the Industrial Revolution. Eighteen papers constituted four sessions: session 1, the role of chemistry in the development of industrial areas; session 2, metal, glass and coal; session 3, dyestuffs, gunpowder and heavy chemicals; and session 4, industrial pollutants and the environment. Discussions brought out a certain number of constants:
1) The absence of a break with 18th century techniques: a perfecting of existing technical procedures was seen.
2) These improvements are imposed by the internal dynamics of arts and trades. They owe little to the new chemistry and much to the creative genius of uneducated or self-taught industrialists.
3) On the other hand, the new chemistry follows the tradition of useful sciences cultivated in the Academies of the18th century. It hopes to be applied and tries to rejoin the artisanal tradition, but often fails in its efforts.
4) If there is cross-fertilization between the Chemical and Industrial Revolutions, it is much more at the sociological and ideological levels than at the level of scientific and technical content. Investors in the chemical industry often belong to the world of enlightened amateurs of the bourgeoisie, nobility and clergy.

CONCEPTS AND SYMBOLS OF THE EIGHTEENTH CENTURY IN EUROPE

In November 1993 the ESF Assembly decided to launch a Scientific Programme on the history of ideas and social history. The Steering Committee enlarged with the team leaders met in January 1994 and set to work on the structure and composition of team groups. Their themes are:

I *Enlightenment* – Professor Werner Schneiders (Germany) and Professor Jean Mondot (France), in collaboration with Professor Giuseppe Ricuperati (Italy);
II *Man and Nature* – Professor Hans Bödeker (Germany) for the sub-theme 'Man' and Professor Peter Reill (USA) for the sub-theme 'Nature';
III *Opinion* – Professor Willem Frijhoff (Holland);
IV *Liberty* – Professor Alberto Postigliola (Italy).

The Steering Committee decided after some debate that the Theme on *Iconography*, a subject of great importance in the Enlightenment, should

not constitute a fifth theme, but, because of its pertinence in the other thematic groups, should constitute a cross-cutting theme. Therefore, a specialist in iconography should be present within each of the four groups.

It was decided to publish a regular *Newsletter* whose first objective would be to serve as a link between the participants of this entreprise, but equally, to become something more, that is to say an instrument of communication and information for and of the scientific community. The Newsletter will provide regular information on the running of the programme, its timetable of activities, the progress of the thematic groups and it will report on the scientific content of the work undertaken through contributions from programme participants.

Well ahead from the point of view of reflection and collaboration, Theme I organised a workshop in September 1994 in Strasbourg. This workshop was the first on the Enlightenment and addressed "problems of definitions and periods". The contributions to the workshop analysed different concepts – such as *Enlightenment and Philosophy, Les Lumières et La Philosophie, Aufklärung und Philosophie*. What is Enlightenment, its multiple definitions, its occurrence or absence in various European cultures and its periodisation on the European scale, specifying origins and development? The workshop also focused on the notion of Philosophy in the particular Eighteenth century sense of the term. Twelve precirculated papers were presented and discussed.

In October 1994 the two sub-themes of Theme II *Man and Nature* and Theme IV *Liberty* brought together their core groups to prepare their first workshops.

REPORTS ON CONTINUING PROGRAMMES IN THE MEDICAL AND LIFE SCIENCES

MOLECULAR NEUROBIOLOGY OF MENTALL ILLNESS (MNMI)

The Steering Committee of the Programme met once during1994 at the time of the annual workshop held in January in Germany. A meeting of the five members of the Executive Committee was held in September in France.

Following the tradition of previous years a three-day workshop was held, this time in Kloster Seeon (Germany) on 30 January-1 February. There were more than fifty participants attending including invited speakers and members of each of the projects.

A new project from Spain has joined the programme (bringing the total to 22) and they have submitted a number of samples to Généthon. An application has also been received from Sweden, and the Pedigree Selection Committee is currently studying its merits.

The major accomplishment of the Programme during 1994 was the number of samples tested and read at Généthon. To date more than 157,000, of the eventual 800,000, have been tested although not all have yet been read into computer useable form since to date this was a task that required manual readings of films by students hired specifically for the task. Recently however the techniques have been modernised and very much simplified by the installation of four machines which use fluorescent markers. Such machines permit the process to run smoothly with some 1450 samples tested and read directly into the computer each day with only four hours required by

personnel to check the process. As the readings of films will no longer have to be carried out manually not only will the data be immediately in computer form but also the possibility of human error will be greatly decreased. Some 643,000 samples remain to be tested in the next two years and the modernisation of the techniques greatly enhances the probability of achieving this goal. Volunteers from the participating projects continue to spend periods of six weeks at Généthon providing necessary "extra hands".

A trial of the computer programme to evaluate the system is to be run on a series of markers providing the first set of results by January 1995. These will be provided to all the participating project members of the Programme.

A further meeting of the Steering Committee is planned in Chantilly, France, during the annual workshop scheduled for the period 28-31 January 1995.

Based on the Programme Interim Report submitted to the 1993 ESF Assembly the Steering Committee requested a two-year extension of Programme activities to the EMRC Annual Meeting. The proposal was favourably received by EMRC, and agreed by the ESF Executive Council in November 1994.

EUROPEAN NEUROSCIENCE PROGRAMME (ENP)

The European Neuroscience Programme launched in January 1992 is supported by 18 ESF Member Organisations contributing to its activities, from 16 countries : Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Israel agreed to join the Programme in 1993, and Austria from 1 January 1995.

At its 27-28 April Meeting, the ENP Steering Committee took note of the progress reports of the three following Collaborative Research Projects :
1 *Genetically engineered cells for transplantation in Parkinson's disease*, involving three laboratories respectively from Sweden, France and United Kingdom;
2 *Neural mechanisms of learning and memory* involving five scientific teams from United Kingdom, Spain, the Netherlands, France and Germany;
3 *Cortical control of arm movement* involving four centres from Italy (2), Germany and France.

The co-ordinator of project 1, A Björklund was invited to give an oral report on the scientific work undertaken by the three laboratories involved and their interactions. This was followed by a lively and open discussion with Steering Committee Members. Pertinent questions were raised such as added value, exchange of personnel in relation to national research support systems, the need of arranging workshops (for planning the work and discussing unclear points between participating groups) and the cost-benefit ratio when establishing the ENP Collaborative Research Projects in areas of strategically important research.

The ENP Steering Committee, being convinced of the efficiency of these trans-national collaborations, decided to launch a fourth project. Thus a call throughout Europe was announced and sixty preliminary proposals were received. The selection process resulted in a unanimous decision to support the project *The structural basis of hippocampal synaptic*

plasticity associated with spatial learning involving research groups from Norway, United Kingdom, Switzerland and Germany. This project starts from January 1995. Presently running Collaborative Research Projects will be reviewed during 1995. It is hoped that discussions within CAN-MED will permit aspects of the Programme to integrate with future FP4 Biomed activities in the field.

Supporting activities

(available for all candidates working in any European and Israeli laboratory) :
European Research Grants cover the cost of reciprocal visits of researchers participating in European research projects, where two or three scientific groups in different countries combine to tackle a specific problem. This year, 73 applications were received involving 357 scientists from 18 countries. From these 11 involving 56 scientists from 25 institutes in 11 countries were granted.
Short-Term Fellowships are for qualified young scientists (normally under the age of 35) who need further training and expertise in other methods for a fruitful continuation and broadening of their research scopes. They are for a period of up to three months. Candidates are expected to return to their institute of origin upon termination of the grant, so that their institute may in turn benefit from their broadened knowledge. This year 65 applications were received from scientists in 16 countries, 16 fellowships from 9 countries were awarded.
ENP School : a theoretical course organised and financed entirely by the ENP, with the aim of facilitating the exchange of information and knowledge in the field of Neuroscience between senior scientists and students. Intended for young scientists (under the age of 35) who are working on a subject closely related to the central topic, about 44 places were available.

The 1994 ENP School devoted to *Neural Bases of Visual Cognition* was held on 24-29 September in Spain. 85 applications to attend this School from young scientists in 21 countries were received, 44 candidates from 14 countries were selected.

DEVELOPMENTAL BIOLOGY (EDB)

The scientific objective of the European Developmental Biology Programme is to gain an understanding of the genetic and molecular signaling hierarchies that regulate animal development. By offering financial support for collaboration and communication initiatives between individual laboratories, the EDB Programme envisages increasing the efficiency of progress in this research area within Europe, as well as ensuring that the quality of training for young and talented developmental biologists is the best available.

The EDB Programme was initiated in 1992 and passed its halfway point in 1994. The training of developmental biologists has been facilitated by a system of short term fellowships (STF) for periods of maximally 3 months and long term fellowships (LTF) awarded in the first instance for one year, but potentially available for subsequent years. As a change in previous policy the Steering Committee decided in 1994 to couple both LTF's and STF's to submission deadlines (twice annually).

Short-Term Fellowships: Nine short term fellowships were awarded in 1994. This was more than envisaged in the original budget, but following evaluations by two independent referees and a member of the

Steering Committee, these applications were considered to be of particularly high quality and/or to be particularly important for the distribution of technology currently essential for promoting research in developmental biology. In particular, molecular biological techniques were introduced into laboratories in Portugal, Spain and Croatia, while technology for gene knockouts by homologous recombination was introduced in a laboratory in Italy. The reports received at the end of these visits indicate in general that the aim of the visit was accomplished and in one case that sufficient data was generated to enable a participant to complete a PhD thesis in 1995 instead of 1996. The budget for 1995 has, however, now been partially committed and the Committee will consider an appropriate redistribution of funding for next year.

Long-Term Fellowships: The EDB Programme is currently financing seven long term fellowships selected from 35 applicants over two deadlines in 1993. Most were awarded for one year in the first instance and the one shorter fellowship was extended by two months following interim evaluation by one of the original referees. It is premature to evaluate the outcome of these fellowships, but the referees' reports of the original proposals were excellent in all cases. The secretariat of the EDB Programme has received several reports of first author articles published in top international journals by long term fellows funded in previous years (1992, 1993) who acknowledged support of the Programme. See, for example Krauss et al., Cell 75:1431, 1993.

In contrast to participants in the STF scheme, but as would be expected, the majority of long term fellows do not have positions to return to in their home country so this activity of the EDB Programme is clearly most important in enabling talented young developmental biologists to visit excellent laboratories for an extended period.

The majority of the participating countries have now benefited from the fellowship Programme. The Steering Committee decided in June 1994 to extend the scheme to include the possibility of awarding fellowships to nationals of participating countries who had already been engaged in research abroad for up to two years. For highly innovative projects this is often the moment when the greatest return (in terms of results and publications), can be expected on the investment, both for the individual concerned and for the host institute. This is also the moment when fellows become ineligible for other possible sources of funding within Europe. The EDB Programme thus now offers a solution to this dilemma in developmental biology research. These "third year" applications were considered with other LTF applications for the first time following the deadline 15 October 1994.

The 2nd ESF Conference on Developmental Biology
This was organised by P Gruss, P Simpson and W J Gehring in Kartause Ittingen, Switzerland in June 1994. The conference featured eight sessions covering a range of the current "hot topics" in developmental biology including pattern formation and morphogenesis (homeotic genes, segmentation axis formation and inductive interactions), neurogenesis, and cellular interactions and signals (adhesion, migration and programmed cell death). Forty speakers were invited and 48 participants were selected from 130 applicants on the basis of curriculum vitae submitted with the application. The

registration fee was waived for eight participants. This low ratio of participants to speakers and the isolation of the monastery in which the meeting was held was again considered a particularly successful formula for optimal interactions, as with the First ESF Conference on Developmental Biology.

First European C. Elegans Meeting in Martinsried 1994

A small specialized workshop on C.elegans research was organized by R Plasterk (The Netherlands) and R Schnabel (Germany) in 1994. This workshop was a low budget event with accommodation/lecture facilities provided by one of the host institutes to minimise the costs for young pre- and postdocs in particular. For some very talented applicants, however, the travel costs were prohibitive so that the EDB Programme provided a small subsidy (8 000 FF) for this meeting in order to ensure optimal participation. Six additional young scientists could thus attend.

The 2nd Summer School on Developmental Biology

The organisation of this last summer school of the Programme has been postponed until the last year of the current Programme in 1996.

The Programme Steering Committee is developing a proposal for a series of European Research Conferences on Developmental Biology designed to provide necessary coherence to European research on Developmental Biology beyond the closing date of the Programme.

PROGRAMME OF FELLOWSHIPS IN TOXICOLOGY (PFT)

At the 1991 ESF General Assembly the Programme of Fellowships in Toxicology (PFT), encompassing Toxicology and Environmental Toxicology, was launched for five years with the call for full funding starting in January 1992. The 1994 PFT budget was 2.567 kFF, of which 2.274 kFF were allocated to the awarding of fellowships. The actual call for contributions in 1994 was for 2.403 kFF.

Following a recommendation from the European Medical Research Councils (EMRC) and having received positive responses from the participating Member Organisations, it was decided to establish attendance of the annual meeting of the Toxicology Steering Committee (TSC), currently composed of 24 members from 14 countries, on an annual rotating basis. The Toxicology Steering Committee has therefore now been divided into two groups for alternate attendance at the annual meetings.

At the 1993 TSC meeting, a discussion was held with the EMRC Chairman, Sir Dai Rees, who invited Committee members to prepare a scientific strategy document as a basis for European research coordination on health and the environment. This document was prepared and presented at the 1994 annual meeting of the European Medical Research Councils (EMRC). Following these discussions, the ESF/EMRC submitted a position paper to the ministers taking part in the Second European Conference on Health and Environment, outlining in broad terms a European Research Agenda on this topic.

The duration of ***Short-term Visiting Fellowships (SVF)*** has been extended to (a maximum of) 3 months for the 1994

session and are for research missions with an immediate relevance to the applicant's research project. No deadline applies for this type of fellowship; applications are evaluated and awarded throughout the year. For the 1994 session, 48 SVF applications were received from applicants in 19 countries for stays in 12 countries: 29 SVF fellowships have been awarded to candidates from 13 countries for stays in 11 countries. The research projects of these granted fellowships can be subdivided as follows: 24% in the domain of Environmental Toxicology, 62% in the domain of Toxicology and 14% combining both fields.

Research Fellowships (RF) are of 4-12 months duration and are for conducting specific research projects and/or for gaining experience in research methodology. Each year, the deadline for Research Fellowship applications is set at 15 October for fellowships to start at the earliest on 15 January of the following year. These fellowships are awarded at the annual (November/December) meeting of the Toxicology Steering Committee. For the 1994 session, 61 RF Applications were received from 21 countries for fellowships to be held in 13 countries. 15 Research Fellowships were granted to applicants from 7 countries for stays in 10 countries. 4 successful candidates were placed on a waiting list due to lack of funds.

The research projects of these granted fellowships can be subdivided as follows: 14% in the domain of Environmental Toxicology, 72% in the domain of Toxicology and 14% combining both fields. The Research Fellowships for the 1995 Session were discussed and awarded at the TSC meeting held in Strasbourg on 1-2 December 1994.

For the 1994 session, the Toxicology Steering Committee decided to offer a limited number of ***Two-Year Research Fellowships*** in order to attract high calibre post-doctoral candidates for important collaborative research projects. 2 such fellowships were awarded to be held throughout 1994 and 1995. Of these granted fellowships, 1 research project is in the domain of Environmental Toxicology and 1 in the domain of Toxicology.

The Programme Steering Committee took an active part in the formulation of the ESF Position Paper submitted to the *Second European Conference on Environment and Health*. The ESF Planning Group constituted to take the recommendations of the Conference forward includes representation from the PFT Steering Committee.

REPORTS ON CONTINUING PROGRAMMES IN THE NATURAL AND TECHNICAL SCIENCES

EUROPEAN ICE SHEET MODELLING INITIATIVE (EISMINT)

The ESF General Assembly launched this programme in 1992 to last three years until the end of 1995. The scientists involved have fully profited from the opportunity given to them to interact and contrast their ideas and, more practically, their models of ice sheet behaviour. In 1994, they organised two workshops attended by top European specialists.

On 5-7 January 1994 the *Mechanical Properties of Polar Ice and Ice Sheet Modelling* were the object of a workshop held in Aussois, France. The goal of this meeting was to discuss the progress made in the modelling of the mechanical behaviour of anisotropic polar ice. Specific items reviewed were:
- the role of anisotropic ice in polar ice sheets
- physical mechanisms for the formation of anisotropic ice
- flow behaviour of anisotropic ice
- data from in situ measurements and laboratory tests of its mechanical behaviour.

The second EISMINT workshop on *Model Intercomparison* was held in Bremerhaven on 22-24 June 1994. About forty participants mainly from Europe but also from Australia, Japan and the United States, discussed the results of the intercomparison experiments which were agreed upon during the previous workshop held in Brussels on 16-18 June 1993. The latest developments in ice sheet modelling were illustrated by a number of invited speakers.

Eleven exchange grants have been assigned so far, allowing young scientists to learn the use of soft and hardware in other European laboratories and to discuss the different theoretical approaches underpinning the various models.

In the first half of 1995, two additional workshops are to take place on *Ice sheet-Lithosphere Interactions* (Fort William, United Kingdom, 18-20 May 1995) and on *Former Ice Sheets* (date and venue not fixed yet).

An EISMINT ***Summer School*** is to be held in Grindelwald, Switzerland, on 28 August – 6 September 1995 and a Symposium will be organised in conjunction with the International Glaciological Society (IGS) in Chamonix Mont-Blanc on 18-22 September 1995. More than one hundred people are expected to participate in the latter.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

EUROPEAN VOLCANOLOGICAL PROJECT (EVOP)

This programme started in 1992 and will continue until the end of 1996. The subscribed budget is 480 kFF per year.

The close cooperation between this ESF activity and the EC Environment programme continues successfully. Right after an EC supported Summer School on *The Mitigation of Volcanic Hazards* held on the island of Vulcano, the ESF and the EC jointly supported a workshop on the European Laboratory Volcanoes which took place near Catania on 18-21 June 1994 and was preceded by a field

excursion to the Etna active craters. The many teams of scientists involved in this programme presented papers and progress reports on the work carried out so far.

Some of the Working Groups set up by EVOP have produced their reports while others are in preparation. One such report deals with *Automated Systems for Volcanic Monitoring*; another reviews the techniques of *Geochemical Monitoring for Volcanic Surveillance*. Both these reports have been published by the ESF. In addition, a 75-page brochure describing the scientific rationale for the ESF programme and the EC sponsored projects was also published during the summer of 1994.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

EUROPROBE

EUROPROBE was launched by ESF in January 1992 and now involves over 500 geoscientists from 24 European countries. The programme includes a wide range of multidisciplinary (geological and geophysical) investigations, all devoted to a better understanding of the tectonic evolution of the earth's crust and mantle, and the dynamic processes that controlled this evolution. The character of the crust is very different in eastern and western Europe, with a stable ancient platform, the East European Craton, dominating the east and younger mobile belts in the west. Geophysical probing has shown that these differences extend deep into the lower crust and mantle. Together with greatly improved communication throughout Europe, these contrasted signatures of the lithosphere have set the scene for many new ventures in the solid earth sciences.

During the first two years (1992-1993), the EUROPROBE programme focused on four main themes – Deep Europe (DE), Intraplate Tectonics and Basin Dynamics (ITBD), the Trans-European Suture Zone (TESZ) and the Uralides and Variscides (U&V). The programmes concentrated on defining targets for multinational investigations of the lithosphere. At the same time, EUROPROBE workshops stimulated pilot projects and a wide range of other collaborative research.

EUROPROBE has now identified six Key Projects with multinational participation, concentrating on the Uralides, the Pannonian-Carpathian system, the TESZ, the Donetz-Dnieper-Pripyat Aulacogen, the Yakutian Kimberlite province and the northern part of the Baltic Shield. In addition, several other projects, e.g. the Caucasus Foredeep, the Pechora Basin and a Baltic-Ukrainian transect (EUROBRIDGE) are developing.

During 1994, EUROPROBE workshops were held in Belarus, Germany, Poland, Portugal, Romania, Russia, the Ukraine and Switzerland.

Participants in the Uralides key project met in Evora (Portugal) in March to discuss on-going research, particularly the interpretation of a reflection seismic profile carried out by Russian and Swedish scientists in 1993. Plans were detailed for a collaborative SPETSGEOFIZIKA (Russia) – DEKORP (Germany) – COCORP (USA) seismic programme in combination with a wide range of other geophysical and geological studies that are scheduled for 1995.

The Pannonian-Carpathian System (PANCARDI) and particularly its Neogene evolution and on-going tectonics is attracting much new research (Covasna, Romania workshop), including

a major regional tomography study to image lithosphere-asthenosphere relationships and better understand the Vranchea seismic zone.

Geophysicists and petrologists concerned with the sub-crustal lithosphere and relationships with the asthenosphere below the continents met in Rastatt (near Karlsruhe, Germany) to review remarkable seismic (DSS) data obtained by Russian colleagues in the Yakutia Kimberlite Province of eastern Siberia. Some of the seismic data have been acquired using peaceful nuclear explosions. In combination with information on xenoliths derived from different depths beneath the crust, the seismic profiling provides unique opportunities for calibration of velocity data and interpretation of deep discontinuities in the mantle.

The Trans-European Suture Zone (TESZ), defining a broad belt of Phanerozoic deformation along the southern margin of the East European Craton, was the focus of two workshops; one in Aachen (Germany) and the other in Kielce (Poland). The former mainly concerned the use of a unique body of drill hole data in central Europe for deciphering the TESZ Palaeozoic accretionary history. The latter was more widely based and established plans for new seismic (reflection and refraction) profiling and other geophysical and geological studies to better understand the contrasted signatures of the deep lithosphere between western and eastern Europe.

ITBD research has concerned foredeep basins in the Carpathians and Caucasus, but has focused on one of the world's major intracontinental rifts the Donets – Dnieper – Pripyat Aulacogen. A workshop in Kiev (Ukraine) reviewed on-going research on the tectonothermal evolution of this vast structure, including its early igneous history and late partial inversion. Assessment of existing seismic data is providing the basis for the definition of new seismic refraction and reflection investigations. This meeting also provided the forum for establishing a more widely based project on the East European Platform – the response of a craton to changing stress regimes.

The quest to better understand the contrasting signatures of the Phanerozoic and Proterozoic lithosphere in Europe has resulted in a EUROPROBE focus on the northern parts of the Baltic Shield where a transect investigation crosses from the exceptionally thick (c. 55 km) Finnish Proterozoic crust northwards over Archaean terranes to the Kola Peninsula, White Sea and Barents Shelf. The workshop in Rastatt ventilated preliminary plans for this programme, which will be treated in detail in St. Petersburg (Russia).

EUROPROBE held one meeting in 1994 particularly for younger geoscientists from eastern and central Europe; it presented an opportunity to study the shallow and deep structure of the Alps, the world's most well-investigated orogen.

Several EUROPROBE research projects are being funded by the INTAS programme, implying significant support for our ex-Soviet colleagues. UNESCO and ILP contribute to the cost of travel for eastern colleagues to workshops in the west. And most of the workshop organisers have obtained some local funding for their meetings to supplement ESF financing.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

STUDY OF THE EUROPEAN ARCTIC SHELF (SEAS)

This Programme which began in 1991 has now come to completion.

The final ***SEAS Study Centre*** was held in Bremerhaven on 14-18 March 1994. Altogether there were about 50 participants of which most had participated in the expedition on board the R/V *Polarstern* which took place from 20 June to 30 July 1991. This *Polarstern* cruise was conducted in coordination with two other vessels, the Polish R/V *Oceania* and the Russian R/V *Dalnie Zelentsy*, thus obtaining a larger coverage of both the western and eastern parts of the Barents Sea.

During this final meeting in Bremerhaven, the scientists presented their conclusions based on the study of the raw data or of the samples collected during the cruise. The major goal of this Study Centre was to allow broad interdisciplinary discussions of the results. Together, the papers discussed will contribute to a better understanding of fluxes of organic matter in the northern Barents Sea.

It is expected that the final results of SEAS will be assembled in a special volume of the *Journal of Polar Biology*.

EUROPEAN PALAEOCLIMATE AND MAN (EPC)

The European Palaeoclimate and Man (EPC) programme was launched in January 1989 and will come to an end in 1995. It has been a particularly active programme, with eighteen workshops held so far and two more planned for 1995. This has meant a considerable effort placed in the preparation and review of the papers presented at the workshops and later published in the special ESF issues of the *Journal Paläoklimaforschung*. Recently the eighth issue of this series has been published; others are in print or in various stages of preparation.

The demand on the scientists involved is now shifting towards data interpretation, although the acquisition of new data will continue. The European historical database on climate (Euro-ClimHist) has been successful in obtaining new sets of data from Austria, Spain, Sweden and the United Kingdom. Climatic data from practically all European regions are thus being collated by the Euro-ClimHist. They provide detailed weekly, or even daily, descriptions of the weather from many parts of Europe which, for example, are enabling a team of climatologists to reconstruct the weather maps of the past. This would provide a first insight into the dynamics of the winter and spring climate between 1675 and 1704 with a net predominance of north/north-easterly flow regime responsible for the low temperature during the Maunder Minimum.

Other data being stored in the European Pollen Database (EPD) will enable the specialists to reconstruct the vegetation history of the last ten thousand years and provide important elements for the modellers such as predominant temperature, vegetation cover, albedo and forecast clearing. There remain important methodological problems which need to be solved in order to improve the accuracy of the methods employed.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

GREENLAND ICE CORE PROJECT (GRIP)

This programme began operating on January 1989 for an estimated period of four years. The drilling operation was successfully completed within the planned time frame, but the processing and analysis of the core is still in progress. For this reason, the programme will continue to be co-ordinated through the ESF until the end of 1995. This extension has no financial implications for the participating Member Organisations, while providing support to the scientists involved when it is needed most.

The co-ordination of this programme in its early stage was mostly concerned with practical problems of logistics and technology connected with the primary goal of recovering more than three kilometres of ice core. Now the scientists are involved mostly in the analysis of the ice core samples, in the processing of the data and in the presentation of the scientific findings.

For this reason, a *Study Centre* was held in Wildeshausen, near Bremen, on 18-24 September 1994 and several teams of scientists, some from the US, were able to compare their data and ideas. More than a dozen co-authored papers were worked up during this intensive week of study and will be submitted soon to scientific journals for publication.

A similar intensive workshop will take place in New Hampshire on 16-21 September 1995. This joint GRIP/GISP II meeting will aim at producing a compendium of papers describing the scientific results and the logistics cooperation arising from the European and American projects in central Greenland.

During the summer, there was a short field season at Summit during which the GRIP hole was secured and extended as snow accumulation was slowly burying the GRIP Camp buildings. Acoustic logging of the GRIP hole was carried out with the aim of establishing the thickness of the bottom silty ice. The last valuable pieces of equipment were also retrograded.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

POLAR NORTH ATLANTIC MARGINS (PONAM)

The PONAM programme which began on 1 July 1989 came to an end in 1994. Activity in 1994 has therefore concentrated on the completion of remaining field work and, more significantly, the compilation of data collected in previous years into three special publications.

The extensive data set from East Greenland and the adjacent continental shelf is to be summarised in a special volume of the geological journal *BOREAS*. The 20 manuscripts, focusing on the last interglacial-glacial cycle, emphasise the reconstruction of the ice oscillations and palaeoceanography of the East Greenland margin. Similarly, a special issue of the Norwegian Polar Institute journal, *Polar Research*, will contain papers summarising the results of terrestrial field work in eastern Svalbard.

The main body of work of the PONAM programme, however, is currently being compiled in a book, the aim of which is to present an overview of high latitude and glacially influenced continental margins

and how they respond to varying glacial regimes and processes. By taking this more generalised approach it is hoped to make the results of PONAM available and of interest to scientists outside the field of Arctic Quaternary research. This includes graduate students and natural scientists interested in palaeoclimate and palaeoenvironment in a wider context.

The main content of the book was presented at the final PONAM workshop which took place north of Oslo in early December 1994. Though this represents the last formal workshop of the PONAM programme, the programme itself will continue for a further half year in order to complete the compilation of the PONAM book.

During the year, there has also been a two-day workshop, attended by 70 participants from 9 nations, held in western Norway. This workshop addressed more directly the implications of ice and ice loading for oil and gas exploration on the Norwegian continental shelf and Barents Sea. Wide scale erosion and subsequent isostatic rebound has caused the uplifting and fracturing of hydrocarbon reservoirs. This has left the region apparently barren of productive oil and gas. The proceedings of this workshop will also be published, as a special issue of the journal *Global and Planetary Changes* (Elsevier).

In addition, summer 1994 saw the completion of PONAM's field activity. This included the geophysical/geological cruise of the British research vessel *James Clark Ross*, which surveyed the large scale geomorphological features of the high latitude continental margins, in order to relate these features to glacial processes and the established glacial history of the region. To this end, more than 250.000 km^2 of large-scale sea floor imagery was collected, covering the northern Norwegian margin, the western margin of the Barents Sea and a more restricted area of the East Greenland margin outside Scoresby Sund. This has shown that the high latitude deep sea fans, exemplified by the Bear Island fans, are largely built up of debris lobes of 200-300 km long. This is in marked contrast to the "classical" deep sea fans, such as that of the Amazon, which are characterised by a distributor channel and levée system. These high latitude debris lobes are believed to be related to the high input of cohesive clay sediments carried by glaciers to the continental margin. On becoming unstable, these sediments then slide down the continental slope forming the debris lobes and the deep sea fan complex. Over the last few million years, these fan complexes are calculated to have experienced a comparable sedimentation rate to those of lower latitudes, such as the Mississippi fan, in spite of a drainage area some 5-10 times smaller than these lower latitude fans. This illustrates the efficiency of glacial in comparison to fluvial erosion.

The PONAM programme officially ended at the fifth Annual PONAM Workshop in Norway in December 1994. However, for the members of the compiling group, work will continue for a further half year before the submission of the PONAM book to the publishers in Summer 1995.

ESF CONSORTIUM FOR OCEAN DRILLING (ECOD)

The participation of ECOD in the international Ocean Drilling Program was renewed in 1993 and will extend to 30 September 1998. The Consortium has retained the same twelve-country membership but the relative share of

participation of some members has changed.

ECOD scientists have been active in submitting good proposals, several of which were adopted by the programme; two legs were already drilled and two more in the Mediterranean Sea will be drilled in the spring of 1995. Dr Annik Myhre (Norway) was co-chief scientist on leg 151 on the Arctic Gateway while Dr Hans-Christian Larsen (Denmark) was co-chief scientist on the following leg on the East Greenland Margin. Dr Carmen Comas (Spain) will lead as co-chief scientist on the leg 161 in the Western Mediterranean which will be drilled in spring 1995.

Apart from these drilling legs, which are of particular interest, the ECOD scientists have taken full advantage of the opportunities offered by ODP and have of course participated in the elaboration of the scientific programme through the ODP panels, the Planning Committee, the Executive Committee and the ODP Council.

On 18-20 September 1994 the 5th ECOD Workshop was held in Davos, Switzerland. One session tackled the future of the drilling programme in the 21st century with respect to other scientific initiatives and potential new technologies and platforms.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

POPULATION BIOLOGY

This Programme was launched in January 1994 for a period of five years, with an annual budget of kFF 830.

Population biology deals with the fundamental issue of applying evolutionary thinking to problems in ecology and genetics. It seeks to discover how evolution has designed genetic systems, life cycles, and ecological interactions for reproduction and survival. It also seeks to understand the consequences of genetic structuring of populations for adaptation and speciation and to estimate how rapidly speciation can happen. This is a complex area, too broad to be covered in a research programme of these dimensions, and priorities had to be set. As part of its activities, the ESF Network on Population Ecology and Genetics (1990-93) attempted to identify outstanding young scientists in the field and to give them the opportunity, through workshop discussions and smaller meetings, to develop their ideas on the most interesting and pertinent topics in population biology. The resulting ideas were, with the help of senior experts, incorporated into the proposal for the current Programme.

Although Europe has been an international leader in population biology from the start and some European centres have a critical mass of population biologists, other European groups are small and isolated. Strengths in specialities vary from place to place. The Programme supports the large-scale exchange of ideas, allows scientists trained in one place to apply their insights to new systems in other laboratories, and, in general, stimulates the interest of younger scientists in population biology through the organisation of workshops and support through travel grants and exchange visits.

The Travel Grants scheme supports short working visits of up to four weeks by population biologists visiting European laboratories outside their home country to work collaboratively on one of the special topics of the Programme. The Exchange Visits scheme increases mobility between European centres and stimulates research by offering exchange visits of several months for collaborative research between institutions. Over 60 applications were received for awards in 1994. A total of 17 awards were granted, of which seven were travel grants (up to four weeks), the remainder supporting visits of between two and six months (average 3.5 months). Grant-holders from 11 countries are going to laboratories in 6 different European countries.

Two workshops have been organised in 1994:
September, 1994: *Ecology and genetics of spatially structured populations* (Tvärminne Zoological Station, Finland), with 33 participants from 12 countries; and
October 1994: *Genetic conflicts and parasitism* (Paris, France).
In both these workshops, apart from an initial core of speakers invited directly by the workshop organisers, participants were selected following their response to an open call for applications. The principle of an open call for participants will be applied to all workshops organised under the auspices of the Programme. For workshops from 1995 onwards, there is also an open call for applications to organise the workshops on the main topics specified as priorities for the Programme.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

ENVIRONMENTAL DAMAGE AND ITS ASSESSMENT (EDA)

Scientific Advisory Committee on Environmental Toxicology (SACET)
SACET is the Steering Committee for the Programme, which usually meets once a year, to receive annual reports from each of its four working groups and to consider work plans and budget requests for the following year.

Recognising that the EDA Programme would conclude by December 1994, SACET decided at its November 1993 meeting that its next meeting should be held late in 1994. Accordingly, SACET met in December 1994 to prepare the final Programme report.

Scientific Co-ordination Committee (SCC)
It is intended that the SCC will assume a leading role in the production of the final report on the outcomes of the Programme. Equally, this group will function in the production and provision of material for the reviews of the Programme during the early part of 1995. During 1994 SCC members have begun both this task and that of planning for a continuation of activities beyond 1994, by meeting during the course of workshops, such as Osnabruck (Germany), November 1993, Milan (Italy), March 1994 and Budapest, September 1994.

Working Group 1: Exposure Prediction
This working group held its 1993 workshop, involving 35 participants shortly after the 1993 General Assembly. At Osnabruck, members from several European countries reviewed progress in their field.

In addition to the feasibility study phase, published as *Chemical Exposure Predictions*, Lewis Publishers, 1993, the

group has a further 13 publications (published, in press and in preparation) many of which arise from the November 1993 workshop. The availability of EDA-funded support for scientific exchange visits aided in bringing these papers to completion. One of these proposes guidelines for the selection and application of fate and exposure models and includes a database of such models.

Recognising the potential for further development in this area, in particular the need to encompass all environmental compartments simultaneously as well as ultimately to address the problem on regional and perhaps global scales, the group is developing a new activity on *Regional Fate Modelling of Xenobiotics*.

Working Group 2: Assessment of Environmental Damage

The goal of Working Group 2 is to develop indicators predictive of environmental damage by relating chemically produced effects at sub-cellular levels to population and community changes. From the outset this group was very extensive and was made up of sub-groups which addressed aquatic and terrestrial ecosystems. This ensured widespread participation among European countries, but did provide also some difficulties in maintaining progress equally across the networks.

The position papers presented at the September 1993 Arles Workshop (France) have since been published in a dedicated issue of *Ecotoxicology*. Together they constitute a definitive statement on biomarker prospects in invertebrates, vertebrates, higher plants and the aquatic environment. Further, funds have been allocated for the development of the biomarker data-base also proposed at Arles.

In 1994 planned exchange visits have taken place and both the terrestrial and the mammalian and invertebrate subgroups have held small workshops. The concluding workshop was held in Budapest, 27th-28th September 1994, and its aim is the production of a state of the art document on biomarkers and their possible utility as indicators of damage.

Working Group 3: Environmental Risk Assessment

SACET accepted with some disappointment the September 1993 recommendation of Professor Schlatter that he be allowed to abandon his attempts to move forward in this area.

Working Group 4: Economic Analysis for Environmental Toxicology

This leg of the EDA Programme soon achieved the status of that most likely to yield something truly novel. To deliver on that expectation heightened the stimulus experienced by the group and the resulting co-operation has been imaginative and fruitful.

Between October 1992 and March 1994 the group met on seven occasions. Over this period the group addressed the task of preparing material for the book which was to detail its first phase activities.

Studies arising from and extending phase one findings were begun. These included a Stockholm/Milan collaboration proposed by Professor Lars Bergman, but funded and staffed in part by the ENI Enrico Mattei Foundation of Milan. Several exchange visits have taken place between Milan and Stockholm and the results of this study were presented at the 16th-17th November workshop of the group. It is hoped that the completed study will provide the basis for the second volume which will complete WG4 output under the EDA Programme. The first

volume, launched at an international meeting of the European Association of Environmental Resource Economists in Dublin in June 1994, appears as Volume 8 in the Economy and Environment Series*, published by Kluwer Academic Publishers.

* *Environmental Toxicology, Economics and Institutions: The Atrazine Case Study*, Eds. Lars Bergman and D Michael Pugh, Kluwer, 1994.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

MATHEMATICAL TREATMENT OF FREE BOUNDARY PROBLEMS (FBP)

This Programme was launched in January 1993 for a duration of four years with a budget of one million FF per year.

Free boundaries are singular surfaces with *a priori* unknown locations in space which separate spacial regions with different characteristics. They occur in the evolution of a great variety of natural and technological processes and have the common characteristic of requiring complex and difficult mathematics. The rapid growth of this topic and the new and difficult mathematical challenges require a continuous combined effort.

This ESF Programme publishes a quarterly FBP *Newsletter*, which is appreciated by the mathematicians. Good quality review papers are published, and activities (workshops, conferences, fellowships, individual visits) are reported. Furthermore, the FBP mathematicians are well connected through e-mail network.

The Chairman, Professor J F Rodrigues, gave a scientific presentation to the ESRC Committee in Seville in April.

In 1994, the FBP Steering Committee met on 26 March in Bonn, Germany and on 25 June in Como, Italy. During 1994, the following workshops have been organised:
– *Free Boundary Problems in Porous Media Flow*, Delft (The Netherlands)
– *Shape Computation: Theory and Applications*, Metz (France)
– *Numerical Methods for Free Boundary Value Problems*, Pont à Mousson (France),
– *Motion by Mean Curvature and Related Topics*, Trento (Italy),
– *The Mathematical Theory of Phase Transitions*, Brighton (United Kingdom),
– *Phase Change Problems*, Lisbon (Portugal),
– *FBP in Reaction-Diffusion Systems and Applications*, Bari (Italy), and two further workshops will take place in Copenhagen (Denmark) and Warsaw (Poland). Six fellowships for young scientists and ten individual visits of senior scientists have been awarded. The Steering Committee will meet again on the occasion of the workshop in Poland.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for the Physical and Engineering Sciences (PESC).

CHEMISTRY OF METALS IN BIOLOGICAL SYSTEMS

This Scientific Programme was launched in January 1991 and will run until end 1995. The budget for 1994 is 640 kFF.

Nature uses Metal Ions for the control of many fundamental biochemical processes; for example, the selective

binding of oxygen from air and its reduction in respiration, the oxygenation of water to oxygen in photosynthesis, the conversion of dinitrogen into ammonium, or the regulation of the proteins a cell will synthesise. These few examples indicate how pertinent metal ions are for life processes; indeed, when Nature has to perform a difficult task a metal ion, or a cluster in such ions, is usually employed. However, a further aspect is that heavy metal ions, which often are only thought of as being toxic to life, have recently been introduced as drugs to treat diseases such as cancer (platinum) or arthritis (gold) and to assume a role in diagnostic medicine (indium, gallium, technetium).

The more familiar these facts are becoming, the more Bioinorganic Chemistry is burgeoning. Clearly, the fascinating scientific problems of this rapidly expanding field are evident at the interface of several traditional disciplines including Chemistry, Biology, Agriculture, the Environmental Sciences, Toxicology, Medicine, and also the application of advanced physical techniques. Consequently, this type of research is truly interdisciplinary and, therefore, a principle guiding the actions of the Steering Committee of this Programme is the stimulation of communications between the various disciplines.

The main events in 1994 supported by the Programme – in part via Meeting Fellowships for young scientists - were:

Workshops
The Steering Committee has made a great effort to facilitate the transfer of information between the various disciplines as is reflected in the range of workshops supported. It may be emphasised again that a significant part of the support were Meeting Fellowships for younger researchers.

March 1994: Workshop on *Liposomes as Biomembrane Models,* Cadiz (Spain)
March 1994: *Third European Symposium on Calcium-Binding Proteins,* (Workshop) Zurich (Switzerland)
April 1994: *International Workshop on Iron-Sulfur Proteins,* Konstanz (Germany)
September 1994: *International Workshop on Peptide Conformation and Metal Binding in Solution,* Warsaw (Poland)
September 1994: *Conference on Geotoxicology: Mutagens and Clastogens in the Environment,* Oxford (United Kingdom)

Advanced laboratory courses
The third ESF supported advanced course on *Chemistry of Metals in Biological Systems* was held in May in Louvain-la-Neuve (Belgium). A fourth such course is planned within the lifetime of this Programme. The main objective of the course is to introduce younger scientists to the newest techniques.

European Research Conferences
A second European Bioinorganic Conference (EuroBIC-2) was held in Florence, Italy from 30 August to 3 September 1994. The conference brought together 420 participants from 29 countries including 72 invited speakers. A third conference is scheduled for 1996. The most recent results concerning a large number of metalloproteins were critically discussed with special consideration for enzymes that are involved in degradation of organic pollutants and for proteins involved in photosynthetic systems and electron transfer processes.

In order to gain enough momentum for the EuroBICs and the European Research Conferences (EURESCO) on the Chemistry of Metals in Biological

Systems to continue 'automatically' beyond the life-time of this Programme it is important to secure financial means for 1996 and 1997. The EuroBICs are scheduled for the even years (1996 EuroBic-3) and the EURESCO Conferences for the uneven ones (1995 No 2; 1997 No 3).

The Chairman of the Steering Committee edits a two-monthly *Newsletter* which is distributed by electronic mail throughout Europe and also to some interested colleagues in overseas countries. It informs the Bioinorganic Community about decisions of the Steering Committee, as well as about (1) Conference News, (2) Research News, (3) Positions available and sought, (4) Forthcoming Meetings and Conferences, and it includes the (5) E-mail addresses of the scientists receiving the *Newsletter*, which at present is sent to about 414 addresses.

RELATIVISTIC EFFECTS IN HEAVY ELEMENT CHEMISTRY AND PHYSICS (REHE)

The Programme, started in January 1993, is aimed to help European scientists to maintain and promote their leading role in the fields of relativistic quantum chemistry and relativistic molecular physics. It brings together the expertise of researchers in the different branches: theorists and experimentalists working on fundamental problems of heavy-element physics and on practical applications.

Until November 1994, four workshops had been held as major events of the programme. Detailed reports are included in issues 7 and 8 of the bi-monthly *Newsletter* of the programme, which is sent to 127 scientists in the field.

The workshop topics were:
April 1994: *Relativistic Four-Component Methods* (Oxford, United Kingdom), focusing on methods for modelling atoms and molecules using the full Dirac equation;
April 1994: *Parity-Non-Conservation Effects* (Oxford, United Kingdom), dealing with molecular calculations for the interpretation of experiments on violations of symmetry under parity and time reversal in diatomic molecules;
May 1994: *Relativistic Pseudopotentials* (Toulouse, France), dealing with different approximations and aspects of relativistic pseudopotentials, and
August 1994: *Lanthanides and Actinides* (Helsinki, Finland), was held as a satellite meeting to the 2nd International Conference of f-Elements. It was interesting to note that also in chemical industry research the relativistic electronic structure calculations on La compounds are performed and applied to product development.

The Steering Committee met in May on the occasion of the workshop on *Relativistic Pseudopotentials*. In total, 36 travel scholarships were granted in 1993/94, most of them leading to an immediate outcome in the form of a scientific publication.

The planned 1995 activities include the 2nd Euroconference of the Programme and workshops on *The Chemistry of Gold*, *Relativistic Theory of Nuclear Magnetic Resonance*, and *Heavy Metals in Catalysis*.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for the Physical and Engineering Sciences (PESC).

KINETIC PROCESSES IN MINERALS AND CERAMICS

The aim of this Programme is to build, on a European scale, a bridge between geo-scientists, mainly concerned with minerals in the context of their geological environment, and material scientists working on inorganic substances, mainly ceramics. This approach has been complemented by the additional input from solid state physicists, specialised in the fields of thermodynamics and structural phase transitions.

The scientific goals of the ESF Programme are
– *in situ* study of kinetic processes in minerals and ceramics under controlled conditions (temperature, pressure, chemical potentials, stress fields, etc.);
– promotion of interdisciplinary and international cooperation in this field.

In 1994 a great number of activities under this programme were undertaken which included workshops and conferences on the following themes:
– Workshop on *Kinetics of cation ordering processes in minerals and ceramics* (Organiser: A Putnis) in Cambridge, United Kingdom, February 1994, with 15 speakers and 20 contributing scientists . The results of the workshop were published as a booklet by Cambridge University Press and free copies were sent to interested groups in 14 European institutions.
– Conference together with the Gordon organisation on *Kinetics and thermodynamics of phase transitions* in Volterra, Italy, May 1994. This was attended by over 80 participants and the conference was well received. Subsequent reports on the conference were positive and applications have been made for further conferences in this series through the Gordon organisation. Many members of the ESF Programme took part.

Two further workshops are planned for the end of 1994/beginning 1995: *Inorganic-organic interfaces* in Spain and *Kinetics of ferroelastic phase transitions* in Germany.

The scientific impact and visibility of the ESF Workshops was greatly enhanced by the fact that results of the meetings, together with scientific articles reviewing the current state of the art in specific fields, have been published. The Workshops have also stimulated scientific exchange financed by the institutions involved.

The significance of the Programme for the scientific communities of mineralogy and material sciences is documented by the fact that the Workshops received many more applications of potential participants than the organisers were able to accept.

In the next biannual conference of the European Union of Geosciences (EUG) the MINC Programme, and hence the ESF, will be well represented with a special symposium. A further EURESCO Conference related to the MINC Programme has already been agreed and will be held in early 1995 in Belgium. The activities of MINC have thrived during 1994 with several new research groups involved in its activities and the ESF is confident that this trend will hold also for 1995.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for the Physical and Engineering Sciences (PESC).

DYNAMICS OF GAS SURFACE INTERACTIONS

1994 has been a very active year for the Dynamics Programme with six workshops, a European meeting and several collaboration projects.

The first workshop in Cambridge (April) was *Adsorption and Catalytic Reaction Dynamics at Surfaces.* Seventeen speakers from Europe and the USA, as well as young research scientists from Europe, discussed the topic from a broad range of approaches, covering both practical and theoretical aspects and presenting new results.

The University of Erlangen-Nürnberg hosted a workshop on *Surface Reconstruction: Structure and Dynamics* during April. The major funding was by the ESF and the Deutsche Forschungsgemeinschaft, the University of Erlangen-Nürnberg and Vacuum Science Instruments Co. also provided some support. The knowledge of surface reconstruction and the dynamics of reconstruction processes has grown considerably in recent years and this workshop aimed to bring the aspects of structure and dynamics together and to illuminate the present understanding. Leading scientists in the field covered the complete field of surface reconstruction. The workshop has achieved a timely survey of present knowledge and understanding of the topic.

April also saw a discussion meeting on *Structural and functional modification of metal surfaces by thin film epitaxy.* The meeting brought together a remarkable group of leading theoreticians and experimentalists together with young researchers and PhD students. This proved to be an undertaking from which new research work and collaborations have already begun.

Ultra-High Resolution EELS at Liverpool University (May) was a workshop aimed at both hardware and software based developments in the field of electron energy loss spectroscopy for the characterisation of surfaces and surface adsorbed species with lectures from experts and practitioners from most of the relevant major laboratories in Europe. This workshop has served to draw attention to these developments and speed their uptake by the laboratories involved, thus making a significant contribution to the development of the EELS technique.

Laser-Induced Beam Surface Interactions was the topic of a workshop held in Madrid (June). Attendance ranged from senior scientists to graduate students and research associates at a high scientific level. It has both helped the development of the field in Spain and encouraged new research aspects in laser surface interaction in the presence of adsorbate molecules.

A workshop on *Orientation in Molecule-Surface Dynamics* was held in the Netherlands in September, funded by an EC Science Programme Network. The ESF budget allowed scientists from the ESF Programme to attend. The meeting focused on the orientation of molecule-surface dynamics, and on related issues such as the determination of orientation of adsorbed molecules.

The major activity of the year was the biannual conference *Euro-Dynamics II* held in September at the Charlotte Mason College, Ambleside, United Kingdom. The meeting attracted nearly 90 top scientists and offered a unique opportunity to present new ideas and methods to a

very knowledgeable audience. Delegates from 13 European countries were present in addition to guests from Japan, Israel and the USA. A wide range of topical material was presented and the spirit of the meeting was one of intense cooperation and collaboration.

In addition to these meetings, five individual collaboration projects have continued during the year. The ESF funding largely covers the cost of travel between the two laboratories concerned. Good results have been obtained and several papers published. A PhD thesis at Milan University was completed on the topic of the collaboration.

The Programme *Newsletter*, *Gas-Surface News*, regularly reports results from these collaborations and from the various workshops and meetings supported by the budget. The Newsletter is now circulated to over 400 scientists across Europe and overseas.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for the Physical and Engineering Sciences (PESC).

PROCESS INTEGRATION IN BIOCHEMICAL ENGINEERING

This Programme was launched in January 1992 for a period of three years. Contributions for 1994 amount to kFF 638.

Bioprocesses are inherently low (volumetric) productivity systems, when compared to chemical processes, which result in voluminous process equipment. This low productivity is mainly caused by the usually low biocatalyst concentrations, by inhibition by products or substrates and by degradation of the products in the reactor or during the downstream processing. Another inherent problem is the high degree of purification which is required for some of the (pharmaceutical) bioproducts. This requires a multi-step downstream processing with an inevitably low overall product yield. The research and industrial efforts in the development of bioprocesses should be directed at those which are efficient in a technological, economic and environmental sense. The Programme on Process Integration in Biochemical Engineering (PIBE) supports this aim by the stimulation of interdisciplinary communication and transfer of expertise over the borders of the technical and biological sciences.

Following on from the two workshops organised in 1993, on *Integrated Downstream Processing* (Delft, The Netherlands, February 1993) and *Integrating Biological Techniques for Bioprocessing* (Sitges, Spain, November 1993), a third workshop was organised jointly with the European Federation on Biotechnology, in Davos, Switzerland, on 24-26 March 1994. The topic of this workshop was *Intensification of biotechnological processes* and 50 researchers from 13 countries participated. The reports from all three workshops are available.

The other major activity of 1994 is the organisation of an intensive course on *Thermodynamics for biochemical engineers* which was held in Toulouse, France from 12-16 December 1994. The course was open to PhD students and young staff members and was intended to provide an up-to-date presentation of the possibilities, limitations and challenges of applied thermodynamics in biochemical engineering by well-known experts. Particular emphasis was put on preparing worked examples of typical

biotechnological problems to be included in the course materials.

The Programme also sponsored, as part of the *Conference on Recombinant DNA Biotechnology III: The Integration of Biological and Engineering Sciences* held in Deauville, France on 16-21 October, a round-table discussion session on *Integration in biochemical engineering science*. This series of conferences is normally held in the USA and the Programme Steering Committee felt that this provided a good opportunity not only to promote contacts between researchers in the USA and in Europe, but also to heighten awareness of the Programme. As well as sponsoring the round-table discussion, the Programme financed the participation of 17 young scientists from various European countries.

The Programme offers the possibility of exchanges between researchers in participating laboratories in Europe, normally for periods of up to three months. To date, 11 such awards have been made.

Although this Programme is formally due to end its activities in December 1994, an extension of the approved three-year period will be sought.

From 1995 this Scientific Programme is in the portfolio of the Standing Committee for the Physical and Engineering Sciences (PESC).

STUDY CENTRES IN NON-LINEAR SYSTEMS

The Study Centres in Non-Linear Systems originated as an ESF Network in 1989 and were launched as a Scientific Programme in January 1992 for a three year period, with a yearly budget of 0.5 MFF.

For many natural phenomena, linear models – in which there is a weak response to small perturbations – have proved adequate and many aspects of linear systems are well understood. In linear systems response and forcing are proportional but this is not generally the case for non-linear systems. A non-linear system may behave in a surprising manner and lead to unpredictability; small changes in the initial state can lead to very different final states. In other words the system exhibits sensitive dependence on initial conditions, and the term "deterministic chaos" has been adopted to describe such situations.

Four of these study centres took place in 1992 and 1993.

In 1994 the Study Centre on *Nonlinear Optics and Guided Waves* (Edinburgh), the Study Centre on *Dynamics of Extended Systems* (Nice) and Study Centre on *Dynamics of Transport in Fluids, Plasmas and Charged Beams* (Turin and Bologna) have taken place.

The ESF programme on NLS Study Centres terminates in 1994, and all the resources have been used. However, there is still a large demand, not only in mathematics and physics, but also in very diversified fields of science such as biology, economics, population dynamics, geology. In response to this request, and since several proposals for activity have reached ESF, a small group of leading NLS scientists met at the Institut Henri Poincaré in Paris in April. At this meeting, the structure of an ESF Associated NLS Committee was discussed and a document has been produced. The outcome is a proposition for a year zero for an NLS Associated

Committee. A three-year duration for the NLS Associated Committee would follow, when the support would be consolidated.

BIOPHYSICS OF PHOTOSYNTHESIS

This Programme was launched in January 1993 for a period of five years. In 1994, contributions of kFF 984 were received, an increase of kFF 50 on the previous year.

In photosynthesis, solar energy is converted to chemical free energy by an intricate biological machine, consisting of a host of membrane-bound pigment-protein complexes in plant cells and certain bacteria. Biophysical investigations focus on excitation energy to, and electron transfer in, so-called reaction centres, the heart of the energy conversion apparatus. Knowledge of the molecular details of these processes would permit the design of artificial, highly efficient biomimetic systems for solar energy conversion. These studies will also benefit a wide range of investigations in molecular biology and biochemistry, where electron transfer reactions play a crucial role.

The objective of this Programme is to create possibilities for new inter-European projects for biophysical investigations in photosynthesis, strengthening existing links and training young scientists, through the organisation of topical workshops, summer schools, and short-term exchange visits.

In 1994, the Programme supported, fully or partly, the following workshops:
May 1994, *Pigment-protein complexes: structure and spectral properties* (Preila, Lithuania);
November 1994, *The oxygen evolving enzyme* (Gif-sur-Yvette, France);
December 1994, *Electron transfer in photosynthesis* (Jyväskylä, Finland).

The following schools were also supported:
April 1994, *Interactions of light and living matter* (Liège, Belgium);
July 1994, *Spectroscopic methods in the study of the photosynthetic apparatus* (Saclay, France).

In addition, the Programme organised, within the framework of European Research Conferences, a conference:
August-September 1994, *Primary processes of photosynthesis* (York, United Kingdom).

The demand for travel grants has increased in 1994 as the activities of the Programme become better known among the scientific community. Up to October 1994, 16 awards had been made to younger scientists to support visits to different European countries (11 sending and 6 receiving countries), compared with a total of 9 awards in 1993.

This Scientific Programme reports to both LESC and PESC.

ARTIFICIAL BIOSENSING INTERFACES (ABI)

The ESF Executive Council authorised the ABI Programme to commence its activities from1 January 1994. The Programme Steering Committee met on 25-26 March 1994 to decide on future activities:
– The exchange of young scientists among the participating groups.
– Workshops to mirror the research topics being studied.
– Summer Schools.

The first ABI workshop, on *Surface Modification and Characterisation* was held in Athens on 3-6 December 1994. During the workshop the Steering Committee met to finalise the Programme activities for 1995. It is proposed to organise a Summer School in Sweden and a Workshop in Finland in 1995.

This Scientific Programme reports to both LESC and PESC.

During 1994, six proposals for Scientific Programmes have been accepted and launched, and one has been granted a preparatory "Year Zero". The Executive Council having authorised it in 1993, the Scientific Programme on Tropical Canopy Research was launched in January 1994.

In March 1994, the Executive Council approved the launch of the Scientific Programme on Climate and Fauna: a Database of the Quaternary Mammals of Europe.

In November 1994, the Executive Council approved the launch of four new Scientific Programmes:
– Control of Complex Systems (COSY)
– Vapour-phase Synthesis and Processing of Nano-Particle Materials (NANO)
– Airborne Polar Experiment
– Asian Studies Programme

The Executive Council also granted a "Year Zero" to a new Scientific Programme on
– Transport Processes in the Atmosphere and Oceans.

All these were reported by the Secretary General to the ESF Assembly in November 1994.

TROPICAL CANOPY RESEARCH

This Scientific Programme under the auspices of ESRC was launched in January 1994 for a period of five years. The budget for this first year is 265 kFF, which is half of the expected full annual budget of 530 kFF from 1995.

From 1995 it is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

Over the last few years there has been rapidly growing awareness of our lack of understanding of the interactions and interdependence of living organisms on Earth and of man's impact on this complex web. Habitat destruction, depletion of the stratospheric ozone layer, climate change with consequent massive species loss (the 'biodiversity crisis') led to the UNCED meeting in Rio de Janeiro and the signing of the Biodiversity Convention by more than 160 nations.

Biodiversity is a relatively new term comprising all aspects of diversity of life on earth at all levels of biological organisation – from molecules to ecosystems. Tropical forests represent the most complicated and least understood biological systems known. They represent our most valuable genetic heritage. They play a vital role in maintaining those properties of the biosphere that make it hospitable for man and for millions of other species. They stabilise the local as well as the global climate. They conserve soil fertility, protect soils against erosion and regulate water flow and evaporation. What is far from clear is the role of biodiversity in these essential properties and how these ecosystems will be affected by loss of biodiversity.

In this Programme are studied the patterns and processes that lead to and maintain

the immense diversity of life in the tropics. This Programme should provide a greater understanding of tropical forest ecosystem functioning and the significance of biodiversity in its structural and functional maintenance and regeneration. Results from this part of the Programme will be of use for those concerned with conservation as well as with sustainable resource management.

The year 1994 has been a planning year. A first exploratory workshop on Canopy Research was held in Vienna in June 1994, and included several invited scientists from outside Europe. The Programme Steering Committee held its first meeting at the same time. The Programme will also create links with research institutes and networks outside Europe. One such example is the US Canopy Research Network (CRN) which was established in July 1993. The first International Conference on Forest Canopy: *Ecology, Biodiversity and Conservation* will be held in Florida, USA in November 1994. The ESF programme will send an official representative. Programme participants were also involved in organising the first International *Canopy Arthropods Conference* in Manchester in August 1994.

CLIMATE AND FAUNA: A DATABASE OF THE QUATERNARY MAMMALS OF EUROPE

This Programme under the auspices of ESRC was launched in March 1994 for a period of three years, with an annual budget of kFF 300. From January 1995 it is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

Mammalian fossils provide a rich source of information for the reconstruction of environmental conditions of the past. The Quaternary was characterised by strong climatic changes, a phenomenon which can be expected to recur in the future, although modified by anthropogenic factors.

Mammals react to changing biotopes with migration. Thus the occurrence of specific species at different sites allows climatic alterations to be deciphered. However, some climatic alterations - the youngest ones, between 100,000 and 10,000 years ago – were of a different quality since, in addition to distributional changes, large numbers of species became extinct. These extinction pulses may be related to the rapidity of such changes. Climatic changes induced by anthropogenic factors seem to act even more rapidly than those in the past. Thus, a record of the past and present status of European mammals will not only be informative about the character of past changes but will allow prediction and detection of future environmental changes.

Enormous amounts of data on the mammalian species and faunas throughout Europe have been published, but in so many languages and places that it has been difficult until now for different countries to be covered in one survey. In addition, many of the data published in the last century need to be updated. However, a survey covering Europe in its entirety is necessary for the significant changes to be seen. To handle such large quantities of data, modern technology offers the instrument of a database. Using such a database to show the distribution of species and faunas within Europe during limited time slices will allow the reconstruction of environmental conditions. It is planned in addition to incorporate all relevant data from neighbouring fields like archaeology, palaeobotany and geology.

Following the decision of the Programme Steering Committee at its meeting in May to install the database at the Institute of Palaeontology at the University in Bonn, the hardware was purchased. Global compatability of datasets is assured by modifying the set up of the American database FAUNMAP to take into consideration the specific biological, geographical and stratigraphical situation in Europe.

The data bank will, in the first instance, concentrate on the Upper Pleistocene in order to acquire data of a reasonable density within the limited time of three years and provide the first results. As a trial, work has started on encoding these using cave deposits in Southern Germany for which the literature was already available.

AIRBORNE POLAR EXPERIMENT (APE)

The Airborne Polar Experiment was presented to the ESRC at its 1994 Spring meeting in Seville by A Adriani and G Puccetti. The programme concerns the coordination of an airborne experiment which will make use of stratospheric platforms for *in situ* measurements of the minor atmospheric components, which are responsible for the greenhouse effect. In its initial phase, the programme will make use of the stratospheric motorised Russian glider *Geophysica*.

The Programme was approved by the ESF Executive Council in November 1994 for a period of five years from January 1995. From 1995 it is in the portfolios of the Standing Committee for Life and Environmental Sciences (LESC) and the Standing Committee for Physical and Engineering Sciences (PESC).

The Chairman of the Programme is Professor Leopoldo Stefanutti (IROE – CNR, Italy), the Deputy Chairman, Eng. Dr V Khattatov (CAO, Russia), and the Scientific Secretary (ESF), Dr G Dalu.

The importance of the programme is in the growing interest of the scientific community in monitoring the stratosphere, and in the concern and the awareness that the change of the relative concentrations of these gases can affect the earth climate with a long term increase of the mean temperature, which can lead to the reduction of the polar ice caps, with a consequent increase of sea level and the flooding of major coastal areas and cities in Europe and other parts of the world. These minor components have a natural origin and a natural balanced cycle. However, the anthropogenic activity of the present heavy industrialised era has unbalanced the natural trend, with an increase of CO_2 and a depletion of the stratospheric ozone and an increase of organic and inorganic minor gaseous complex molecules in the troposphere.

The Russians are providing the carrier and the Italians are financing the modifications needed, since the carrier was initially designed for military surveillance. The platform will be made available to all the European scientific laboratories which have an interest in this field. However, a joint European effort is necessary in the co-ordination of the experiment for the best use of the technical resources and the dissemination of the results.

TRANSPORT PROCESSES IN THE ATMOSPHERE AND OCEANS

This Programme concerns the transport processes in the geophysical fluids, atmosphere and oceans, mainly from a theoretical point of view. The Programme on Transport Processes in the Atmosphere and Oceans was presented by Dr Lin Hua at the 1994 ESRC Spring meeting in Seville. The reaction of ESRC was favourable. Since then, ESF has received suggestions and letters of support from its Member Organisations. The proposers are A Babiano of the Ecole Normale in Paris and V Artale of the ENEA Laboratory La Casaccia in Rome. The proposed Steering Committee and the involved scientists are well established in the field.

Workshops and mobility of junior and senior scientists between different European laboratories is essential for the development of this science, which addresses several fundamental questions such as transport of heat, momentum and passive tracers by advection, by waves and by vortex breaking. The importance of the Programme is not only a nice exercise of difficult mathematics, but the results will also be useful to applied scientists and decision makers in environmental policy. Despite the positive reactions to date, further work and finer tuning is still needed before the Programme is ready for full launching.

The ESF Executive Council in November 1994 authorised a preparatory year – "Year Zero" – to this Programme beginning in January 1995. It is in the portfolio of the Standing Committee for Life and Environmental Sciences (LESC).

VAPOUR-PHASE SYNTHESIS AND PROCESSING OF NANO-PARTICLE MATERIALS (NANO)

The Programme was approved by the ESF Executive Council in November 1994 for a period of five years from January 1995, with a planned budget of 1,360 kFF per year. It is in the portfolio of the Standing Committee for Physical and Engineering Sciences (PESC).

The Programme proposers are senior scientists from 12 European countries. The Co-chairmen are Professor Heinz Fissan (Duisburg, Germany) and Professor Joop Schoonman (Utrecht University, The Netherlands). Dr H U Karow (ESF) is Scientific Secretary.

The scientific and technological issues of nanostructured particles and materials are on the verge of becoming a wide R&D field of high actuality and relevance to the technical sciences and beyond. This perspective is essentially based on the fact that nanostructured particles and materials, and the physical or chemical combination of substances at the nanometer or subnanometer scale, can lead to innovative materials with improved or even unexpected properties. Applications of great impact can be anticipated in fields like catalysis, technical ceramics, membrane technology, opto-electronics, and solid state ionics with emphasis on systems for clean energy conversion and storage.

The starting-point of gas-phase synthesis of nano-structured materials is the generation of gas-born nano-size particles. Such a particle system represents a system of aerosols.

In order to promote basic technology in Europe, in research problems of nanostructured particles and materials, bridges between the aerosol community and the materials science community are a prerequisite. This was the main conclusion of the *ESF-Exploratory Workshop on Aerosol Methods and Advanced Techniques for Nano-Particle Science and Nano-Powder Technology*, held in Duisburg, October 1993, on the recommendation of the ESRC *ad hoc* Group on Technical Sciences.

The scientific thrust of the research is the synthesis of ceramic aerosols and films using gas phase techniques, with the aim of generating single-phase, or nanodispersed structural ceramic materials and electroceramics with new or improved properties. The research themes concentrate on fundamental research problems needed to be solved for optimal synthesis in the gas phase of nanoparticles and nanostructured materials with tailored microstructures.

– *Nanoparticle Synthesis in the Gas Phase*
– *Characterisation in the Gas Phase*
– *Development of Particle Collection Processes*
– *Interfacing of Materials and Aerosol Science*
– *Nanostructured Materials and Applications*
– *Chemical and Physical Properties*

Six Task Forces, each of about 15 researchers, will be linked to the research themes.

Annual Programme meetings will be held as satellite meetings of the *European Aerosol Conference* and the *International Conference on Nanostructered Materials*.

CONTROL OF COMPLEX SYSTEMS (COSY)

The Programme was approved by the ESF Executive Council in November 1994 for a period of five years from January 1995. The planned annual budget is 1,115 kFF. The Programme proposal was endorsed by senior scientists from 16 European countries.

From 1995 it is in the portfolio of the Standing Committee for Physical and Engineering Sciences (PESC).

The Chairman is Professor Manfred Thoma (Germany), and the ESF Scientific Secretary, Dr H U Karow.

Many processes, natural as well as man-made, cannot be understood in terms of a chain of simple cause-and-effect relations. Because of feedback there will be interactions that may create complex behaviour. The study of feedback mechanisms is a central theme of control science which is presently emerging as a discipline in its own right, with a strong theoretical foundation and a wide range of applications in many different fields.

There are strong European groups who have made very significant contributions to control science. The European activities have, however, not been coordinated.

The scientific work of the programme is devoted to a number of scientific research themes which reflect the interests of the researchers who met at the ESF Exploratory Workshop in Strasbourg in December 1993 organised on recommendation of the ESRC ad hoc Group on Technical Sciences.

– *Control of Non-linear and Uncertain Systems*
– *Fault-tolerant Control Systems*
– *Learning Control Systems*
– *Integration of Complex Control Systems*

At the end of the programme, a final conference will be held and this will be arranged according to the activities of the theme workshops. Information dissemination may be enhanced by means of a Programme Newsletter, reports from the Task Forces and by publishing the proceedings of the Final Conference.

The programme includes a Fellowship Scheme for younger researchers and allows for scientific visits to partners' laboratories.

ASIAN STUDIES PROGRAMME

At its meeting of March 1994 the Executive Council decided to establish a Committee for Advanced Asian Studies under the aegis of ESF, mandated to develop activities in close cooperation with the Standing Committees for the Humanities and the Social Sciences. The Committee was set up for an initial period of three years after which its achievements should be reviewed. The Chairman of the Asia Committee is Professor Thommy Svensson (Copenhagen), Vice-chairman is Professor Denys Lombard (Paris) and Secretary Professor Wim Stokhof (Leiden).

The Asia Committee reported during 1994 on its activities and outlined its plans for 1995 and later years. The ESF Standing Committees concerned have endorsed the Committee's plans and expressed their strong support for the planned activities.

In the meantime, Member Organisations have been asked to contribute on an *à la carte* basis to the total costs of the workshops and the support for the professional associations in 1995. There is a realistic expectation that the total sum of FF 890.000 will become available for 1995 and similar amounts for the following years. It is expected that organisations in Japan and Taiwan will also contribute to this budget.

For the Fellowship scheme, no contributions will be asked from ESF Member Organisations, although they can contribute if they so wish. In the meantime the French government has informally indicated its willingness to make three European post-doc fellowships available for 1995, the Nordic Institute for Asian Studies will also contribute one or two guest professorships for 1995, and other countries are expected to follow.

The Asia Committee wishes to organise two small exploratory meetings in 1995 to develop plans for a future scientific programme on linkages between European, US and Asian Environmental Issues and Movements. It hopes to obtain support for these preparatory stages through the ESF general budget and contributions from the East-West Centre in Honolulu.

The ESF Executive Council in November 1994 endorsed the Standing Committees' approval of the work of the Asia Committee and formally approved the launch of the planned activities in 1995.

ESF Scientific Networks assist groups of European scientists to work together and to develop their scientific field in a fully European way. They are intended to assist the early stages of European collaboration, when the availability of a relatively modest level of financial support will achieve definite progress; if a scientific field is already well integrated across Europe, it is considered unlikely that an ESF Network could make a significant additional contribution. ESF Networks support the costs of contact and collaboration through workshops, small working groups, scientific exchanges, newsletters, publications and databases; the underlying research effort is supported by Member Organisations and other national sources.

The emphasis of ESF Networks is to support a scientific topic rather than a particular group of scientists; therefore ESF Networks are expected to be open to the participation of scientists from throughout Europe working in the same topic. Proposals are always put forward in the name of an individual scientist or group of scientists, but topics are also recommended by Standing Committees and directly by Member Organisations. This wide spread of sources for Network proposals is welcomed and encouraged.

Most ESF Networks have, on completion, extended their activities in some other form, and this is a sign of success. Some have become Phase 2 Networks (an earlier mode of ESF operation no longer available) or Scientific Programmes or Euroconference series; others have progressed to more substantial support from programmes of the European Union, and this too shows that ESF has performed a useful pioneering function; while others have continued in a self-motivated, self-financed manner.

The ESF Network Scheme is supervised by the Network Committee which reports to the Executive Council and is composed of four members of the Council and the four Chairmen of the Standing Committees.

The Strategic Reappraisal has had several particular consequences for the Network Scheme: first, it has been decided that at least some ESF Networks should be concerned with topics identified in the Standing Committees as of current strategic scientific importance in Europe – several of the Networks launched in 1994 are of this character. Second, new Networks will be expected, at the end of their three year activity, to return to ESF with a "result" (which may be a set of recommendations, a publication, a forward plan) which ESF and its Member Organisations should then consider how to implement. This new requirement cannot be imposed on existing Networks approaching completion, but the approach is already entering the thinking of new Networks. Third, the Strategic Reappraisal recommended that some Networks should be more widely international (not solely European). This is already apparent in one new Network (Systematic Biology) which has secured funds from external sources for Europe-US aspects of its activities. And fourth, Network evaluations, which are conducted at the end of every Network, will in future involve a selection of Member Organisations and the relevant ESF Standing Committee.

New Networks

Seven new Networks have been launched during 1994, on the following topics:

– Oxide Crystals, *(Chairman:) Dr G Corradi, Budapest*
– Systematic Biology* , *Dr S Blackmore, London*

– National Socialist Occupation Policy*, *Professor W Benz, Berlin*
– Gender Inequality and the European Regions*, *Dr S Duncan, London*
– Social Transformations in Central Europe*, *Professor W Adamski, Warsaw / Professor M Dobry, Paris*
– Catalytic Membrane Reactors, *Professor E Drioli, Calabria, Italy*
– Molecular Biology and Ecology of Plasmid mediated gene spread, *Professor M Espinosa, Madrid*

** These topics were previously identified in Standing Committees*

Four evaluations have been completed and reported to the Executive Council, on NECTAR, Neuroimmunomodulation, Polar Science, and Population Ecology and Genetics. Several further evaluations are currently in progress.

A total of 28 Networks are currently active; some of these are approaching completion, others are at the peak of their activity and some are only recently launched. Brief reports on all active Networks are printed below. Further information may be obtained from the appropriate Scientific Secretary or the Network Coordinator at the ESF Office.

1995 Networks

In November 1994 the Executive Council, on the recommendation of the Network Committee, approved the following two new Networks to commence in January 1995:
– Electroluminescence in Silicon *(Chairman:) Professor B Hamilton, Manchester, United Kingdom*
– Converging Computing Methodologies in Astronomy, *Dr M C Maccarone, Palermo, Italy*

Future Prospects

As noted above, the Strategic Reappraisal has had several important impacts on the Network Scheme. Networks on scientific topics identified in the Standing Committees are already being launched. The presence of the Standing Committee Chairmen as members of the Network Committee has for several years ensured that ESF Networks are not divorced from the thinking of the Standing Committees; but the positive encouragement to the Standing Committees to identify further strategic topics will strengthen the interaction even further.

In addition, as "post-Reappraisal" Networks approach completion in one or two years time and present their "results" or recommendations for the future of the science in Europe, the ESF should be ready to act positively and with encouragement.

Although the Strategic Reappraisal encouraged the expansion of the Network Scheme, the economic position of ESF Member Organisations may not yet be opportune. Much depends on the reaction of the Standing Committees to the new opportunities. In the meanwhile, best possible use will be made within the existing constraints to support a maximum of scientific activity. This has already permitted seven new Networks to be launched in 1994 from a budget designed for six; this has been achieved through small savings on a number of completed Networks and economies in the administration of the Network Scheme.

Progress Reports 1994

This set of Reports covers all Networks in operation at any time during the year 1994.

The first three Networks listed are in Phase 2: no more Networks will enter this mode of operation (with à la carte *funding from Member Organisations), but all these Networks now in Phase 2 will complete their agreed programme of work, using the finance already committed by Member Organisations.*

NETWORK ON THE HISTORY OF EUROPEAN EXPANSION (PHASE 1: 1986-1989; PHASE 2: 1989-1994)

The Network aims, firstly, to overcome the existing partition in the study of European Expansion history, mainly based on traditional connections dating back to the colonial empires and, secondly, to establish an infrastructure for the study of European expansion.

The Phase 2 Network has included several workshops and summer courses, and two books have been published and three others are forthcoming. A third summer course was held in Spain in July 1994.

NETWORK ON CRYSTALLOGRAPHY OF BIOLOGICAL MACROMOLECULES (PHASE 1: 1987 - 1989; PHASE 2: 1990 - 1994)

The main results of this Network have been to unite and coordinate research in protein crystallography in Europe and to identify areas of crystallography of strategic importance to the development of European molecular biology and for its application to medical, agricultural and biotechnological areas. The need for synchrotron radiation facilities by biomolecular crystallographers has increased dramatically during the past few years. Fortunately, Europe has excellent synchrotron facilities for high-intensity X-ray radiation and neutron beam sources. The Network is currently involved in coordinating and advising on the use of facilities. Another aim of the Network is to encourage the training of young scientists entering the field of crystallography of biological macromolecules and to stimulate and promote the development of this field in European countries not traditionally involved in it.

The targets of research for the Network are the major biological macromolecules: the nucleic acids DNA and RNA, proteins and polysaccharides. Understanding the mode of action of these giant molecules requires accurate knowledge of the positions of all their atoms. The level and contribution of Western European research can be illustrated by its contribution to the international Brookhaven Protein Data Bank (BPDB) of three-dimensional protein structures. The European entry has increased dramatically over the last ten years from a total of 226 entries in 1983 to 897 entries in 1992, which is about 30 % of the total input, but the competition, mainly from the USA, is very intense. It is, however, extremely satisfying that some of the very important membrane proteins, which are very difficult to crystallise, have all been determined in Europe. The Network has been interacting strongly with the BPDB to secure and improve the service of the database to the scientific community.

Two working groups have been established under the Network: Working group 2.1. is dealing with software

development and coordination, and storage and publication of bio-crystallographic data. Working Group 2.2. has been instrumental in coordinating the use of synchrotron facilities and in advising on the type of beams and detectors used. Dr C-I Brändén, Director of Research at the European Synchrotron Research Facility (ESRF), is a member of the Network Coordination Committee.

Since 1986, eleven issues of a *Newsletter* on Protein Crystallography have been widely distributed in cooperation with a UK project on protein crystallography (CCP4).

Three specialist workshops and one course have been organised or planned during 1994 with the support of the Network:

January 1994, *Phase Improvement and Map Interpretation*, York, United Kingdom.
October 1994, *Imaging Plate Data Collection and Processing*, Hamburg, Germany.
November 1994, *2D Detectors for Protein Crystallography*, Grenoble, France.
November-December 1994, Course on the *Crystallography of Biological Macromolecules*, Crete, Greece.

In 1994 the Coordination Committee met on 13 August in Amsterdam. Phase Two of the Network comes to an end under ESF auspices by the end of 1994, but other sources of funding have been sought.

NETWORK ON FINANCIAL MARKETS (PHASE 1: 1988-1990; PHASE 2: 1991-1994)

The purpose of this Network has been to encourage the emergence of a community of economists in Europe working in the area of financial markets. Finance has risen to prominence as an academic discipline in the United States over the past 30 years and has become a rapidly expanding subject of interest amongst European academics. The Network has been designed to encourage the development of a leading group of researchers in financial economics in Europe and to stimulate high-quality research in the field.

In 1994 workshops have been held on the following topics:

March 1994, *Market Microstructure*, Konstanz, Germany.
June 1994, *Securities and Derivatives*, Louvain-la-Neuve, Belgium. Reports on these workshops are included in the Network *Newsletter* which is published twice a year. In addition, a series of working papers continues to be published; to date, 50 papers have appeared.

An important element of the Network has been the European Summer Symposium in Financial Markets which has been held annually since 1990 as a joint venture between ESF and the *Studienzentrum Gergensee* (the study centre of the Swiss National Bank). The Summer Symposium brings together both established researchers and promising young researchers entering the field. The fifth symposium was held between 11-22 July 1994.

ESF funding of this Network ended in 1994. The Network has applied successfully for continued funding of

workshops and the summer symposia through the Human Capital and Mobility schemes of the European Commission's Third Framework Programme. Further funding has, therefore, been secured through 1997. The Network will continue to be coordinated via the Centre for Economic Policy Research (CEPR), London.

The Network Coordination Committee are preparing their final report for submission to the Network Committee for evaluation.

NETWORK ON THE SEMANTICS OF CLASSICAL HEBREW
(1991 - 1994)

The study of Classical Hebrew has traditionally been based on the philological-semantical interpretation of the text. A problem of existing dictionaries is that the printed form only represents the result of a discussion, denying the reader insight into the reasoning that has led to the chosen situation. A need has been felt for a new tool in Hebrew studies which would enable scholars to find their way directly to the discussion about a topic. Collecting the semantic material in a machine-readable form is an important step that would complement other tools that have been made available to the scholarly world in the last few years.

The most important requirements in a computerised semantic database are first, a description of results reached, as clear and complete as possible: and second, an indication of gaps in our knowledge, where further study might be useful. The aim is to reach a general synthesis that might form the foundation for further studies in the field of the semantics of dead languages.

At two workshops held during 1993, agreement was reached on the structure of entries for the database, and several example entries were presented and discussed. A working pilot scale database was also demonstrated. During 1994, the arrangements for a larger scale development of the project have been prepared. At a symposium held in Leiden in July, participating groups from nine European universities committed themselves to a programme of research and database preparation. Funding will be sought from national sources, with some provision for maintaining the necessary liaison at the European level. The Network will support one final meeting of the Coordination Committee to ensure a smooth transition to the new arrangements.

NETWORK ON MOLECULAR DYNAMICS OF BIOMEMBRANES
(1991 - 1994)

The obstruction to progress in the broad field of biomembrane research is often the lack of molecular understanding of biomembrane structure and function. This is mainly caused by the complex and unique properties of biomembranes, which makes it essential to use combined approaches from different disciplines such as biology, chemistry, physics and mathematics. It is now being realised that a dedicated multi- and interdisciplinary research strategy is an essential requirement for progress in this field.

It is the aim of this Network to stimulate such multi- and interdisciplinary studies on the molecular description of membrane dynamics in selected areas of membrane research in order to provide a conceptual framework for membrane function. It is expected that this will lead to a significant increase in the rate and

extent of overall progress in the field of biomembranes throughout the life sciences.

The Network concluded its activities in 1994 with a joint ESF Network Study Centre and FEBS Advanced Course on Molecular Dynamics of Biomembranes, held in Luso (Portugal) on 6-9 April 1994.

The Network is presently undergoing review.

NETWORK ON WRITTEN LANGUAGE AND LITERACY
(1991 - 1994)

Writing and written language acquisition have been acknowledged as being a complex cultural and psychological process. In order to understand children's itinerary towards the mastery of written language, it is necessary to examine and understand uses, rules and conventions of writing as well as the complex relationships between oral and written language. Three workshops were planned.

The third and last workshop was held in Nice in September 1994, devoted to Contexts of Literacy. The workshop took place over four days with 27 participants and gave rise to four sessions:
- Cultural context
- First results of the Pilot Study
- Biliteracy and pluriscripturalism
- Literacy for populations with special needs

Ten texts were presented and discussed.

Parallel to the three workshops, during the Network's life, a Pilot Study was managed, whose object was to compare the acquisition of written language as compared to the acquisition of oral language. This comparison was made in four European languages: German, Catalan, Italian and Dutch. The Pilot Study tested the textual capacities of children of different age groups from 7 to 15 years old, representing different classes and nationalities. The test measured their ability to narrate a story presented by means of a series of 24 uncaptioned pictures. During the different sessions of the three workshops, one particular session was, each time, consecrated to the progress of the Pilot Study. At this time, the Pilot Study is not finished. Therefore the Coordination Committee has asked for a one-year prolongation of this Network.

The policy on proceedings defined from the beginning of the Network seems to be a success. More than 250 printed copies of the proceedings of the first workshop were diffused through the scientific community. The proceedings of the second workshop were distributed in the same way. The same procedure will apply for the proceedings of the third workshop.

NETWORK ON THE CLASSICAL TRADITION IN THE MIDDLE AGES AND THE RENAISSANCE
(1991 - 1994)

The origins of modern Europe lie in the Middle Ages and the Renaissance. The classical tradition was one of the important uniting factors. Classical influence may be observed in a whole range of subjects: politics and law, philosophy and science, language history, art and architecture. The Network aims to synthesise the work done in the various disciplines and will initiate collaboration between researchers.

Following three workshops held during 1992-93, a final symposium was organised in May 1994 in Louvain.

NETWORK ON DYNAMICS OF COMPLEX SYSTEMS IN BIOSCIENCES (1991 - 1994)

It is increasingly accepted that mathematical models can provide useful metaphors in the biosciences not only with deterministic systems, or stochastic systems, or deterministic systems which give rise to chaotic evolutions, but also with nondeterministic complex systems evolving under uncertainty.

Mathematical techniques provide unifying threads in a variety of diverse areas in the biological sciences. This is the case for instance in Darwinian evolution, morphogenesis, immunology and biochemistry, population dynamics, ecological and environmental models, ethology and evolutionary games, cognitive systems, and many others.

Besides the identification of key laboratories as well as groups or individuals in Europe working on mathematical models of the evolution of complex systems, the Network will focus its activities on the mathematical and conceptual aspects of the proposed models, attempting to gather the approaches already used and to look for common features. The Network will emphasise the following orientations: control and viability theory, cognitive systems, evolutionary dynamics, theoretical immunology, and morphogenesis and pattern formation.

The Network activities in 1994 included:

May 1994, Study Workshop on *Dynamics of Complex Systems in Biosciences*, Les Houches, France.
June-July 1994, Workshop on *Viability Theory*, Fontevraud, France.
November 1994, Workshop on *Neural Networks*, Lanzarote, Spain.

The Network concluded its activities in 1994.

NETWORK ON METAL CLUSTERS (1992 - 1995)

The central role of metal clusters in chemistry and their increasing importance in other scientific areas such as physics and biochemistry has stimulated a considerable interest for this ESF Network, as documented by the number of scientists interested in being on the mailing list (more than 300) and the wide range of scientific topics covered by the workshops which were organised:

– May 1994, *Cluster Reactions and Catalysis*, Tarragona, Spain
– July 1994, *Theoretical Aspects of Cluster Chemistry*, Sussex, UK
– September 1994, *Electronic Properties of Metal Clusters*, Murnau, Germany.

Their scientific success and the high interest shown by young researchers is most encouraging for future initiatives in this area of modern science.

The Network activities are continuing with increased emphasis on exchange visits by junior researchers, and with the organisation of more workshops with emphasis on solid-state cluster chemistry.

NETWORK ON MEDITERRANEAN MARINE GEOSCIENCES (1992 - 1994)

The Mediterranean Sea, located at the meeting point of the African and Eurasian tectonic plates where active earth movements are still in progress, provides a unique opportunity for the concentrated study of geological and marine processes. Within the range of a single research

voyage it is possible to investigate an accretionary prism, an active rift, a strike-slip belt, deep sea fans, underwater vulcanism and mud flows, and continental shelves.

While European marine geologists were actively considering these research opportunities, the Moscow State University invited European groups to share in the operation of the 5520 t research vessel *Gelendzhik* for a period of several years. After a successful trial cruise in 1991, the ESF Network was constructed around further research activities in the period 1992 to 1994. The Network enabled European scientists to participate in three research cruises and the associated planning and processing/ analysis of results; the Network also organised an annual workshop at which leading European marine geologists examined together the latest results in the selected field. The Network made only a small contribution to the overall ship costs, which were raised from other sources, including national funding agencies and the Marine Sciences Division of UNESCO.

The selected research theme for 1994 was vulcanism and underwater rifting in the Tyrrhenian Sea, and a workshop was held in Naples. Consideration has been given to the continuation of the project; the mostly likely development is a formal collaboration between Dutch and Russian institutes, with groups from other countries enabled to participate against clearly stated scientific and financial criteria.

NETWORK ON WHOLE PLANT PHYSIOLOGY
(1922 - 1995)

The collaborating laboratories in the Network on Whole Plant Physiology have a common aim: to interpret plant growth and its response to environmental changes in terms of the functioning of the organs and their underlying biochemical and molecular processes, and to use this to understand ecosystem functions. The series of workshops organised by the Network is intended to create opportunities for discussions of plant processes at different levels.

Following the workshops on Nitrogen assimilation, translocution and partitioning (Stockholm, August 1992) and Physiological basis of plant fitness (Weidenberg, Germany, July 1993), a workshop on Allocation of carbon and nutrients: causes and consequences at the whole plant level was held in Utrecht, The Netherlands, on 14-16 December 1994. Around 40 participants from 11 different countries were invited to attend.

In addition to the workshops, the Network has in1994 supported four young researchers to spend periods of three to four months in a different European institute.

NETWORK ON HLA AND ALLERGY
(1992 - 1995)

Although usually not severely incapacitating, allergy is a major health problem in developed countries because of its high and increasing prevalence. Inhalation of proteins from a wide variety of sources, including pollens of grasses, weeds and trees, spores of moulds, faeces of mites and dander of pets and domestic

animals, provoke allergies in approximately 20 per cent of humans.

Our understanding of basic aspects of human immune response has until recently been derived from studies of immunological disorders used as experimental models to elucidate pathophysiological mechanisms. The attention, initially focused on auto immunity, has recently expanded to allergy, as advances on the physico-chemical structure of allergens, largely due to the introduction of recombinant DNA technology, have opened the possibility to study the allergic response at the cellular and molecular level.

Recently, it has been shown that a main clue to this phenomenon lies at the core of immune recognition, as the products of genes at MHC loci bind peptides of processed antigens in a specific or selective way and expose them on the cell membrane for interaction with the T cell antigen specific reactor (TCR), causing T cell activation.

The awareness that immunogenicity and antigenicity of proteins can be modulated in a programmed way, if structure/function relationships in immune recognition are defined, underlies the modern approach to vaccines.

Network activities in 1994 have centered around the preparation of a position paper on "Immunogenetics of Allergy: its Prevention and Care". The position paper was favourably received by the EMRC and the Network was invited to propose a one-year extension of its activities in order to extend and detail plans put forward in the document. This application was approved at the 24 October meeting of the ESF Network Committee.

NETWORK ON QUANTUM FLUIDS AND SOLIDS
(1992 - 1995)

The scientific subject of the Network is simple fluids in which quantum mechanical effects are dominant. The condensed phase of the helium isotopes (and isotopic mixtures) are the testbed for theories of phase transitions, magnetism, and lattice dynamics.

The second Workshop of the Network was held at Konstanz University on the subject of *Interfaces*, interpreted broadly as two-dimensional phenomena. Solid-liquid interface, adsorbed films and charged interfaces were among the topical themes discussed. Of particular interest was the discussion of wetting phenomena; another highlight was the recent remarkable discovery of a vortex sheet in superfluid 3He-A. Organisers and participants agreed that this second workshop was a very profitable meeting for both leading scientists and students.

The Coordination Committee which met during the Konstanz Workshop decided that the third Workshop will be held in April 1995 at ICTP Trieste on *Excitations and Spin Polarised Systems*. The Committee also decided on travel grants for scientific exchange visits and encouraged specialised mini-workshops.

NETWORK ON THE PALAEOLITHIC OCCUPATION OF EUROPE
(1993 - 1995)

The aim of this Network is to create a platform where scientists studying the European Palaeolithic record can discuss activities and plan collaboration. A joint research objective is the evaluation of all available data for elementary cross-regional and diachronic comparisons.

A first workshop took place in Tautavel in November 1993. The workshop focused on *The Earliest Occupation of Pleistocene Europe* and brought an overview of early sites and regional data in the context of critical evaluation of the artefactual evidence, aspects of site formation and dating techniques. A book with edited workshop contributions is forthcoming. The second workshop has focused on *Biotope and Settlement* and was held in Arras in November 1994.

NETWORK ON CELL STRESS GENES AND THEIR PROTEIN PRODUCTS (1993 - 1996)

The need for an ESF Network on cell stress genes and their protein products became apparent when European leaders in the field met with their worldwide colleagues in Ravello, Italy in September 1990. It was obvious that good work was taking place in European institutes which would benefit from the interactive environment provided by workshops, conferences and some mobility amongst younger workers in the field.

The genes and their protein products are remarkable in their conservation from prokaryotes to man with large sequence conservation. Such conservation is not without pathological consequences. As might be expected, in higher organisms each species has a family of cell-stress genes with protein products involved in a variety of cell functions.

The importance of the cell stress genes and their protein products has recently been further emphasised by changes in the expression of the genes in human and animal diseases. Cell stress genes are routinely expressed in both pathogens and host cells in response to infection. Further, increased expression and utilisation of the cell-stress proteins occurs in a variety of chronic degenerative and viral diseases. The disease imposed violation of cellular integrity is combatted by host activation of cell-stress genes to eliminate the causative agents.

Elucidation of the mechanisms involved in the activation of gene expression and the functions of the cell-stress proteins in these responses is of fundamental importance to some of the most outstanding problems in biomedical science. Networking of the groups throughout Europe will lead to much more rapid progress in the understanding of cell stress proteins in health and disease. Furthermore, another major focus of investigation is the role stress proteins play when pathogens infect humans.

Activities in 1994 included:
June 1994, Study Workshop on *Micromolecules and the Stress Response*, Rome, Italy.
September 1994, Workshop on *Stress Proteins in Infection and Immunity*, Ravello, Italy.

NETWORK ON IMPACT CRATERING AND EVOLUTION OF THE EARTH (1993 - 1996)

Sophisticated space research in the past two decades has resulted in the recognition of the fundamental importance of interplanetary collisions for the origin and evolution of the terrestrial planets. Research on the Earth's moon played an important role in establishing quantitatively the mass flux and size distribution of impactors for the Earth-moon system through geological time. The terrestrial Proterozoic and Phanerozoic impact crater record is compatible with the lunar record in terms of number-size-frequency.

The geological effects of asteroidal and cometary bombardment for the Archean moon are well known and document the decisive role of impacts for the crustal evolution. Similar effects must be expected for the Archean Earth. Additional, not well understood effects are to be expected for the Earth's atmosphere, hydrosphere and biosphere through geological evolution.

Recent studies of near-earth asteroids with sizes ranging up to a few km yielded an estimate of the current impact frequency on Earth for bodies greater than 1 km in diameter in the order of 3 events per million years.

The basic conclusion from these facts is that hypervelocity impacts of extraterrestrial bodies were and still are extremely important processes for the evolution of planet Earth. The Network addresses these issues through interdisciplinary workshops and scientific exchanges involving geologists, materials scientists, atmospheric chemists and evolutionary biologists.

Two workshops were held in 1994: June 1994, on *the Identification of impact structures* (with field studies of the Lockne and Gardnos impact craters), Ostersund, Sweden, September 1994, *Shock Wave Behaviour in Solids* (with a field study of the Rochechouart impact crater), Limoges, France.

Six awards of Scientific Exchanges have been made to enable scientists from differing parts of Europe to work together on various aspects of impact phenomena.

A post-workshop *Newsletter* has been prepared and widely distributed.

NETWORK ON HIGHLY STRUCTURED STOCHASTIC SYSTEMS
(1993 - 1995)

The Network was launched in 1993 for a duration of three years, with a total budget of 650 kFF. A well attended workshop on *Highly Structured Stochastic Systems* took place in Cortona, Italy, on 9-16 April 1994. On the same occasion, the Coordination Committee met, and the following workshop was planned and the fellowships were discussed. The workshop on *Modelling Highly Structured Stochastic Systems* took place in Wiesbaden, Germany, on 1-5 September 1994. On this occasion the Coordination Committee awarded four fellowships.

NETWORK ON TRANSITIONS IN YOUTH
(1993 - 1996)

The main focus of this Network is on the transitions of young people from education to the labour market, but in the context of other transitions, for example to new family statuses or to independent households. The long-term goal of the Network is to promote theoretical development in the field, especially through the use of regular and longitudinal surveys for comparative and cross-national research. In pursuit of this goal the Network promotes the development of a community of scholars in the field, enables researchers working on studies within their respective countries to meet to add a comparative dimension to their work, and encourages discussion of the theoretical, conceptual and technical issues in its field of study. It also promotes awareness of comparative methodology and of datasets suitable for comparative analysis.

The first workshop of the planned series of three, on *Determinants of Individual Success in Transitions to the Labour Market*, was held in Seelisberg, Switzerland, on 16-19 September 1994. Forty participants, representing 13 countries, participated in this workshop. The 20 papers presented will be made available to a wider audience as a series of working papers produced by the Network. In addition, the workshop organisers are looking into the possibility of producing a commercial publication.

Since it began work the Network has identified the availability of datasets for comparative analysis, and the conceptual and technical issues in linking data from different countries, as matters of particular concern. Members of the Network have contributed to a working group which advised Eurostat on these problems, and the Network is maintaining its links with Eurostat as well as with the OECD. The Seelisberg workshop included a half-day session on issues arising in the planning and construction of cross-national datasets on transitions in youth. In particular, a paper was presented by a small working group which is constructing a three-country (Scotland, Ireland and The Netherlands) dataset on transitions from secondary education. There are plans to expand the dataset by including data from other countries, including France, and possibly creating new datasets covering other countries, based on different types of surveys. The group is planning an application to the EU Fourth Framework Programme for resources to support this work.

This year, two issues of the Network *Newsletter* have been circulated to a mailing list of around 140 people, and a third issue is in preparation. As well as informing its readership of the Network's activities, the *Newsletter* offers a "notice-board" service, including information about conferences, publications, and surveys in the field. The possibility of setting-up an electronic mail "discussion group" is also currently being investigated.

NETWORK ON EUROPEAN-AFRICAN SONGBIRD MIGRATION
(1993 - 1996)

The principal migratory routes for many species of songbirds migrating from the Palaearctic to African wintering grounds are fairly well known. What is missing is a detailed analysis of environmental factors controlling bird migration as well as the temporal and spatial course of the migratory journeys. Successful migration depends on the storage of energy fuel for the journey. Long distance migrants which go thousands of kilometres from their summer breeding ground to distant African wintering sites exhibit extraordinary feats of physiological endurance. To migrate these long distances and to cross the inhospitable terrain of the Sahara or the open sea requires considerable energy. Only a few birds, such as swallows, are able to collect food while migrating. Most birds must store large amounts of fat before departure. Birds show an amazing variety of migration strategies. Some travel in many short steps, others in one or two stretches with very long flights.

The main objective of this Network is to create a coherent European project to study the different strategies of migratory birds. The key questions include investigation of:
– the migration routes, timing, stopover sites used by migrating birds,
– ecological requirements at the fattening areas,

– localisation of fattening areas and wintering grounds.

Although several successful regional and national programmes exist it is essential to gather standardised data from the full range of migratory routes. Research centres from 17 countries representing more than 30 bird-ringing groups have committed themselves to collaborate within the Network. The Network provides the means to integrate and coordinate existing and complementary research. Common guidelines and training courses will secure standardised measurements and trapping methods at all ringing centres. A centralised database will support the Network members and will encourage rapid data analysis, supplying complete sets of raw data to participants for further research.

The Network was launched in August 1993 and held its first Coordination Committee meeting in Radolfzell, Germany, on 1-2 October. A first Technical Workshop on *Field Methodology* was held on 18 to 20 February 1994 in Bologna, Italy hosted by The National Wildlife Institute. The main task of the workshop, which gathered 25 participants from 12 countries, was to finalise a joint Manual of Field Work to be used by the participating ringing centers for the scientific Network. Two intensive Training and Calibration Meetings were held at Falsterbo Bird Observatory, Sweden from 28 July to 2 August and from 4 August to 9 August. The main aims were to test and adjust the Field Manual before the first ringing season and to calibrate measurements and scores in order to be able to compare results from different sites. Ten staff members from the Falsterbo Station and 23 other scientists from 11 countries took part in the two meetings. A second round of training and calibration sessions are also planned for early 1995 at the Falsterbo Bird Observatory in Sweden.

NETWORK ON DATABASES OF GENE EXPRESSION DURING MAMMALIAN DEVELOPMENT (1993 - 1996)

With the application of the tools of molecular genetics to developmental biology, the nature of the subject has changed profoundly in the last decade. Indeed, developmental biology has become one of the most exciting areas of contemporary science, and its importance is demonstrated by the establishment of an ESF programme in the area. The molecular analysis of early embryos has not only enabled us to discover some of the key molecules underpinning their embryogenesis, but has also confirmed the expectations of five generations of developmental biologists, that common regulatory mechanisms underpin the development of a wide range of organisms.

There have, however, been some surprises and one is the fact that, in many cases, the domains of expression of regulatory genes do not map to known anatomical boundaries. This has, in turn, meant that it is difficult to describe expression domains in textual terms and hence to understand how the regulatory cascade processes are integrated. A graphical computer model of mouse development and a database containing the gene expression information can allow data to be interrogated and the results displayed on a computer screen.

Once the system is complete, it will be made available to all European developmental biologists. The product will come in two parts. The first will be a set of CD-ROMs which any laboratory

will be able to buy and use as a local tool. These will contain the stages of mouse development in graphical format, a database of anatomical information and some key programs for accessing and interrogating the second part of the system, the gene-expression database. This will be held in a major European laboratory and regularly updated.

In the longer term, there is an ongoing need for collaboration after the first stage. The generation of the mouse model and the anatomical databases is a necessary initial step to enable the gene-expression and transgenic mouse databases to be accessed, and these two databases will need to be continually updated (the human genome database is the model here). Future collaborations with developmental geneticists, computer scientists, major laboratories and journal editors will ensure that data are added.

Activities in 1994 included a number of short visits of Network participants to the Database Centre in Edinburgh, UK, and a Workshop on *Gene Expression, Anatomy and Computing* held in Strasbourg, France, in October 1994.

NETWORK ON FISHES OF THE ANTARCTIC OCEAN (1994 - 1996)

Fish are highly developed vertebrates which have succeeded in occupying virtually all aquatic environments on Earth. During their evolution in Antarctic marine waters, fish have adapted to cope with extreme conditions, such as water temperature below the freezing point of their body fluids, low and sporadic food levels and high pressure and oxygen saturation on Antarctic shelves.

These special adaptations make Antarctic fish a very important group relevant to the understanding of the evolution and functioning of physiological, biochemical and ecological adaptations from both a phylogenetic and ontogenetic point of view. The pattern of adaptation can tell us much about the process of evolution, since (unlike the situation in the shelf waters of other continents) the modern Antarctic fish fauna is dominated by a single highly endemic group (Notothenioidei), specialised to a large range of different living conditions.

Many fields of research on Antarctic fish have been opened and pursued in Europe during the last 20 years and European scientists are leading in disciplines like karyotyping, ecology, population dynamics, biochemistry, physiology, etc. Most of this research has been carried out on a national basis. The ESF Network gives an opportunity to plan and co-ordinate a European project on the study of ecological constraints and strategies of evolutionary adaptations of cold-adapted Antarctic fish.

The Network was launched in January 1994 and will run for three years. Activities for 1994 included:
– The first meeting of the Network Coordination Committee in Paris, February 1994, at which the future activities were planned.
– The first Workshop on *Technical and Theoretical Approaches to Antarctic Fish Evolution*, October 1994, Santa Margherita Ligure, Italy, attended by 40 participants from 10 European countries. It was opened with a keynote address from Professor J T Eastman, Ohio University, USA: *The Evolution of Antarctic Fishes: Questions for Consideration and Avenues for Research.* The Workshop essentially consisted of round-table discussions on the different

approaches to the study of Antarctic fish evolution (morphology, molecular biology, cytogenetics, biochemistry and physiology, ecology). It was noted that more information is needed on species living just outside the Antarctic Polar Frontal Zone. Comparative studies with Arctic species are extremely important: although the thermal history of the Arctic is more complex, the very different taxonomic composition of the fauna allows us to see how a different group of fishes has responded to the same challenge of living at the lower extreme of the temperature range available to marine organisms. Finally attention was focused on one of the main roles of the Network: organising exchange of materials and data, information on future cruises, research perspectives in shore-based stations, coordination of research plans, and other means of furthering collaborations.

– The second meeting of the Network Coordination Committee (Santa Margherita Ligure, Italy, 11 October 1994), in which the outline of a second Workshop in 1995 was established.

OXIDE CRYSTALS (1994-1997)

During the last 30 years unprecedented technical advances have been made in the fields of semiconductors, optical fibre communication and solid state lasers. In each of these examples this has only been possible because of the fundamental effort devoted to preparing starting material. Progress in the controlled production of insulating crystals has had less obvious public impact. There is thus a very clear motivation for this Network to exchange information and expertise on the basic growth processing of a range of oxides with interesting scientific and commercial applications.

An exploratory workshop, attended by 20 scientists from 13 countries was held in Budapest in October 1993, which refined the scientific scope of the topics to be included. On the recommendation of the Network Committee, the Executive Council approved this Network in June 1994 for a three-year period, with a total budget of FF 700 000. The Chairman is Dr G Corradi, Budapest, Hungary.

CATALYTIC MEMBRANE REACTORS (1994-1997)

This Network aims to coordinate high quality European research into the integrated use of membrane separators as catalysts in chemical processes. Although the subject is of potential industrial application, the Network concentrates on fundamental scientific aspects of membrane design, theoretical analysis and modelling. Contacts with research groups in Japan and the United States are included. The Coordination Committee includes representatives of 19 participating centres in ten countries. The Executive Council approved this Network in June 1994 for a three-year period, with a total budget of FF 910 000. The Chairman is Professor E Drioli, Cosenza, Italy.

SYSTEMATIC BIOLOGY (1994-1997)

The Network addresses issues such as biodiversity and taxonomy which are of current scientific and public importance; it will aim to link together the work of several existing projects into a coherent European initiative, and also provide a platform for a European relationship with a similar activity in North America. An Exploratory Workshop was held in London in January 1994, attended by 20 scientists from 13 European countries plus the United States. The systematic biology community is at a crucial point in its history, as it confronts the vast scientific challenge posed by the need to understand and conserve the Earth's rapidly declining biological diversity. The US systematic community has already joined forces; this Network draws together the uniquely strong European systematic biology resources. The Executive Council approved this Network in June 1994 for a three-year period with a total budget of FF 734 000. The Chairman is Dr S Blackmore, London, United Kingdom.

MOLECULAR BIOLOGY AND ECOLOGY OF PLASMID-MEDIATED GENE SPREAD (1994-1997)

This Network focuses on the role of bacterial plasmids in the process of genetic exchange and distribution. The Network unites molecular biologists and microbial ecologists, groups which have previously worked insufficiently together. The primary activity of the Network is three major workshops, supplemented by

some smaller meetings to follow up emerging themes. On the recommendation of the Network Committee, the Executive Council approved this Network in June 1994 for a three-year period with a total budget of FF 754 000. The Chairman is Professor M Espinosa, Madrid, Spain.

GENDER INEQUALITY AND THE EUROPEAN REGIONS (1994-1997)

This Network is concerned with the advantages and disadvantages arising from differing conceptions across Europe of the social roles of men and women. The Network aims to move away from the simplistic interpretation of male domination towards a more complex multidimensional analysis of gender divisions. Fields to be addressed include labour markets, household structures and taxation systems. The regional dimension (not merely national) of differences through Europe will be regarded as particularly critical. On the recommendation of the Network Committee, the Executive Council approved this Network in June 1994 for a three-year period with a total budget of FF 706 000. The Chairman is Dr S Duncan, London, United Kingdom.

SOCIAL TRANSFORMATIONS IN CENTRAL AND EASTERN EUROPE (1994-1997)

This topic has for some time been high among the priorities of the Standing Committee for the Social Sciences. This joint Polish/French initiated Network examines the theoretical basis and the structural consequences of the rapid social changes occurring in central and eastern Europe. The scientists question the usual practice of isolating communist and ex-communist systems in exceptional categories, and prefer to apply the more normal methodologies of the social sciences. The primary activity proposed is a series of five international workshops. The Network Committee, while accepting the emphasis on sociological and political science aspects of the topic, recommended that the very significant economic factors should not be overlooked. The Network Committee also recommended, in view of the nature of the topic, greater participation from central Europe. The Executive Council approved this Network in June 1994 for a three-year period with a total budget of FF 755 000. The Joint Chairmen are Professor W Adamski Warsaw, Poland and Professor M Dobry, Paris, France.

NATIONAL SOCIALIST OCCUPATION POLICY (1994-1997)

This Network examines aspects of the National Socialist occupation policy during the Second World War from a historical point of view, particularly benefiting from large volumes of contemporary documents which have recently become available. The goal of the Network is to promote the internationalisation of the still predominantly national character of the present research. On the recommendation of the Network Committee, the Executive Council approved this Network in June 1994 with a total budget of FF 700 000. The Chairman is Professor W Benz, Berlin, Germany.

EVALUATION OF COMPLETED NETWORKS

In September 1991 the ESF Executive Council approved a procedure for the evaluation of completed Networks. This procedure consisted essentially of the following steps:
a) The Co-ordination Committee for the Network produces a completion report.
b) The Network Committee appoints three or four independent evaluators to review the completion report and other relevant material.
c) The evaluators report in writing to the Network Committee. The evaluators are not expected to meet and their reports are not harmonised.
d) The Chairman of the Network Co-ordination Committee is entitled to respond to the reviewers' reports and the Network Committee may decide to interview the Chairman.
e) The Network Committee presents its own report to the Executive Council, which decides on further distribution.

Subsequently one small improvement was made: expert evaluators are now invited to form a panel from which a final selection of evaluators is made, taking account of the exact areas of expertise represented.

In September 1994 the Network Committee recommended to the Executive Council a further change which would respond to a number of important conclusions of the 1993 Reappraisal of ESF's Strategic Mission. The Reappraisal recommended a strengthening of the ESF Standing Committees and closer links between the Standing Committees and the Network Committee; and also an improvement of communication between the ESF and Member Organisations. In the light of these recommendations, the Network Committee considered that the Member Organisations and the relevant Standing Committee should be involved in the process of evaluating completed Networks. This would ensure that the evaluation process took account of the scientific priorities and requirements of the Member Organisations and the Standing Committees. It would also improve the strategic contribution made by ESF Networks to European science, and would assist the flow of information between Networks, Standing Committees and Member Organisations.

Specifically, the Network Committee recommended that:

– The completion report and other relevant literature produced by a Network should be sent to the relevant Standing Committee or its Core/Executive Group, and to an appropriate selection of ESF Member Organisations (between three and six in each case) inviting them to contribute an evaluation against the criteria already used in Network evaluations. If necessary this evaluation could be conducted by an independent expert invited by the Member Organisation or the Standing Committee. This procedure would form an alternative to the second step of the evaluation methodology set out above.

– The Network Committee could, in specific cases, continue to invite independent experts to conduct an evaluation on the same basis as at present.

Members of the Executive Council, after consultation with their national group of Member Organisations, in September 1994 approved this change in the evaluation procedure for Networks.

In the course of 1994, four completed Networks have been evaluated under the

revised procedure of September 1991, and the Network Committee has presented its reports to the Executive Council.

The articles that follow are edited versions of these reports.

EVALUATION REPORT ON THE NETWORK ON TRANSPORT, COMMUNICATIONS AND MOBILITY (NECTAR)

1 The Network

This was the third ESF Scientific Network, and was launched by the Executive Council in January 1986 for a two-year period with a budget of 575 kFF. A five year Phase 2 was then launched for the period 1988-1992, and was completed with a total expenditure of 3148 kFF. Activities will be continued as a Euroconference series and a fellowship exchange scheme with partial financial support from the EU's Human Capital and Mobility Programme. Also, NECTAR continues as a European association financed by individual membership subscriptions and organises self-financed workshop activities.

The Chairman of the Coordination Committee was Professor Peter Nijkamp of Amsterdam and the Committee members were Professor Roberto Camagni (Italy), Dr Rico Maggi (Switzerland), Professor Ian Masser (UK), Professor Shalom Reichman (Israel) and Dr Michael Wegener (Germany).

2 Evaluation arrangements

The Network's completion report was presented in April 1993 and a shortlist of possible evaluators was prepared by the Network Committee. Two evaluators were appointed in June and produced their reports by October 1993.

After examination of relevant documents and the evaluators' reports in October 1993 the Network Committee compiled a report for presentation to the Executive Council early in 1994.

3 Summary of evaluators' reports

The first report indicates that the Network was highly prolific and dynamic and that collaboration across national and disciplinary boundaries was successful. However, this evaluator points out that the great amount of publications and the good attendance at NECTAR events do not necessarily give evidence of the achievement of initial objectives and he regrets that not enough monitoring information was collected by the Coordination Committee from the beginning of the activities. Moreover, he thinks that the diversity of themes studied by the Network could be considered as a weakness as well as a strength since as a result no coherent academic synthesis in the form of a major book was possible.

This evaluator also emphasises the absence of a strong concern with the policy-making process and the minor impact of NECTAR events on applied research institutes. He considers that NECTAR has been a rather academically inward-looking Network and that despite its very specialised sub-areas, the number of high quality technical and professional contributors was small.

He concludes that the impact of ESF funding lies in the sustainability of the Network. Funding has been gained from the Human Capital and Mobility Programme for two conferences and post-doctoral fellowships and therefore gives evidence of the real vitality of this Network.

The second report states that NECTAR has achieved good scientific quality work across institutional lines and in a cross-national perspective and that numerous high quality publications, even though they were sometimes redundant, have resulted. However, this evaluator points out that the Network showed a lack of balance between study of intra-urban and extra-urban Transport, Communications, Mobility (TCM) and expresses the view that TCM issues of large urban areas and the field of governance (decision-making process, role of lobbies, role of institutions, etc.) are understudied.

He emphasises that the organisational system of the Network was good and that people involved in the various activities were highly recognised but he thinks that political scientists should have been more represented.

He concludes that NECTAR gave a significant contribution to European development in the field of TCM and makes some suggestions for further actions:

– consolidate links with countries under-represented in past activities like Spain and Portugal;
– build a relationship with the United States and Canada;
– build contacts with the major actors in the field of TCM in order for the NECTAR activities to be known by decision-makers;
– put more emphasis on large urban areas for which TCM are crucial;
– address specific transport policy issues.

4 The Network Committee's views on the evaluators' reports

The request by one reviewer that additional monitoring information should be collected during the life of a Network is an important comment of general relevance. It should be noted that NECTAR was one of the very first ESF Networks, and the detailed managerial procedures (particularly the procedures for monitoring and evaluation) had not then been developed. The evaluation

procedure and its quantitative requirements are now brought to the attention of all new Networks.

The Network Committee notes that both evaluators' reports are largely positive and endorses this view. Nevertheless they contain elements of criticism which have to be taken seriously.

In addition to the evaluators' reports, the Network Committee has taken account of a response from the Network Chairman, Professor Peter Nijkamp of Amsterdam. On the whole, the Network Committee accepts Professor Nijkamp's remarks which tend to soften the impact of some of the evaluators' criticisms. The Network was intended to provide a focus for fundamental international work previously fragmented. It is accepted that individual NECTAR members are closely involved in policy research, and the Network itself should not be criticised for focusing on more academic issues. The criticism of hyperactivity and over publication seems excessive - the Chairman of the ESF Standing Committee for the Social Sciences, Professor Guido Martinotti, has commented that a major book arising from the Network, *The Geography of Europe's Futures*, has been well reviewed and is expected to become a standard reference. This goes a long way to meeting one evaluator's request for a "block-busting" publication.

5 Conclusions and Recommendations

1 The NECTAR Network was highly dynamic and productive, successfully bringing together scholars of various nationalities and disciplines in a field which was previously highly fragmented. The publication output of the Network was very high.

2 The focus of the Network was more on academic than on policy issues, though individual NECTAR participants were highly involved in policy questions.

3 Data on Network activities relevant to in-life monitoring and post-hoc completion should be collected systematically for all Networks.

4 The Network finances were satisfactorily managed. Of the Phase 1 budget of 575 kFF only 395 kFF (69%) was actually used, mostly (92% of expenditure) on the workshops. Of the 3148 kFF expenditure during Phase 2, 81% was used for working groups, conferences, grants, projects and publications. Management costs accounted for 6%.

EVALUATION REPORT ON THE NETWORK ON NEUROIMMUNO-MODULATION

1 The Network

The Network was launched by the Executive Council in September 1989 for an initial two year period (Phase 1). After this two year period the Phase 2 Network option was no longer available; a one year extension to the Network was therefore agreed by the Network Committee. As a sufficient financial balance was still available in the originally approved budget, additional funding for this extra year was not required. The Network completed its activities towards the end of 1992.

The Chairman of the Coordination Committee was Dr R Dantzer of Bordeaux and the Secretary was Dr V Geenen of Liège. Other members were Dr R Ballieux (Utrecht), Dr J Borrel (Madrid), Dr N Fabris (Ancona),

Dr G Fink (Edinburgh), Dr F Holsboer (Munich), Dr B Jankovic (Belgrade), Dr C Kordon (Paris) and Dr H Ursin (Bergen).

2 Evaluation arrangements

A shortlist of possible evaluators was compiled by the Network Committee in early 1993 and after issuing several invitations two were appointed.

The Network completion report, well structured and complete with supporting documents, was received from Dr Dantzer in April 1993 and the reviewers conducted their work between May and July. The Network Committee examined the completion report and the evaluators' reports at its meeting in October 1993 and subsequently several points were discussed in correspondence with the Chairman of the Network. The Network Committee compiled and approved this report in February 1994.

3 Summary of evaluators' reports

On many points the evaluators express similar opinions; on a few issues their differing perspectives lead them to somewhat divergent conclusions.

They are agreed that the four workshops were a good achievement within the three year period, creating valuable exchanges between a limited but interdisciplinary group of scientists. One evaluator found the system of partial overlap between participants at successive meetings an excellent arrangement. He comments that "practically all the leading European scientists in the field did participate in at least some of the workshops"; however, the other evaluator writes that " some well known European laboratories were not represented in the first and third workshops", though she recognises that this is almost inevitable in small focused workshops. She also notes with approval the genuine attempts to span the neuro-immune divide, both in the selection of participants and in the organisation of the programmes. The second and subsequent workshops were particularly well-provided with time for discussion and identification of problems.

The evaluators also both note the lack of publications associated with the Network as such, though one notes a satisfactory record of publications at the individual level. They regard the Register of European Laboratories as an important and useful publication, though again one comments on some omissions.

Both evaluators also warmly approve of the management arrangements, particularly in organising the four workshops within the agreed budget. They observe, however, a lack of information on the conduct of "small meetings" which were intended in the original proposal.

One evaluator considers that the participation of scientists from Eastern Europe, and of young postdoctoral scientists, were not given the attention set out in the original proposal. He recommends that these omissions could be corrected through a type of summer school with open participation and limited financial support.

The other evaluator suggests that a final summary meeting of all Network participants would have been useful to discuss the real achievements. She appears to consider that further action to promote this field will occur through other European meetings in the neurobiology, endocrinology and immunology fields.

The overall view of the evaluators may be summarised in the comment: "in general the Network provided good value in both scientific and monetary terms".

4 The Network Committee's views on the evaluators' reports

The Network Committee agreed with the evaluators about the general success of the Network. The ESF's intervention in an emerging field had been timely; interdisciplinary contacts were necessary and had been achieved. The Committee recognised that not all participants in the Network were of first class quality, but recognised that a useful function was performed if the majority of participants were of the highest level. The workshops were well focused and the Register a useful publication - the Network Committee agreed that some important groups were not included.

In relation to the evaluators' comments on the absence of "small meetings" originally planned, the Network Chairman, Dr R Dantzer, commented that some small meetings had taken place in association with workshops and were not separately reported; but the number of small meetings was less than initially expected.

In response to the evaluators' comment on the lack of publications arising from the Network itself, the Network Committee has asked Dr Dantzer to publish a summary report. Dr Dantzer has agreed to do this, hopefully in a future edition of *Trends in Neuroscience*.

The Network Committee also identified two other important points arising in the completion report which had not been commented on by the evaluators. First, the report suggests that the term "neuroimmunomodulation", which appeared at the outset of the Network as a possibly new discipline at the boundary of traditional fields, has proved to be no more than a temporary term, useful for individual scientific events but unlikely to become established as a discipline in its own right: "...the term "neuroimmunomodulation" appears today more as an umbrella under which distinct scientific disciplines, with their own specific "language" can be gathered, for the momentary purpose of a congress for example, than as a unitary field of scientific investigation" (Final Report of Activities, page 4). This statement has clear implications for research planning and funding. Dr Dantzer has defended this view, pointing to the recent decline of interest in events associated with the wide range of fields, in contrast to sustained support for more focused interests.

Second, the Network Committee drew attention to the Network's conclusion about the importance of the neural effects of cytokines (Final Report of Activities, pages 4-5). Although some further funding of this area is included in the EU's Biomed programme, further attention to this topic may be necessary.

5 Conclusions and recommendations

1 The network on *Neuroimmunomodulation* was broadly successful and achieved its major objectives. The number of "small meetings" and the participation of scientists from central and eastern Europe were less than expected.

2 A summary report of the activities and results of the Network should be published, for example in *Trends in Neuroscience*.

3 The Network Committee has examined the accounts of the Network which are satisfactory. Only about 80% of the

available budget was used. Of the expenditure, 76% was used for workshops and a further 15% for working visits and committee meetings.

4 It appears that the possibility of neuroimmunomodulation developing from an interdisciplinary label to a discipline in its own right may have declined. Nevertheless the ESF was right to launch an exploratory Network in a field of high interest.

5 The important role of cytokines has been highlighted by the Network's report, and has been brought to the attention of EMRC.

EVALUATION REPORT ON THE NETWORK ON POLAR SCIENCE

1 The Network

This was the fourth ESF Scientific Network, and was launched by the Executive Council in April 1986 for a two year Phase 1 period with a budget of 780 k FF. At the end of Phase 1 the work continued in three ways: as the Phase 2 Network *EPOS* (European *Polarstern* Studies, 1988-1992), and as two ESF Scientific Programmes, *PONAM* (Polar North Atlantic Margins) and *GRIP* (Greenland Ice Core Project). Only the *Polar Science/EPOS* Network is included in this evaluation. The activities of the Polar Science/EPOS Network were in the field of Antarctic marine ecology, and were mainly focused on three cruise legs in the Antarctic Ocean in the period October 1988 - March 1989 and subsequent analysis of the data obtained. Expenditure during the Phase 2 Network was 3736 k FF.

The Chairman of the Coordination Committee was Professor Jarl-Ove Strömberg of the Kristineberg Marine Biological Station in Sweden and the Committee members were Professor V Smetacek (Germany), Professor W Arntz (Germany), Dr B Battaglia (Italy), Professor A Clarke (UK), Dr J-C Hureau (France) and Professor C Veth (Netherlands).

This Network was initiated and guided throughout its duration by Professor Gotthilf Hempel, former Director of the Alfred Wegener Institut, Bremerhaven. Professor Hempel made available to the Network the RV *Polarstern* and also took a leading role in preparing scientific publications which arose from the Network.

2 Evaluation arrangements

For this Network, a large number of articles, interim progress reports and major publications rather than a completion report formed the basis for the evaluation. A shortlist of possible evaluators was prepared by the Network Committee. Nine experts were approached to form a panel of possible reviewers; four of these were subsequently invited (in September 1993) to conduct the evaluation. Three reports were received by early 1994.

The Network Committee discussed the reports of these expert reviewers at its meeting in May 1994 and completed its own report in July 1994.

3 Summary of evaluators' reports

The overall view of the three evaluators of this Network is very positive. Their summary comments range from "the initial objectives were largely achieved", to "great success" and "an outstanding success". The evaluators agree on the scientific value of conducting research

surveys with interdisciplinary teams of various nationalities. This permitted scientific progress which would not otherwise have been achieved, in a field of extremely expensive logistics.

The evaluators consider that the preparations for the research cruises and the overall management were well conducted – "combining ESF experience with AWI efficiency and logistics". The scientific facilities of the *POLARSTERN* were excellent. One reviewer commented that the scientific objectives of survey leg 2 were less well defined than for legs 1 and 3 – a "statement of intent" was necessary for leg 2 – though he was pleased to note that leg 2 actually achieved exciting scientific results. In fact, it was leg 3 which, because of extraneous demands on ship time, had difficulty in completing its programme.

The Network's output and publications compare well with the highest international standards. The journal *Polar Biology* in which Network results have appeared is of a high standard. The Network programme, which allowed for two years *after* the field surveys for the analysis of results and preparation of scientific output, is commended. The number of papers authored by scientists from more than one country is also noted favourably.

4 The Network Committee's views on the evaluators' reports

The Network Committee first notes the exceptional wealth of scientific activity which arose from Phase 1 of the Network, as it led directly not only to the Phase 2 Network EPOS reviewed here but also to two continuing ESF Scientific Programmes, PONAM and GRIP. This indicates that the Phase 1 of this Network was a timely activity which took an initially broad view across a field of European science and identified further priority activities which attracted support from ESF Member Organisations.

The Phase 2 Network was, in effect, one of three Scientific Programmes which were generated. This Network was much larger in its scope and duration than present Networks. This successful experience underlines the need to encourage Networks, in appropriate cases, to expand into larger activities, which in some cases would be ESF Scientific Programmes.

The Network Committee also welcomes the favourable comment by one reviewer that the Network succeeded in achieving integration of disciplines (for example, cross-fertilisation between biologists and glaciologists), and commends the Network for achieving a strong trans-European integration. Publications arising from the Network have been of good quality and well received in the scientific community.

The Network Committee has examined a summary of the accounts of the Network which it finds to be entirely satisfactory.

5 Conclusions and recommendations

1 The Network Committee endorses the view of the expert evaluators that this Network was scientifically successful and effectively managed.

2 The successful transition from a Phase 1 Network to, effectively, three Scientific Programmes (one of which was, in fact, the Phase 2 Network evaluated here) underlines the need to allow present ESF Networks to progress, in appropriate cases, to a larger scale of activity.

3 Trans-European integration and inter-disciplinary collaboration were achieved. Scientific publications were of good quality.

4 The summary accounts of the Network are entirely satisfactory.

EVALUATION REPORT ON THE NETWORK ON POPULATION ECOLOGY AND GENETICS

1 The Network

The Network on Population Ecology and Genetics was approved for launching by the Executive Council in September 1990 with a budget of 650 kFF. This was one of the last Networks to be launched as a two-year Phase 1 Network before single-phase, three-year Networks were introduced. The aim of the Network was to bring together scientists working in population ecology, the study of the dynamics of populations in relation to their environment, and population genetics, the study of the dynamics of the genes that interact with the environment to determine the phenotypes of individuals.

The Co-ordination Committee decided to involve a high proportion of younger scientists in the workshops, which were designed to incorporate discussion sessions in which the participants were encouraged to identify areas of research they considered worthy of particular attention over the next few years. Travel grants were offered to allow the resulting proposals to be developed collaboratively. A fourth meeting, involving a number of the younger workshop participants as well as senior scientists and Co-ordination Committee members, brought together the ideas that had been generated from the three workshops and a proposal for further support for an ESF Scientific Programme in Population Biology (successfully launched in January 1994) was drafted.

The economical arrangements which had been made for the four planned workshops allowed the Coordination Committee to offer the younger workshop participants the possibility of organising small workshops on topics which had been put forward during their discussions. Three of these workshops were held (Orsay, F; Plön, D; London, GB) and a fourth was approved but later cancelled because of time constraints.

The Chairman of the Coordination Committee was Dr Pierre Jacquard, CNRS Centre Louis Emberger, Montpellier (France), the Secretary was Professor Jos van Damme, Institute for Ecological Research, Heteren (The Netherlands) and the Committee members were Dr John Connolly (Ireland), Professor John Harper (U K), Professor Jürgen Jacobs (Germany), Dr Volker Loeschcke (Denmark), Professor Adam Lomnicki (Poland), Professor Valerio Sbordoni (Italy) and Professor Stephen Stearns (Switzerland).

2 Evaluation arrangements

Little documentation other than the completion report prepared by the Secretary of the Network's Coordination Committee was available to the evaluators, as the policy of the Network had been not to produce in-house publications but to encourage publication in scientific journals of articles resulting from collaborative work initiated by the workshops. However, no record of these publications, or of the collaborative work, had been compiled.

A shortlist of possible evaluators was prepared by the Network Committee. Ten experts were approached to form a panel of possible reviewers; four of these were subsequently invited (in April 1994) to conduct the evaluation. Reports were received from three.

3 Summary of evaluators' reports

One of the three evaluators was positive in his assessment of the Network's impact; the other two made a number of critical comments, while acknowledging that certain parts of the Network "were commendable as was the idea to create it". The lack of documentation available to the evaluators made their job more difficult and two indicated that they would have found a list of workshop participants a useful indicator of the composition of the Network. In view of the lack of publications, the evaluators had to rely to a certain extent on contacting scientists who had been involved in the Network. One reviewer, however, pointed out that a number of publications in scientific journals had resulted from collaborations developed under the auspices of the Network and suggested that in cases where the Network had contributed a great deal to this collaboration, the authors could be asked to acknowledge the Network's contribution to the collaboration from which the research resulted.

While one evaluator found the scientific objectives of the Network to be "nebulous" and "narrow", another considered that the topics of the workshops "dealt with highly important problems of population biology" and had been organised by "internationally very well known scientists". The third considered that bringing together scientists from different cultural backgrounds and scientific traditions to treat similar questions from different angles allowed remarkable progress to be made and stimulated original approaches. Two of the evaluators felt that the selection of workshop participants had not been made from a wide enough base and that not all population biologists in Europe had been aware of the activities of the Network. They expressed the hope that the Programme on Population Biology, which follows on from the work of the Network, would advertise its activities more widely.

The involvement of a high proportion of young researchers in the Network's activities was viewed favourably. The idea of encouraging these young researchers to put forward their ideas for interesting research topics and to develop collaborative projects was considered by one reviewer as excellent; another found the process "somewhat bizarre", although he acknowledged that the three topics which were finally included in the proposal for a Scientific Programme were good and "are to be commended".

4 The Network Committee's views on the evaluators' reports

In addition to the reports of the three evaluators, the Network Committee had available a report from the ESF officer responsible for maintaining contact with the Network; this threw light on several decisions taken by the Network, where the reasoning was not available to the evaluators. This additional information has indicated that contrary to the comments of two of the reviewers, the Network's activities were widely publicised. The follow-on Scientific Programme is also being well advertised.

The Network Committee agrees with the evaluators' comment that the absence of Network publications and clearer data on

Network participants was regrettable. At the least, a list of publications inspired or initiated by the Network should have been prepared.

The Network Committee notes some differences of opinion between the three evaluators, and also that the most favourable of the three was involved (perhaps in a relatively small way) in the preparation of the follow-on Scientific Programme. To obtain totally independent reviewers is not always possible; but this factor needs to be taken into account in weighting the reviews.

The final round of meetings planned and executed by young scientists appears to have been organised in some haste when it became evident that a balance in the Network's finance was available. The haste may have contributed to the unbalanced participation in some of these meetings.

5 Conclusions and recommendations

1 The absence of specific outputs from this Network (apart from the follow-on Scientific Programme) and the lack of certain desirable data, for example on the participation in the workshops and the publications based on the Network's activities, created difficulties for the scientific evaluation of this Network. The requirement for Networks to produce visible products should continue to be emphasised.

2 The availability of a report from the ESF officer responsible for the Network provided a helpful insight into certain decisions taken by the Coordination Committee for this Network.

3 This Network organised a further series of meetings at a late stage when it became clear that the necessary budget was available. As a result, these meetings were organised rapidly, were not well attended, and were of possibly doubtful value. As a generally applicable conclusion, the Network Committee considers that Networks should not feel an obligation to spend all the budget allocated to them. All Network activities should contribute to the overall objectives and scientific quality. If the Network's objectives have been achieved within the budget, or if original plans turn out for unforeseen reasons to be unworkable, the balance can be returned to the Network Account for other scientific purposes.

The Programme of European Research Conferences was launched by the ESF Assembly five years ago, to provide the European Scientific community with the opportunity to explore research frontiers through series of high level, informal discussion meetings, thereby stimulating also new contacts and collaborative arrangements. Attending young researchers benefit in particular from such events, which offer them a valuable larger picture of developments in their research area in the most critical phase of their scientific carrier. The Programme covers all areas of research, from natural sciences to social sciences and humanities.

1994 has been a relatively calm period for the Programme of European Research Conferences, with funding secured in advance, mostly through the Euroconferences activity of the Training and Mobility of Researchers Programme *of the European Union. The increased interest among scientists to attend these conferences, resulting in about 20 % more participants, has caused a considerable strain on the Office. All together 38 conferences have been organised in 1994; two were postponed at the Chairmen's request.*

PROGRESS REPORT

Introduction

At a time when the role of ESF in the European scientific landscape is being reassessed, and the ESF is reorienting itself to emphasise work of strategic value for European science and science in general, the Programme of European Research Conferences offers a good example of a significant action of this kind: undertaken by the ESF five years ago, it aims at the consolidation of the European scientific community and has a high impact on short-term research directions, anticipated by probing scientific frontiers through series of discussion meetings at the highest possible scientific level.

The initiative to start this Programme came from ESF Member Organisations who recognised the need for such a significant research tool in a European context – a tool of a kind already successfully operating for several decades in the United States as Gordon Research Conferences.

The challenges successfully met by the ESF were to mobilise its own ranks behind this initiative, to convince the European Commission of its value, and to help secure funding through the EC Framework Programme of Euroconferences. In the process, the need also arose to create the necessary infrastructure to – first – run a coherent, sizeable Programme of European Research Conferences covering all fields of science, and taking place all around Europe in a stimulating, informal environment, and – second – attain high scientific quality, recognised and appreciated by scientists at large.

A particularly valuable novelty of this Programme is the close co-operation with most major Scientific Societies in Europe, which participate in the scientific steering and contribute with new conference initiatives through their disciplinary sections and divisions. Representatives of the ESF Standing Committees provide the ESF scientific input to this Programme, while several of the ESF Scientific Programmes and Networks regard the conferences which they organise under this umbrella as a valuable "plus" to their activity or as a good means of prolonging an otherwise terminating activity.

Report on 1994

The 1994 Programme consists of 38 conferences, compared with 39 conferences in 1993. For the first time, it includes a conference in Mathematics. Although there is already a considerable programme of similar conferences in Mathematics (Oberwolfach), the European Mathematical Society has decided to start three conference series in the framework of our Programme.

A comment is also necessary on the group of Research Conferences in Oceanography, of which three were held in 1993, and four in 1994. They were organised through an initiative of ECOPS (European Committee on Ocean and Polar Sciences) to provide input for a larger conference of strategic importance, the European Conference on Grand Challenges in Ocean and Polar Science (Bremen, 12-16 September 1994). Some of the Oceanography conferences will continue as series, thus respecting the established profile of European Research Conferences. Humanities are still under-represented on the Programme, mainly because of a lack of good conference proposals.

Out of 38 conferences in 1994, 13 are new conference series, while the others are continuations of series started in previous years. Out of 71 conference series initiated over the first four years of the Programme (1990-1993), 10 have been effectively terminated for various reasons. This is a natural process designed into the system from the start.

The workload of the Office was much higher than in 1993 due to the increased number of applications and the considerably higher number of participants from Central and Eastern Europe, who often require personal attention. Among other consequences, it was not always possible to inform Member Organisations of forthcoming events in due time.

Improved publicity and the quality record of the conferences, as well as better funding, have contributed to this spreading interest. Out of 38 conferences in 1994, only two did not receive a Euroconference grant from the European Commission, compared with 13 out of 39 conferences in 1993. An average EC grant in 1994 was of 35 kECU, compared with 30 kECU in 1993. The funds available in 1994 for scientists from Central and Eastern Europe (PECO Grants) were three times larger than in 1993.

Funding

Although the funding of the Programme has considerably improved in 1994, and financial uncertainties characteristic of previous years have (for the time being, at least) vanished, the funding pattern is far from stable.

A more stable sponsoring pattern for the Programme of European Research Conferences is sought through both the

European Commission and the ESF. The pace of developments in the desired direction is, however, determined by external constraints.

The ESF Strategic Reappraisal foresees an *à la carte* activity as being an appropriate mode for ESF Member Organisations to participate in EURESCO. This should be seen only as a corrective mechanism to the basic sponsoring through the Euroconferences activity of the European Union, whose modalities under the Framework IV Programme are still unknown. The quality record of our Programme, and the increased awareness in the European scientific establishment of the role that such high-level discussion meetings have in exploring research frontiers and in promoting European cross-border collaboration should have sufficient weight to secure its basic funding through the research system of the European Union.

ESF Board and Executive Council

The Board met seven times during 1994 and, as is tradition, held a joint meeting with the Board of Academia Europaea in January. The Executive Council met four times, and the June meetings of Board and Council were kindly hosted in London by the UK Member Organisations. In addition to regular business, Board and Council meetings concentrated on the implementation of the Strategic Reappraisal which had been approved by the 1993 Assembly.

Electoral Commission

The Electoral Commission met on 5 September 1994 at the Fonds National de la Recherche Scientifique in Brussels under the Chairmanship of Dr Paul Levaux. The Commission recommended that Professor D M X Donnelly (Ireland) serve a second three-year term as Vice President and that Professors C Kordon (France), L Kuznicki (Poland), P Papon (France) and H Gg Wagner (Germany) serve on the Executive Council for a second three-year term from 1 January 1995. The Commission also recommended that the following become members of the Executive Council from 1 January 1995: Professor J Maggiolly Novais (Portugal), Dr B Mørland (Norway), Professor E N Protonotarios (Greece) and Professor L Simar (Belgium).

General Assembly

A celebration of the twentieth anniversary of the European Science Foundation was held at the ESF General Assembly which took place in Strasbourg on 24-25 November 1994. In addition to the regular participation from Member Organisations, the Assembly was also attended by all four former ESF Presidents, Lord Flowers, Professor Hubert Curien, Professor Eugen Seibold and Professor Umberto Colombo, as well as by former Vice Presidents and Secretaries General. The Assembly was marked by an operning ceremony of speeches by Lord Flowers, Professor Antonio Ruberti (EC Commissioner), Professor Claude Desama (European Parliament) and Professor Curien (President of Academia Europaea). On the second day of the proceedings a Panel Discussion entitled "The European Voice of Science: Strength through Diversity?" was held under the chairmanship of Sir John Maddox, Editor of *NATURE*.

Substantial discussion took place on the implementation of the Strategic Reappraisal and a revision of the Statute in line with the Reappraisal was approved. The ESF would now concentrate on working towards concrete strategic output for submission to the 1995 Assembly.

The Assembly heard reports from the Chairmen of the Standing Committees and noted on-going activities under the auspices of these Committees as well as reports from the Network Committee Chairman and the European Research Conferences Steering Committee Chairman.

The Financial Accounts were submitted to the Assembly and the ESF Auditor, Mr I Segergren, presented his report.

The Assembly approved the admission of the Swedish Council for Social Research to membership of ESF, and this brought the number of members to 56 from 20 countries.

This Annual Report (published in Spring 1995) largely consists of material presented to the November 1994 Assembly. The ESF accounts for the year 1993, being the latest available audited accounts, were approved by the ESF Assembly. These accounts have been published in the ESF Annual Report 1993 (as a postscript printed on coloured paper) since at the time of publication they had been examined by the Auditor but not yet finally approved by him.

In order to provide the latest available information on ESF Finances, the 1994 Accounts, which are currently being audited are, with the Auditor's approval, published in this Report. When approved by the Auditor, the 1994 accounts will be presented to and discussed by the newly created Finance Committee (see page 140) at its June meeting, the Executive Council at its September meeting and the Assembly in November 1995. Any modification requested by the Auditor or by the above mentioned bodies will be clearly identified in next year's Report.

The running of the ESF and its activities is funded by contributions from ESF Member Organisations.

The *GENERAL BUDGET* is used to finance the running of the ESF Secretariat (staff, administrative costs, statutory meetings, equipment) and the general scientific activity (meetings of the Standing Committees and of the working groups, cost of various workshops – especially those needed in the preparation of ESF Scientific Programmes; publications).

The *NETWORK ACCOUNT* is used for the co-ordination of Network operations and for the running of Phase 1 Networks.

The sum of the *GENERAL BUDGET* and the *NETWORK ACCOUNT* constitutes the budget for the *ESF BASIC ACTIVITIES* which is shared between all ESF Member Organisations according to a scale of contributions set out according to the statute.

In addition to the activities funded from the Basic Activities' Budget, other activities are funded *à la carte* only by those Member Organisations which are interested in participating. These activities are named: Scientific Programmes (Additional Activities and Associated Programmes) or Phase 2 Networks. The ESF also runs some "special budgets" (funds received from various non-ESF Organisations, "workshop funds" established by Member Organisations and run by the ESF, etc). Amongst these special budgets are the accounts for the Programme of European Research Conferences (EURESCO) and for the European Secretariat for Ocean and Polar Sciences (ESOPS).

In order to provide an overview of all the funds managed by the ESF, Consolidated Accounts are presented in **Table 8.**

BASIC ACTIVITIES
(General Budget and Network Account)

GENERAL BUDGET
FINANCIAL YEAR 1994

INFLOW OF FUNDS (TABLE 1)

The 1994 Budget, as presented to the 1993 Assembly, amounted to 27 310 kFF. In addition, the Assembly authorised two provisions, one of 1800 kFF for EURESCO, the other for expenditure

arising from the implementation of the ESF Reappraisal.

For the General Budget, only 21365 kFF (78.2% of the Budget) had to be asked from Member Organisations **(2.1)***. The remainder came from:
– a commitment of 3000 kFF **(1.2)** made in 1993 out of the bank interest
– transfers, from the larger Scientific Programmes and the Network Account for management costs incurred by the General Budget, and from EURESCO for a lump reimbursement of running expenses paid out of the General Budget. In total, these transfers amounted to 2545 kFF **(3.)**
– a levy of 400 kFF on the 1994 bank interest **(4.1)**, which amounted in total to 1623.6 kFF **(4.)**

In addition to that budgeted income, other inflows of funds were:
– a sum of 4332.9 kFF made of
. the 1993 Excess of Inflow over Use of Funds: 3109.3 kFF **(1.1.)**
. the 1994 bank interest (1623.6 kFF) reduced by the levy of 400 kFF mentioned above and used for the 1994 budget, i.e. 1223.6 kFF **(4.2.)**
– a sum of 54.2 kFF **(5.)** listed as miscellaneous income and consisting mainly of royalties from sales of publications.

Together with the provisions of 300 kFF for the implementation of the Reappraisal **(2.2.)**, and of 1800 kFF, for EURESCO **(2.3.)**, the **Total Inflow of Funds** thus amounted to **33797193.77 FF**.

USE OF FUNDS (TABLE 1)

The actual expenditure on budget amounted to 25474.3 kFF **(1.)**. This sum includes the office running expenses incurred by the General Budget for EURESCO (and reimbursed by EURESCO to the General Budget). Compared to the 1994 budgeted expenditure of 27310 kFF, the actual expenditure represents an under expenditure of 1835.7 kFF, i.e. 6.7% of the budgeted expenditure. Whereas most headings show a variation of maximum 1% as compared to the budgeted figures, the underspending on two headings accounts for 85% of the total underexpenditure:
– Scientific and Statutory meetings show an underspending of 1174.4 kFF – 20% of the budgeted figure. This is a consequence of the Reappraisal exercise period which has been demanding both on the Standing Committees and on staff's time, with the result of organising fewer meetings than foreseen. It is also the result of continuing efforts to keep meetings expenditure as low as possible.
– Equipment and Maintenance Work. Less than one half of the budgeted amount (650 kFF) has been spent: works, whose costs are to be shared with the City of Strasbourg, have been postponed to 1995 at their request.

Other use of funds were:
– expenditure paid out of the provision for the implementation of the Reappraisal **(2.)**
– the transfer to the "Equipment and Maintenance Work" Fund 1995 of the unused part of the 650 kFF budgeted in 1994 for that heading **(3.)**
– as approved by the 1994 Assembly
. a carry forward to 1995 of 3200 kFF **(4.)**
. a sum of 350 kFF **(5.)** in order to write-off the last part of the debt from Member Organisations from the former Yugoslavia
. a transfer of 782954.98 kFF to the Reserve Fund **(6.)**
– a transfer of 116634.14 FF to EURESCO **(7.)**, out of the provision of 1800 kFF made for this Programme in

* numbers in brackets refer to the numbering in Table 1.

order to allow the 1994 accounts to be balanced.

The **Total Use of Funds** therefore amounts to 30558 692.01 FF, leaving an **Excess of Inflow over Use of Funds** of 3238501.76 FF, used in 1995 to reduce the 1996 Call for the Basic Budget.

The **Balance Sheet** on 31 December, 1994 and 1993 is presented in **Table 2.**

FINANCIAL YEAR 1995

The 1995 General Budget, approved by the Assembly in November 1994, amounted to 28789 kFF. It is itemised in **Table 3.**

As compared to 1994, the General Budget increases by 5.4%.

In addition to the 1995 budgeted expenditure, the 1994 Assembly agreed to a provision of 600 kFF to continue with the implementation of the Strategic Reappraisal.

The contributions to the General Budget and to this provision, 29389 kFF in total, requested from Member Organisations amount to 23539 kFF only because a part of the sum is met by charges for management costs recovered from the larger Scientific Programmes and the Network Account (2250 kFF); another part is provided by the carry over from 1993 and bank interest 1994 (3200 kFF) and a levy on bank interest 1995 (400 kFF).

NETWORK ACCOUNT

FINANCIAL YEAR 1994

Table 4 presents the Inflow and Use of Funds in 1994.

The Inflow of Funds consisted of contributions from Member Organisations (4600 kFF), of the cash balance available at end 1993 (1418.5 kFF) and of bank interest (121.1 kFF). The Total Inflow of Funds amounted to 6139.6 kFF.

The expenditure on Phase 1 Networks amounted to 3787.7 kFF, 8.5% lower than the budgeted figure. More than budgeted was spent on exploratory workshops (320.9 kFF) whereas costs for management and administration were kept at a slightly lower value than budgeted.

The Total Use of Funds amounted to 5108.9 kFF, which left an Excess of Inflow of Funds over Use of Funds of 1030706.37 FF, which was carried over as income to 1995.

The Balance Sheet on 31 December 1994 and 1993 is presented in **Table 5.**

FINANCIAL YEAR 1995

The 1994 Assembly approved a budget of 5790 kFF, including a target unspent balance of 200 kFF, thus providing 5590 kFF for the running of Network Operations, as itemised in **Table 6**. The increase 1995 over 1994 is thus 2.9%.

The Call for 1995 is 4740 kFF, which represents an increase of 3.0% as compared to 1994.

1995 CALL FOR BASIC ACTIVITIES

The Call for the ESF Basic Activities is the sum of the Call for the Basic Budget and for the Network Account, plus a provision of 600 kFF made for the Programme of European Research Conferences (EURESCO). It amounts to 28879 kFF (23539 kFF plus 4740 kFF plus 600 kFF).

As compared to 1994, this Call increases by 2.9%, the lowest increase ever requested from ESF Member Organisations.

A new scale of contributions was agreed by the 1994 Assembly. It is presented in **Table 7**, together with the scales for 1992 and 1993/94.

SCIENTIFIC PROGRAMMES (ADDITIONAL ACTIVITIES AND ASSOCIATED PROGRAMMES) PHASE 2 NETWORKS AND SPECIAL BUDGETS

The 1994 Inflow and Use of Funds of Additional Activities, Associated Programmes, Phase 2 Networks and Special Budgets are presented in **Table 8** (Consolidated Accounts). These accounts include the Programme of European Research Conferences (EURESCO) as well as the newly created European Secretariat for Ocean and Polar Sciences (ESOPS).

CONSOLIDATED ACCOUNTS

In order to provide an overview of all funds managed by the ESF in 1994, Consolidated Accounts are presented in **Table 8** (Inflow and Use of Funds) and the Consolidated Balance Sheet at 31 December 1994 in **Table 9**.

These Consolidated Accounts do not include the account in US $ for Membership contributions of the ESF Consortium for Ocean Drilling (2.95 M US $) to be paid to the US National Science Foundation. This is a clearing account which receives the contributions from the 12 participants in the ESF Consortium, prior to their transmission to the NSF.

The accounts for 1994 are currently examined by Mr Ingemar Segergren, Assistant Auditor General of the Swedish National Audit Office, re-appointed as auditor for the year 1994 by the Assembly. He is assisted in his task by Mr Bror Werbell, Audit Director at the same institution, appointed as deputy auditor by the same Assembly.

TABLE 1 : GENERAL BUDGET 1994 (IN FF)

Use of Funds		*Inflow of Funds*	
Salaries and Charges	16 541 353.60	1. Brought forward from 1993	6 109 318.18
Running expenses	2 677 230.02	1.1 1993 excess of Inflow of Funds over Use of Funds	3 109 318.18
Scientific and statutory meetings	4 735 585.83	1.2 1993 interest committed to reduce the 1994 call	3 000 000.00
Publications and publicity	1 135 978.36	2. 1994 Contributions from Member Organisations	23 465 000.00
Equipment and maintenance Work	262 203.18	2.1 for the General Budget	21 365 000.00
Miscellaneous	121 968.44	2.2 for the implementation of the Reappraisal	300 000.00
1. Actual expenditure*	25 474 319.43	2.3 for the provision for EURESCO	1 800 000.00
2. Implementation of the Reappraisal	246 986.64	3. Transfers for management costs	2 545 000.00
3. Transferred to the "Equipment and Maintenance Work" Fund 1995	387 796.82	4. 1994 Bank Interest	1 623 636.80
4. Carry forward to 1995 (committed to reduce the 1995 Call)	3 200 000.00	4.1 used for the 1994 budget	400 000.00
5. Writing-off last part of the debt from Member Organisations from former Yugoslavia	350 000.00	4.2 used to reduce the 1995 call	1 223 636.80
6. Transfer to the Reserve Fund	782 954.98	5. Miscellaneous income	54 238.79
7. Transfer to EURESCO	116 634.14		
TOTAL USE OF FUNDS	30 558 692.01		
Excess of Inflow of Funds over Use of Funds	3 238 501.76		
	33 797 193.77	TOTAL INFLOW OF FUNDS	**33 797 193.77**

* Including expenditure (other than staff) incurred for EURESCO

TABLE 2: GENERAL BUDGET: BALANCE SHEET ON 31 DECEMBER, 1994 AND 1993 (IN FF)

Assets	1994	1993	*Liabilities*	1994	1993
Fixed assets *(Furniture and office equipment)*	1 256 965.50	1 511 374.45	Capital endowment	1 256 965.50	1 511 374.45
			Reserve Fund	3 695 831.12	2 912 876.14
Current assets			Provision for works	835 693.65	447 896.83
Contributions expected from Member Organisations	478 150.87	251 246.00	Curent Liabilities		
			Accounts payable	2 735 774.52	3 083 757.44
Debts due from former Yugoslav M.O.	–	350 000.00	*Clearing account*	156 925.52	541 488.00
			Collected or received in advance	4 706 253.13	3 351 975.00
Accounts receivable	150 478.58	–	*Cash owed to the bank**	15 093 177.42	17 644 417.32
Clearing account	68 474.72	821.00	*Interest received after resp. 15.10.94 and 13.10.93*	243 708.82	750 624.79
Paid in advance	113 454.40	415 443.86			
Securities	29 887 663.86	30 824 246.68	Excess of Inflow of Funds over Use of Funds	3 238 501.76	3 109 318.18
Cash in hand	7 643.51	596.16			
	31 962 831.44	**33 353 728.15**		**31 962 831.44**	**33 353 728.15**

* The cash owed to bank implies no interest payments to the bank, because the bank takes into account the positive overall balance for all ESF accounts.

TABLE 3: GENERAL BUDGET FOR 1994 AND 1995 (IN KFF)

	1994	1995
Salaries and Charges	16 736	18 008
Running Expenses	2 664	2 915
Scientific and statutory Meetings	5 910	5 910
Publications and Publicity	1 150	1 300
Equipment and maintenance work	650	450
Others (incl. Audit costs)	200	206
	27 310	**28 789**

TABLE 4: NETWORK ACCOUNT: INFLOW AND USE OF FUNDS 1994 (IN FF)

Use of Funds			*Inflow of Funds*	
Expenditure for 27 Phase 1 Networks		3 787 716.27	1994 Contributions from Member Organisations	4 600 000.00
Exploratory workshops		320 869.45		
Management and administration		1 000 282.43	Carried over from previous year	1 418 456.93
- 1994 ESF Management charges	740 000.00		1994 bank interest	121 117.59
- Publications, bank charges and miscellaneous	13 140.82			
- Staff travel and Network Committee meetings	247 141.61			
Total use of funds		5 108 868.15		
Excess of Inflow over Use of funds		1 030 706.37		
		6 139 574.52	*Total inflow of funds*	**6 139 574.52**

TABLE 5: NETWORK ACCOUNT: BALANCE SHEET ON 31 DECEMBER, 1994 AND 1993 (IN FF)

Assets	1994	1993	*Liabilities*	1994	1993
Current assets			*Current liabilities*		
Contributions expected from Member Organisations	82 914.71	414 921.00	Accounts payable	192 476.14	56 281.09
Debts due from former Yugoslavia M.O.	–	43 227.50	Provision for doubtful debts	–	43 227.50
Accounts receivable	–	27 992.66	Received in advance	118 031.79	69 000.00
Paid in advance	121 074.44	58 969.10	Clearing account	6 208.40	–
Securities	1 109 853.31	1 028 868.00	Excess of Inflow over Use of Funds	1 030 706.37	1 418 456.93
Cash in bank	33 580.24	12 987.26			
	1 347 422.70	**1 586 965.52**		**1 347 422.70**	**1 586 965.52**

TABLE 6: BUDGETED USE OF FUNDS OF NETWORK ACCOUNT IN 1994 AND 1995 (IN KFF)

	1994	1995
Phase 1 Networks	4 140	4 250
Exploratory Workshops, Travel and Meetings	550	570
Management Costs	740	770
Target Unspent Balance	400	200
	5 830	**5 790**

TABLE 7: SCALES OF CONTRIBUTIONS
(Based on net national income at market prices)

- *Figures for 1992 and 1993/1994 are based on net national incomes for the years 1986, 1987 and 1988. Germany is the Federal Republic of Germany.*
- *Figures for 1995 are based on net national incomes for the years 1990, 1991 and 1992. Germany is the reunified Germany.*

	1992 %	1993/94 %	1995 %
AUSTRIA	2.24	2.27	2.29
BELGIUM	2.83	2.87	2.69
DENMARK	1.95	1.98	1.81
FINLAND	1.51	1.53	1.51
FRANCE	16.94	17.17	16.63
GERMANY	21.37	21.66	22.91
GREECE	0.95	0.96	0.98
HUNGARY	0.50	0.51	0.46
ICELAND	0.10	0.10	0.08
IRELAND	0.51	0.52	0.55
ITALY	14.74	14.94	15.03
NETHERLANDS	4.22	4.28	4.10
NORWAY	1.56	1.58	1.39
POLAND	1.48	1.50	1.14
PORTUGAL	0.61	0.62	0.65
SPAIN	5.74	5.82	6.16
SWEDEN	3.11	3.15	3.16
SWITZERLAND	3.54	3.59	3.43
TURKEY	1.14	1.16	1.22
UNITED KINGDOM	13.60	13.79	13.81
YUGOSLAVIA	1.36	–	–
	100.00	**100.00**	**100.00**

TABLE 8 : 1994 CONSOLIDATED INFLOW AND USE OF FUNDS (IN FF)

Total *	Use of Funds: Excess of Inflow over Use of Funds	Use of Funds: Special Budgets	Use of Funds: Scientific Programmes, Phase 2 Netw. & Assoc. Committees	Use of Funds: Basic Activities	
33 797 193.77	3 238 501.76			30 558 692.01	General Budget
6 139 574.52	1 030 706.37			5 108 868.15	Network Account
735 000.00	367 253.12		367 746.88		AA Artificial Biosensing Interfaces
1.321 686.81	831 628.54		490 058.27		AA Beliefs in Government
1 448 198.54	542 820.66		905 377.88		AA Biophysics of Photosynthesis
655 823.40	17 641.25		638 182.15		AA Chemistry of Metals in Biological Systems
1 006 000.00	725 992.57		280 007.43		AA Concepts and Symbols in the 18th Century Europe
300 000.00	84 736.55		215 263.45		AA Database of The Quaternary Mammals
690 707.63	130 602.82		560 104.81		AA Dynamics of Gas-Surface-Interactions
975 295.20	41 409.69		933 885.51		AA Environmental Damage and its Assessment
2 337 320.09	2 130 045.02		207 275.07		AA Environment, Science and Society
1 254 462.92	860 019.02		394 443.90		AA European Ice Sheet Modelling Initiative
1 367 709.10	834 786.97		532 922.13		AA European Management & Organisations in Transiti
1 075 809.46	422 488.26		653 321.20		AA European Palaeoclimate
631 666.08	394 753.95		236 912.13		AA European Volcanology Project
1 627 327.79	270 730.43		1 356 597.36		AA Europrobe
835 888.98	510 300.96		325 588.02		AA The Evolution of Chemistry in Europe
1 986 850.74	838 359.47		1 148 491.27		AA Geographic Information Systems
2 417 170.87	818 120.57		1 599 050.30		AA Language Typology
913 385.00	371 986.15		541 398.85		AA Learning in Humans and Machines
249 121.05	31 592.40		217 528.65		AA Kinetic Processes in Minerals and Ceramics
1 444 059.28	288 159.28		1 155 900.00		AA Mathematical Treatment of Free Boundary Problen
824 883.68	36.98		824 846.70		AA Study Centres in Non-Linear Systems
183 831.71	149 780.27		34 051.44		AA Origins of the Modern State
832 511.05	27 880.66		804 630.39		AA Population Biology
1 640 379.83	881 308.69		759 071.14		AA Process Integration in Biochemical Engineering
896 695.15	433 735.06		462 960.09		AA Regional and Urban Restructuring in Europe
1 056 833.70	343 836.39		712 997.31		AA Relativistic Effects in Heavy Elements Chem. & Pl
332 264.30	207 669.58		124 594.72		AA Study of the European Arctic Shelf
1 602 593.19	521 435.18		1 081 158.01		AA Transformation of the Roman World
310 000.00	179 335.85		130 664.15		AA Tropical Canopy Research
1 905 603.76	591 211.42		1 314 392.34		AP Developmental Biology
4 417 610.61	205 551.75		4 212 058.86		AP European Neuroscience Programme (ENP)
1 027 072.31	204 264.61		822 807.70		AP European Consortium for Ocean Drilling (ECOD)
1 841 310.10	797 824.33		1 043 485.77		AP European Glaciological Programme (EGP/GRIP)
2 668 247.80	23 954.58		2 644 293.22		AP Programme of Fellowships in Toxicology (PFT)
653 023.37	239 057.02		413 966.35		AP Polar North Atlantic Margins (PONAM)
3 094 476.54	726 089.00		2 368 387.54		AP Molecular Neurobiology of Mental Illness
701 840.35	161 175.27		540 665.08		AC NuPECC
1 395 705.78	759 928.39		635 777.39		AC Space Science Committee
535 617.09	200 272.67		335 344.42		N2 Crystallography of Biological Macromolecules
745 296.83	249.39		745 047.44		N2 Financial Markets
510 541.91	265 466.54		245 075.37		N2 History of European Expansion
283 491.00	283 491.00		–		N2 Surface Crystallography
240 474.57	–		240 474.57		N2 European Comm. & Transp. Res. Activity (NECT.
1 609 085.19	152 050.22		1 457 034.97		General Account for Scientific Programmes
3 066 073.89	3 066 073.89				SB Asian Studies Fellowships
12 818 755.41	–	12 818 755.41			SB EURESCO
817 518.89	153 555.76	663 963.13			SB European Secretariat for Ocean & Polar Sciences (ES
179 839.65	131 351.90	48 487.75			SB CEC Contracts
1 599.93	–	1 599.93			SB Journée de la chimie
23 816.84	23 816.84	–			SB British Academy Special Fund
77 990.18	69 064.75	8 925.43			SB CNR Special Fund
102 860.54	102 860.54	–			SB ESRC Special Fund
105 738.81	63 450.60	42 288.21			SB NWO/Russians
					Earlier Contributions written off
					Earlier Contributions refunded
109 713 835.19	**25 748 414.94**	**13 584 019.86**	**34 713 840.23**	**35 667 560.16**	**TOTAL**

AA = Additional Activity
AP = Associated Programme
AC = Associated Committee
N2 = Phase 2 Network
SB = Special Budget

Inflow of Funds

Basic Activities	*Scientific Programmes, Phase 2 Netw. & Assoc. Committees*	*Special Budgets*	*Carried over from 1993*	*Total **
27 687 875.59			6 109 318.18	33 797 193.77
4 721 117.59			1 418 456.93	6 139 574.52
	735 000.00		–	735 000.00
	–		1 434 186.81	1 434 186.81
	984 000.00		464 198.54	1 448 198.54
	479 000.00		176 823.40	655 823.40
	1 006 000.00		–	1 006 000.00
	300 000.00		–	300 000.00
	554 000.00		136 707.63	690 707.63
	–		2 894 295.20	2 894 295.20
	–		2 987 320.09	2 987 320.09
	936 000.00		443 462.92	1 379 462.92
	920 590.00		467 119.10	1 387 709.10
	992 900.00		482 909.46	1 475 809.46
	460 000.00		215 666.08	675 666.08
	1 365 000.00		462 327.79	1 827 327.79
	476 500.00		359 388.98	835 888.98
	1 437 790.00		569 060.74	2 006 850.74
	1 454 000.00		963 170.87	2 417 170.87
	913 385.00		–	913 385.00
	58 000.00		191 121.05	249 121.05
	1 069 000.00		375 059.28	1 444 059.28
	483 100.00		341 783.68	824 883.68
	–		183 831.71	183 831.71
	832 511.05		–	832 511.05
	638 000.00		1 002 379.83	1 640 379.83
	80 000.00		916 695.15	996 695.15
	660 000.00		396 833.70	1 056 833.70
	–		367 264.30	367 264.30
	1 132 000.00		570 593.19	1 702 593.19
	310 000.00		–	310 000.00
	1 561 000.00		344 603.76	1 905 603.76
	3 096 707.69		1 320 902.92	4 417 610.61
	912 620.53		114 451.78	1 027 072.31
	–		1 841 310.10	1 841 310.10
	2 403 000.00		265 247.80	2 668 247.80
	506 261.00		146 762.37	653 023.37
	2 140 000.00		954 476.54	3 094 476.54
	638 400.00		63 440.35	701 840.35
	635 000.00		855 705.78	1 490 705.78
	–		588 117.09	588 117.09
	–		845 296.83	845 296.83
	–		510 541.91	510 541.91
	–		358 491.00	358 491.00
	–		240 474.57	240 474.57
	1 026 483.06		582 602.13	1 609 085.19
		3 066 073.89	–	3 066 073.89
		12 818 755.41	–	12 818 755.41
		817 518.89	–	817 518.89
		7 094.43	201 439.87	208 534.30
		–	20 149.39	20 149.39
		–	23 886.84	23 816.84
		19 056.20	58 933.98	77 990.18
		–	102 860.54	102 860.54
		–	105 738.81	105 738.81
			– 2 669 000.00	– 2 669 000.00
			– 1 426 244.11	– 1 426 244.11
32 408 993.18	**31 196 248.33**	**16 728 498.82**	**29 380 094.86**	**109 713 835.19**

* When, on a same line, figures in the last column (Total inflow of funds) are higher than figures in the first column (Total use of funds) this denotes that earlier contributions have been written off and/or earlier contributions have been refunded (see two last lines).

TABLE 9: 1994 CONSOLIDATED BALANCE SHEET ON 31.12.1994 (IN FF)

Assets	*Basic Activities*	*Scientific Programmes, Phase 2 Netw. & Assoc. Committees*	*Special Budgets*	*Total*
Furniture and office equipment	1 256 965.50			1 256 965.50
Contributions expected from Member Organisations	561 065.58	2 915 061.67	165 000.00	3 641 127.25
Payments expected from the European Union	–		3 645 118.38	3 645 118.38
Accounts receivable	150 478.58		163 469.20	313 947.78
Paid in advance	234 528.84	159 582.25	262 127.67	656 238.76
Clearing Account	68 474.72	34 377.58		102 852.30
Securities	30 997 517.17	2 018 907.55	3 063 448.96	36 079 873.68
Cash in Bank	33 580.24	19 628 261.61	450 214.61	20 112 056.46
Cash in hand	7 643.51			7 643.51
TOTAL	**33 310 254.14**	**24 756 190.66**	**7 749 378.82**	**65 815 823.62**

Liabilities	*Basic Activities*	*Scientific Programmes, Phase 2 Netw. & Assoc. Committees*	*Special Budgets*	*Total*
Capital Endowment	1 256 965.50			1 256 965.50
Reserve Fund	3 695 831.12			3 695 831.12
Provision for Works	835 693.65			835 693.65
Accounts payable	2 928 250.66	2 389 557.66	796 929.36	6 114 737.68
Clearing Account	163 133.92	70 803.94	515.60	234 453.46
Collected or received in advance	5 067 993.74	280 283.03	2 165 084.39	7 513 361.16
Provision for commitments	–	4 043 042.88		4 043 042.88
Cash owed to the bank	15 093 177.42	103 470.62	1 176 675.19	16 373 323.23
Excess of Inflow of Funds over Use of Funds	4 269 208.13	17 869 032.53	3 610 174.28	25 748 414.94
TOTAL	**33 310 254.14**	**24 756 190.66**	**7 749 378.82**	**65 815 823.62**

APPENDIX 1

MEMBER ORGANISATIONS OF THE EUROPEAN SCIENCE FOUNDATION

AUSTRIA

Fonds zur Förderung der wissenschaftlichen Forschung in Österreich * #
Austrian Science Research Fund
Weyringergasse 35
A-1040 Wien

Österreichische Akademie der Wissenschaften
Austrian Academy of Sciences
Dr. Ignaz-Seigel Platz 2
A-1010 Wien

BELGIUM

Fonds National de la Recherche Scientifique (FNRS)/ Nationaal Fonds voor Wetenschappelijk Onderzoek (NFWO) * #
National Fund for Scientific Research
5, rue d'Egmont
B-1050 Bruxelles

DENMARK

Det Kongelige Danske Videnskabernes Selskab
Royal Danish Academy of Sciences and Letters
H.C. Andersens Boulevard 35
DK-1553 København V

- Statens Humanistiske Forskningsråd (SHF)
  Humanities Research Council
- Statens Jordbrugs- og Veterinaervidenskabelige Forskningsråd (SJVF)
  Agricultural and Veterinary Science Research Council
- Statens Sundhedsvidenskabelige Forskningsråd (SSVF) #
  Medical Research Council
- Statens Naturvidenskabelige Forskningsråd (SNF) *
  Natural Science Research Council
- Statens Samfundsvidenskabelige Forskningsråd (SSF)
  Social Sciences Research Council
- Statens Teknisk-Videnskabelige Forskningsråd (STVF)
  Technical Research Council

The administrations of the six research councils are assumed by:
Forskningsrådene
Bredgade 43
DK-1260 København K

FINLAND

Suomen Akatemia/Finlands Akademi * #
Academy of Finland
Hämeentie 68 B
PO Box 57
SF-00550 Helsinki

Suomen Tiedeakatemiain Valtuuskunta/
Delegationen för Vetenskapsakademierna i Finland
Delegation of the Finnish Academies of Science and Letters
Mariankatu 5
SF-00170 Helsinki

FRANCE

Centre National de la Recherche Scientifique (CNRS) *
National Centre for Scientific Research
3 rue Michel-Ange
F-75794 Paris Cedex 16

Commissariat à l'Energie Atomique (CEA) *
Direction des Sciences de la Matière
Institute for Basic Research of the Atomic Energy Commission
Centre d'Etudes Nucléaires de Saclay
Orme de Merisiers
F-91191 Gif-sur-Yvette Cedex

Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER) *
French Sea Research Institute
Technopolis 40
155, rue Jean-Jacques Rousseau
F-92138 Issy-les-Moulineaux Cedex

Institut National de la Santé et de la Recherche Médicale (INSERM) #
National Institute for Health and Medical Research
101, rue de Tolbiac
F-75654 Paris Cedex 13

GERMANY

Arbeitsgemeinschaft der Grossforschungseinrichtungen *
Association of National Research Centres
Ahrstrasse 45
D-53175 Bonn

Deutsche Forschungsgemeinschaft (DFG) * #
German Research Society
Kennedyallee 40
D-53175 Bonn

Konferenz der deutschen Akademien
der Wissenschaften
Conference of Academies of Arts and Sciences
Geschwister-Scholl-Strasse 2
D-55131 Mainz

Max-Planck-Gesellschaft (MPG) *
Max Planck Society
Hofgartenstrasse 2
Postfach 101062
D-80539 München

GREECE

National Hellenic Research Foundation (NHRF) *
48 Vassileos Constantinou Avenue
GR-116 35 Athens

HUNGARY

Magyar Tudományos Akadémîa *
Hungarian Academy of Sciences
Roosevelt tér. 9
H-1051 Budapest

ICELAND

Rannsóknarráõ Islands *
The Research Council of Iceland
Laugavegur 13
IS-101 Reykjavik

IRELAND

FORBAIRT *
Glasnevin
IRL-Dublin 9

Health Research Board #
73 Lower Baggot Street
IRL-Dublin 2

Royal Irish Academy
19 Dawson Street
IRL-Dublin 2

ITALY

Consiglio Nazionale delle Ricerche (CNR) * #
National Research Council
Piazzale Aldo Moro 7
I-00100 Roma

Ente per le Nuove Tecnologie, l'Energia e l'Ambiente (ENEA) *
Italian Agency for new Technologies, Energy and the Environment (ENEA)
Viale Regina Margherita 125
I-00198 Roma

THE NETHERLANDS

Koninklijke Nederlandse Akademie van Wetenschappen
Royal Netherlands Academy of Arts and Sciences
Het Trippenhuis
Kloveniersburgwal 27
Postbus 19121
NL-1000 GC Amsterdam

Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO) * #
Netherlands Organisation for Scientific Research
Laan van Nieuw Oost Indië 131
Postbus 93138
NL-2509 AC Den Haag

NORWAY

Det Norske Videnskaps-akademi
Norwegian Academy of Science and Letters
Drammensveien 78
N-Oslo 2

Norges Forskningsråd * #
The Research Council of Norway
Stensberggata 26
P.O. Box 2700
St Hanshaugen
N-0131 Oslo

POLAND

Polska Akademia Nauk *
Polish Academy of Sciences
Palac Kultury i Nauki
PL-00-901 Warsaw

PORTUGAL

Academia das Ciências de Lisboa
Lisbon Academy of Sciences
Rua da Academia das Ciências, 19
P-1200 Lisboa

Junta Nacional de Investigaçao Ciêntifica e Tecnológica (JNICT)
Council for Scientific and Technological Research
Avenida Dom Carlos I, 126
P-1200 Lisboa

SPAIN

Consejo Superior de Investigaciones Científicas (CSIC) * #
Council for Scientific Research
Serrano 117
E-28006 Madrid

Secretaría General del Plan Nacional de Investigación Científica y Desarollo Tecnológico
General Secretariat of the National Plan for Scientific Research and Technological Development
C/Rosario Pino, 14-16
E-28020 Madrid

SWEDEN

Forskningsrådsnämnden
Council for Planning and Coordination of Research
Regeringsgatan 56
Box 7101
S-103 87 Stockholm

Humanistisk-Samhällstenskapliga Forskningsrådet (HSFR)
Humanities and Social Sciences Research Council
Regeringsgatan 56
Box 7120
S-103 87 Stockholm

Kungliga Vetenskapsakademien
The Royal Academy of Sciences
Box 50005
S-104 05 Stockholm

Kungliga Vitterhets, Historie och Antikvitets Akademien
Royal Academy of Letters, History and Antiquities
Box 5622
Villagatan 3
S-114 86 Stockholm

Medicinska Forskningsrådet (MFR) #
Medical Research Council
Box 7151
Regeringsgatan 56
S-103 88 Stockholm

Naturvetenskapliga Forskningsrådet (NFR) *
Natural Science Research Council
Box 7142
Regeringsgatan 56
S-103 87 Stockholm

Skogs- och Jordbrukets Forskningsråd
Swedish Council for Forestry and Agricultural Research
Odengatan 61
Box 6488
S-113 82 Stockholm

Socialvetenskapliga Forskningsrådet
Swedish Council for Social Research
Tullgränd 4
Box 2220
S-103 15 Stockholm

SWITZERLAND

Schweizerischer Nationalfonds zur Förderung der wissenschaftlichen Forschung (NF) * #
Swiss National Science Foundation
Wildhainweg 20
Postfach 2338
CH-3001 Bern

Konferenz der schweizerischen wissenschaftlichen Akademien
Conference of the Swis Scientific Academies
Hirschengraben 11
Postfach 2535
CH-3001 Bern

TURKEY

The Scientific and Technical Research Council (TÜBITAK) * #
Atatürk Bulvari 221
Kavaklidere
TR-06100 Ankara

UNITED KINGDOM

Biotechnology and Biological Sciences Research Council (BBSRC) *
Central Office
Polaris House
North Star Avenue
GB-Swindon SN2 1UH

The British Academy
20-21 Cornwall Terrace
GB-London NW1 4QP

Economic and Social Research Council (ESRC)
Polaris House
North Star Avenue
GB-Swindon SN2 1UJ

Engineering and Physical Sciences Research Council (EPSRC) *
Polaris House
North Star Avenue
GB-Swindon SN2 1ET

Medical Research Council (MRC) #
20 Park Crescent
GB-London W1N 4AL

Natural Environment Research Council (NERC) *
Polaris House
North Star Avenue
GB-Swindon SN2 1EU

Particle Physics and Astronomy Research Council (PPARC) *
Polaris House
North Star Avenue
GB-Swindon SN2 1SZ

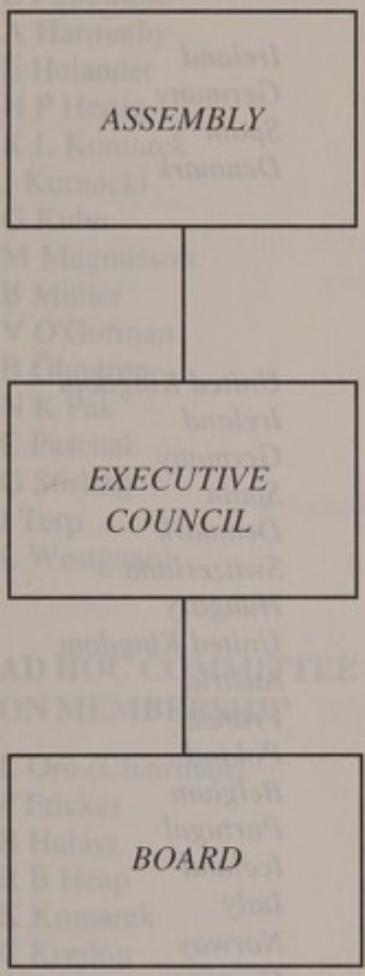
The Royal Society
6 Carlton House Terrace
GB-London SW1Y 5AG

* Member of the European Science Research Councils (ESRC)
\# Member of the European Medical Research Councils (EMRC)

APPENDIX 2

Scientific Programmes (continued)

ASSEMBLY, EXECUTIVE COUNCIL AND BOARD



The Assembly is the main decision-making body of the ESF. It meets once a year, and all Member Organisations are represented. The Assembly appoints the officers of the ESF, approves the reports of the Committees, the budgets and the accounts, the setting up of new activities and admits new members.

The Executive Council is composed of the President, the three Vice-Presidents and other elected members from a balanced range of disciplines, with at least one member from each country with ESF Member Organisations. It is responsible for the management of ESF, prepares the work of the Assembly and ensures communication with Member Organisations and relevant non-member organisations.

The Board is constituted by the President, the Vice-Presidents, up to five members of the Executive Council, and the Secretary General, and ensures the continuity of ESF business between meetings of the Executive Council.

ASSEMBLY, EXECUTIVE COUNCIL AND BOARD MEETINGS 1994

January 25	*Board and joint meeting with Board of Academia Europaea*
March 15	*Board*
March 15-16	*Executive Council*
June 16	*Board*
June 16-17	*Executive Council*
July 22	*Board*
September 20	*Board*
September 20-21	*Executive Council*
November 23	*Board*
November 24	*Executive Council*
November 24-25	*Assembly*

APPENDIX 2

MEMBERS OF THE ESF BOARD AND EXECUTIVE COUNCIL

As at 1 January 1995

BOARD

Sir Dai Rees (President)	*United Kingdom*
D M X Donnelly (Vice-President)	*Ireland*
W Kröll (Vice-President)	*Germany*
L Oro (Vice-President)	*Spain*
E L Praestgaard	*Denmark*
P Fricker (Secretary General)	
Secretary: V M Schauinger-Horne	

EXECUTIVE COUNCIL

Sir Dai Rees (President)	*United Kingdom*
D M X Donnelly	*Ireland*
W Kröll	*Germany*
L Oro	*Spain*
E L Praestgaard	*Denmark*
A Aeschlimann	*Switzerland*
B Halász	*Hungary*
R B Heap	*United Kingdom*
K L Komarek	*Austria*
C Kordon	*France*
L Kúznicki	*Poland*
S J Loccufier (to Dec 94)	*Belgium*
J Maggiolly Novais	*Portugal*
M Magnússon	*Iceland*
C Mancini	*Italy*
B Mørland	*Norway*
B Müller	*Germany*
H Newby	*United Kingdom*
P Papon	*France*
H Pinkster	*The Netherlands*
E N Protonotarios	*Greece*
F M Ramôa Ribeiro (to Dec 94)	*Portugal*
L Simar	*Belgium*
R Simili	*Italy*
L O Sundelöf	*Sweden*
A Tanskanen	*Finland*
H Gg Wagner	*Germany*
C Yalçin	*Turkey*
U Finzi	*Representative of the CEC*

Secretary: V M Schauinger-Horne

AUDITOR FOR FINANCIAL YEAR 1994

I Segergren	*Sweden*

ELECTORAL COMMISSION (1994)

P Levaux (Chairman)	*Belgium*
F R Dias Agudo	*Portugal*
P J D Drenth	*The Netherlands*
E Fiorentino	*Italy*
A Harmathy	*Hungary*
E Helander	*Finland*
H P Hertig	*Switzerland*
K L Komarek	*Austria*
J Kornacki	*Poland*
G Kuhn	*France*
M Magnússon	*Iceland*
B Müller	*Germany*
V O'Gorman	*Ireland*
B Öhngren	*Sweden*
N K Pak	*Turkey*
C Pascual	*Spain*
G Stirling	*United Kingdom*
I Terp	*Denmark*
L Westgaard	*Norway*

AD HOC COMMITTEE OF THE EXECUTIVE COUNCIL ON MEMBERSHIP

L Oro (Chairman)	*ESF Vice-President*
P Fricker	*ESF Secretary General*
B Halász	*Hungary*
R B Heap	*United Kingdom*
K Komarek	*Austria*
C Kordon	*France*
B Müller	*Germany*
H Pinkster	*The Netherlands*
P Colyer	*ESF*
L Wilson	*ESF*

AD HOC GROUP OF THE EXECUTIVE COUNCIL ON STRATEGY

Sir Dai Rees	*ESF President*
P Fricker	*ESF Secretary General*
C Mancini	*Italy*
B Mørland	*Norway*
H Newby	*United Kingdom*
P Papon	*France*
E Praestgaard	*Denmark*
P Colyer	*ESF*
L Wilson	*ESF*

APPENDIX 2

FINANCE COMMITTEE

A Tanskanen (Chairman)	*Finland*
M Bowthorpe	*United Kingdom*
M Dodet	*France*
E Glück	*Austria*
P Levaux	*Belgium*
B Müller	*Germany*
C Pascual	*Spain*
P Fricker	*ESF Secretary General*
J-P Roth	*ESF Finance Officer*

NETWORK COMMITTEE

A Committee of the Executive Council set up to manage the Network operations, and to make recommendations to Council on Network launches.

D M X Donnelly (Chairman)	*Ireland*
W P Blockmans	*The Netherlands, SCH*
J E Fenstad	*Norway, PESC*
B Halász	*Hungary*
Ph Lazar	*France, EMRC*
G Martinotti	*Italy, SCSS*
H Pinkster	*The Netherlands*
W Rathmayer	*Germany, LESC*
H Gg Wagner	*Germany*

Secretary: P Colyer

MEMBERS OF ESF STANDING COMMITTEES

SOCIAL SCIENCES COMMITTEE

G Martinotti (Chairman)	*Italy*
R Amann	*United Kingdom*
E Baltensperger	*Switzerland*
M Csaky	*Austria*
M Dalla Costa	*Italy*
F Engelstad	*Norway*
G Fauconnier	*Belgium*
J Ferreira de Almeida	*Portugal*
D F Hannan	*Ireland*
M Kaase	*Germany*
L Kulcsár	*Hungary*
L Leontidou	*Greece*
J-P Machelon	*France*
G Magnússon	*Iceland*
J Martinussen	*Denmark*
J R Montero	*Spain*
A Öhman	*Sweden*
L Paganetto	*Italy*
K Rissanen	*Finland*
F Thys-Clement	*Belgium*
G A van der Knaap	*The Netherlands*
A Wyczanski	*Poland*
E Mochmann	*Adviser, Social Science Databases*

Observers

S N Eisenstadt	*Israel Academy of Sciences and Humanities*
D L Featherman	*Social Science Research Council, USA*
H Newby	*ESF Executive Council*
B Öhngren	*COST Technical Committee, Social Sciences*

Secretary: J H Smith

APPENDIX 2

Standing Committees (continued)

HUMANITIES COMMITTEE

W Blockmans (Chairman)	*The Netherlands*
J Arce	*Spain*
B Arrhenius	*Sweden*
D Barjot	*France*
D E D Beales	*United Kingdom*
M Böhler	*Switzerland*
I Bondebjerg	*Denmark*
L Droulia	*Greece*
S Eskola	*Finland*
E Fischer-Lichte	*Germany*
M Haman	*Poland*
D Kosáry	*Hungary*
G MacEoin	*Ireland*
G Oberhammer	*Austria*
M Rindal	*Norway*
M H Rocha-Pereira	*Portugal*
A Verhulst	*Belgium*
H L Wesseling	*The Netherlands*
S Zoppi	*Italy*

Subject Representatives

R Halleux	*History of Sciences*
R Ilbert	*Islam Studies*
E König	*Linguistics*

Observers

M Csaky	*Standing Committte for the Social Sciences*
S Katz	*American Council of Learned Societies*
R Ris	*Conseil International de Philosophie et de Sciences Humaines*
S Shaked	*Israel Academy of Sciences and Humanities*
R Simili	*ESF Executive Council*

Secretary: M Sparreboom

EUROPEAN MEDICAL RESEARCH COUNCILS (EMRC)

This Committee consists of *ad hoc* representatives of those ESF Member Organisations which act as Research Councils concerned with medicine and health.

Ph Lazar (Chairman)
Secretary: J-H Kock

EMRC EXECUTIVE GROUP

Ph Lazar (Chairman)	*France*
E Dabelsteen	*Denmark*
D Evered	*United Kingdom*
B Konze-Thomas	*Germany*
J Komender	*Poland*
K Sekeris	*Greece*

Secretary: J-H Kock

EUROPEAN SCIENCE RESEARCH COUNCILS (ESRC)

up to 31 December 1994

This Committee consisted of *ad hoc* representatives of those ESF Member Organisations which act as Research Councils concerned with natural sciences.

H J van der Molen (Chairman)
Secretary: M Fratta

ESRC CORE GROUP

H J van der Molen (Chairman)	*The Netherlands*
K Fleischmann	*Germany*
H Ehrhardt	*Germany*
M Espedal	*Norway*
P Goya	*Spain*
A Guerrini	*Italy*
J C Mounolou	*France*
E Praestgaard	*ESF Executive Council*
G Stirling	*United Kingdom*
J B Weber	*Switzerland*

Secretary: M Fratta

ESRC AD HOC GROUP ON TECHNICAL SCIENCES

E L Praestgaard (Chairman)	*Denmark*

Secretary: H U Karow

APPENDIX 2

Standing Committees (continued)

STANDING COMMITTEE FOR LIFE AND ENVIRONMENTAL SCIENCES (LESC)

From 1 January 1995

W Rathmayer (Chairman)	*Germany*
C Alzieu	*France*
E Augstein	*Germany*
K Bremer	*Sweden*
G Busuoli	*Italy*
T H Clutton-Brock	*United Kingdom*
M Clynes	*Ireland*
A Coomans	*Belgium*
D J Drewry	*United Kingdom*
T Fagerström	*Sweden*
E Fereres	*Spain*
G Glatzel	*Austria*
J Jouzel	*France*
J A Korstgaard	*Denmark*
I Lang	*Hungary*
A E Merbach	*Switzerland*
J-C Mounolou	*France*
J W M Osse	*Netherlands*
I Sa-Correia	*Portugal*
G Salvatore	*Italy*
O Savolainen	*Finland*
F A Seifert	*Germany*
A M C Sengör	*Turkey*
H Thorgeirsson	*Iceland*
A Urbanek	*Poland*
L Walløe	*Norway*
D Weis	*Belgium*

Secretary: M Fratta

STANDING COMMITTEE FOR THE PHYSICAL AND ENGINEERING SCIENCES (PESC)

From 1 January 1995

J E Fenstad (Chairman)	*Norway*
J-C André (Vice-Chairman)	*France*
M A Barbosa	*Portugal*
S Bevilacqua	*Italy*
P Day	*United Kingdom*
J P Desclaux	*France*
D M X Donnelly	*Ireland*
G Ertl	*Germany*
G Gleiter	*Germany*
P Goya	*Spain*
A Kluwick	*Austria*
N Kroó	*Hungary*
J Larsen	*Denmark*
P Mandel	*Belgium*
P Martinoli	*Switzerland*
N K Pak	*Turkey*
T Pakkanen	*Finland*
K A Pounds	*United Kingdom*
J-E Sundgren	*Sweden*
F W Sluijter	*The Netherlands*
P Swinnerton-Dyer	*United Kingdom*
L Vanquickenborne	*Belgium*

ESF Secretary: H U Karow

APPENDIX 2

MEMBERS OF ASSOCIATED COMMITTEES

EUROPEAN SPACE SCIENCE COMMITTEE (ESSC)

F Becker	*France*
E Blamont	*France*
M Candidi	*Italy*
A M Cruise	*United Kingdom*
K Dose	*Germany*
A Giménez	*Spain*
R J Gurney	*United Kingdom*
G Haerendel	*Germany*
K F Hasselman,	*Germany*
N Kiehne	*Germany*
D Linnarsson	*Sweden*
N Mandolesi	*Italy*
G Mégie	*France*
D A M Mesland	*The Netherlands*
A Mugnai	*Italy*
W Riedler	*Austria*
R Rummel	*Germany*
H W Schnopper	*Denmark*
G A Tammann	*Switzerland*
F W Taylor	*United Kingdom*
G Vedrenne	*France*

ESF Secretary : G Dalu
Scientific Assistant to the Chairman: J-C Worms

The Committee is assisted by representatives from the European Space Agency, the Space Research Institute of the Russian Academy of Sciences, the Space Studies Board of the US National Academy of Sciences, and COSPAR.

COMMITTEE ON RADIO ASTRONOMY FREQUENCIES (CRAF)

H C Kahlmann (Chairman)	*The Netherlands*
T A Th Spoelstra (Secretary)	*The Netherlands*
R Bachiller	*Spain*
A Benz	*Switzerland*
R J Cohen	*United Kingdom*
B Darchy	*France*
B A Doubinsky	*Russia*
J Ellder	*Sweden*
R J F Gonze	*Belgium*
S Gorgolewski	*Poland*
B H Grahl	*Germany*
M E Ôzel	*Turkey*
J E B Ponsonby	*United Kingdom*
K Ruf	*Germany*
A A Sanches de Magalhaes	*Portugal*
A Tlamicha	*Czech Republic*
G Tomassetti	*Italy*

Observers

A P van Eyken	*Sweden*
S M Grewing	*IRAM, France*
G F Block	*European Space Agency*

ESF Secretary: G Dalu

APPENDIX 2

Associated Committees (continued)

NUCLEAR PHYSICS EUROPEAN COLLABORATION COMMITTEE (NuPECC)

P Kienle (Chairman)	*Germany*
J Äystö	*Finland*
W Breunlich	*Austria*
H Doubre	*France*
A Fonseca	*Portugal*
C Gaarde	*Denmark*
S Galès	*France*
P Guichon	*France*
B Jonson	*Sweden*
R Malfliet	*The Netherlands*
G C Morrison	*United Kingdom*
E Moya de Guerra	*Spain*
E Osnes	*Norway*
E Otten	*Germany*
G Papparlardo	*Italy*
P-G Picozza	*Italy*
B Schoch	*Germany*
I Sick	*Switzerland*
P Twin	*United Kingdom*
J Vervier	*Belgium*
P de Witt Huberts	*The Netherlands*
Sir William Mitchell	*United Kingdom*

Secretary: G E Körner
ESF Secretary: H U Karow

EUROPEAN COMMITTEE ON OCEAN AND POLAR SCIENCES (ECOPS)

A joint Committee of ESF and the Commission of the European Communities

G Hempel (Chairman)	*Germany*
B Battaglia	*Italy*
J Boissonnas	*CEC*
D J Drewry	*United Kingdom*
C Hammer	*Denmark*
O M Johannessen	*Norway*
X Le Pichon	*France*
C Lorius	*France*
W de Ruijter	*The Netherlands*
J-O Strömberg	*Sweden*
J D Woods	*United Kingdom*

ESF Secretary: M Fratta

ADVISORY PANEL ON ENVIRONMENTAL CHANGE (APEC)

A joint Committee of ESF and the Commission of the European Communities

Sir Hermann Bondi (Chairman)	*United Kingdom*
G Fülgraff	*Germany*
K Hasselmann	*Germany*
E S Leppakoski	*Finland*
K G Mäler	*Sweden*
G Megie	*France*
C Nolan	*CEC, DG XII*
H Ott	*CEC, DG XII*
R Passino	*Italy*
W Stumm	*Switzerland*
N van Breemen	*The Netherlands*

ESF Secretary: J-H Kock

APPENDIX 2

EUROPEAN RESEARCH CONFERENCES

STEERING COMMITTEE

H Gg Wagner (Chairman)	*Germany*
E Bayer	*European Mathematical Society*
J Biemond	*European Association for Signal Processing*
D M X Donnelly	*ESF Vice-President*
N N Greenwood	*EUCHEM/Federation of European Chemical Societies*
A Longinelli	*European Union of Geoscientists*
H M Keir	*European Union of Societies in Experimental Biology*
H Mäkelä	*ESF European Medical Research Councils*
K Newton	*ESF Standing Committee for Social Sciences*
R Pick	*European Physical Society*
H J van der Molen	*ESF European Science Research Councils*

Guests

P Carayon	*Philippe Laudat Conferences*
D G Crighton	*European Mechanics Society*
A Jacquemin-Sablon	*Jacques Monod Conferences*
J Rosenbaum	*European Commission*
E P Whitehead	*European Commission*

ESF Office: J Hendekovic, Executive Director of the Programme
C Grimont, Conference Manager

ESF COMMITTEES FOR SCIENTIFIC PROGRAMMES

BELIEFS IN GOVERNMENT (BiG)

M Kaase (Co-Director)	*Germany*
K Newton (Co-Director)	*United Kingdom*
O Borre	*Denmark*
J W van Deth	*The Netherlands*
H-D Klingemann	*Germany*
S Kuhnle	*SC for the Social Sciences*
O Niedermayer	*Germany*
E Scarbrough (Research-Coordinator)	*United Kingdom*

ESF Secretary: J H Smith

REGIONAL AND URBAN RESTRUCTURING IN EUROPE (RURE)

S Öberg (Co-Director)	*Sweden*
A Shachar (Co-Director)	*Israel*
A Malmberg (Research Co-ordinator)	*Sweden*
P Claval	*France*
P Dicken	*United Kingdom*
J Gaspar	*Portugal*
J C Hansen	*Norway*
A Montanari	*Italy*
E W Schamp	*Germany*

ESF Secretary: J H Smith

APPENDIX 2

Scientific Programmes (continued)

GEOGRAPHIC INFORMATION SYSTEMS: DATA INTEGRATION AND DATA BASE DESIGN (GISDATA)

A M Arnaud	*Portugal*
H-P Bähr	*Germany*
K Brassel	*Switzerland*
M Craglia (Research Co-ordinator)	*United Kingdom*
J-P Donnay	*Belgium*
M Fischer	*Austria*
M Goodchild	*United States of America*
E Holm	*Sweden*
I Masser (Co-Director)	*United Kingdom*
P Mogorovich	*Italy*
N D Polydorides	*Greece*
F Salgé (Co-Director)	*France*
H J Scholten	*The Netherlands*
E M Sorensen	*Denmark*
G H Strand	*Norway*
A Susanna	*Italy*

ESF Secretary: J H Smith

EUROPEAN MANAGEMENT AND ORGANISATIONS IN TRANSITION (EMOT)

A Grandori (Co-Chairman)	*Italy*
R Whitley (Co-Chairman)	*United Kingdom*
G Morgan (Research Co-ordinator)	*United Kingdom*
J L Alvarez	*Spain*
T Colbjørnsen	*Norway*
L Engwall	*Sweden*
E Friedberg	*France*
H Gahmberg	*Finland*
A Kieser	*Germany*
P E Mouritzen	*Denmark*
G A van der Knaap	*The Netherlands*
A Wassenberg	*The Netherlands*

ESF Secretary: G Darmon

LEARNING IN HUMANS AND MACHINES

H Spada (Chairman)	*Germany*
L Saitta (Co-Chair)	*Italy*
R Piola (Research Coordinator)	*Italy*
P Reimann (Research Coordinator)	*Germany*
P Dillenbourg	*Switzerland*
P Light	*United Kingdom*
P Mendelsohn	*Switzerland*
G Mirdal	*Denmark*
A Öhman	*Sweden*
T M O'Shea	*United Kingdom*
R Raivola	*Finland*
M van Someren	*The Netherlands*
G Vignaux	*France*

ESF Secretary: G Darmon

LANGUAGE TYPOLOGY

E König (Programme Director)	*Germany*
M Haspelmath (Assistant)	*Germany*
J van der Auwera	*Belgium*
G Bernini	*Italy*
B Comrie	*USA*
O Dahl	*Sweden*
J Feuillet	*France*
H van der Hulst	*The Netherlands*
C Lehmann	*Germany*
G Lüdi	*Switzerland*
V Nedjalkov	*Russia*
F Planck	*Germany*
B Pottier	*France*
P Ramat	*Italy*
HC van Riemsdijk	*The Netherlands*
A Siewierska	*United Kingdom*
N Vincent	*United Kingdom*

ESF Secretary: M Sparreboom

APPENDIX 2

Scientific Programmes (continued)

THE TRANSFORMATION OF THE ROMAN WORLD

J Arce (Co-ordinator)	*Spain*
E Chrysos (Co-ordinator)	*Greece*
I Wood (Co-ordinator)	*United Kingdom*
G Akerström-Hougen	*Sweden*
M Barcelo	*Spain*
V Bierbrauer	*Germany*
G-P Brogiolo	*Italy*
A Dierkens	*Belgium*
Y Duval	*France*
K Godlowski	*Poland*
N Hannestad	*Denmark*
R Hodges	*United Kingdom*
M Mazza	*Italy*
M Mostert	*The Netherlands*
P Périn	*France*
W Pohl	*Austria*
H H van Regteren Altena	*The Netherlands*
H G Resi	*Norway*
M Ruggini	*Italy*
F Theuws	*The Netherlands*

ESF Secretary: M Sparreboom

THE EVOLUTION OF CHEMISTRY IN EUROPE, 1789-1939

C Meinel (Chairman)	*Germany*
F Abbri	*Italy*
R G W Anderson	*United Kingdom*
B Bensaude-Vincent	*France*
F Caron	*France*
N Dazzi	*Italy*
D M X Donnelly	*Ireland*
T Frängsmyr	*Sweden*
A L Janeira	*Portugal*
H Kragh	*Denmark*
D Knight	*United Kingdom*
J Ordóñez	*Spain*
R Roulet	*Switzerland*
I Stengers	*Belgium*

ESF Secretary: G Darmon

CONCEPTS AND SYMBOLS OF THE EIGHTEENTH CENTURY IN EUROPE

R Mortier (Chairman)	*Belgium*
P-E Knabe (Vice-Chairman)	*Germany*
R Darnton	*United States*
J Ehrard	*France*
W Th M Frijhoff	*The Netherlands*
N Hampson	*United Kingdom*
C Iglesias Cano	*Spain*
J Pedersen	*Denmark*
G von Proschwitz	*Sweden*
D Roche	*France*
C Salomon-Bayet	*France*
J Starobinski	*Switzerland*
T Winther	*Norway*

ESF Secretary: G Darmon

MOLECULAR NEUROBIOLOGY OF MENTAL ILLNESS (MNMI)

J Mallet (Chairman)	*France*
M Ackenheil	*Germany*
L Amaducci	*Italy*
K Beyreuther	*Germany*
F Clerget Darpoux (Consultant)	*France*
K Davies	*United Kingdom*
R Fog	*Denmark*
P McGuffin	*United Kingdom*
J Mendlewicz	*Belgium*
M R Niermeijer	*The Netherlands*
L Peltonen-Palotie	*Finland*
A M Rosina	*Italy*
L A Sandkuijl (Consultant)	*The Netherlands*

ESF Secretary: J-H Kock

APPENDIX 2

Scientific Programmes (continued)

EUROPEAN NEUROSCIENCE PROGRAMME (ENP)

M M Burger (Chairman)	*Switzerland*
J Borrell	*Spain*
J Dudel	*Germany*
F Fazio	*Italy*
S Grillner	*Sweden*
J Hamori	*Hungary*
H Hultborn	*Denmark*
M R Issidorides	*Greece*
C Kordon	*France*
H Lang	*Finland*
B E Leonard	*Ireland*
T Lomo	*Norway*
F H Lopes da Silva	*The Netherlands*
P J Lowry	*United Kingdom*
G Moonen	*Belgium*
M Moulins	*France*
F Rubia	*Spain*
J Toscana Rico	*Portugal*

Advisory Board

G Berlucci	*Italy*
R Frackowiak	*United Kingdom*
W H Gispen	*The Netherlands*
C Goridis	*France*
T Hökfelt	*Sweden*
F Holsboer	*Germany*
F Rubia	*Spain*
W Singer	*Germany*

ESF Scientific Secretary : J-H Kock
ESF Administrative Secretary: C Durant

DEVELOPMENTAL BIOLOGY (EDB)

S W de Laat (Chairman)	*The Netherlands*
E Boncinelli	*Italy*
P Ekblom	*Sweden*
S H Fromm	*Norway*
W J Gehring	*Switzerland*
A Ghysen	*Belgium*
P Gruss	*Germany*
J B Gurdon	*United Kingdom*
E Lehtonen	*Finland*
J A Lepesant	*France*
A McLaren	*United Kingdom*
K Mollgård	*Denmark*
Ch Nüsslein-Volhard	*Germany*

ESF Secretary: J-H Kock

PROGRAMME OF FELLOWSHIPS IN TOXICOLOGY (PFT)

L Vittozzi (Chairman)	*Italy*
C Almaça	*Portugal*
H Autrup	*Denmark*
A Bernard	*Belgium*
H Bolt	*Germany*
F Clementi	*Italy*
D S Davies	*United Kingdom*
L Dencker	*Sweden*
G Dirheimer	*France*
H Greim	*Germany*
S A Kyrtopoulos	*Greece*
R Lauwerys	*Belgium*
V M C Madeira	*Portugal*
T Norseth	*Norway*
F Oesch	*Germany*
M Olsson	*Sweden*
M Pugh	*Ireland*
E Rodriguez-Farré	*Spain*
Ch Schlatter	*Switzerland*
J Schou	*Denmark*
M I Sorsa	*Finland*
J Tuomisto	*Finland*
E Vilanova	*Spain*

ESF Scientific Secretary: J-H Kock
ESF Administrative Secretary: P Pirra

APPENDIX 2

Scientific Programmes (continued)

EUROPEAN ICE SHEET MODELLING INITIATIVE (EISMINT)

C Doake (Chairman)	*United Kingdom*
H Björnsson	*Iceland*
H Blatter	*Switzerland*
D Dahl-Jensen	*Denmark*
D J Drewry	*United Kingdom*
P Huybrechts	*Belgium*
A Letréguilly / C Ritz	*France*
H Miller	*Germany*
J Oerlemans	*The Netherlands*
G Tabacco	*Italy*

ESF Secretary: M Fratta

EUROPEAN VOLCANOLOGICAL PROJECT (EVOP)

F Barberi (Chairman)	*Italy*
V Arana	*Spain*
J-L Cheminée	*France*
V H Forjaz	*Portugal*
M Fytikas	*Greece*
A Hirn	*France*
F Innocenti	*Italy*
J Keller	*Germany*
B Rodrigues	*Portugal*
G Sigvaldason	*Iceland*

ESF Secretary: M Fratta

EUROPROBE

Scientific Steering Committee (ESSC) and Management Committee (EMC)

D Gee (ESSC Chairman)	*Sweden*
D Maronde (EMC Chairman)	*Germany*
A Adám	*Hungary*
E Banda	*Spain*
A B Carlson	*Norway*
R Carman	*Sweden*
S Egelund	*Denmark*
K Fuchs	*Germany*
A Green	*Switzerland*
A Guterch	*Poland*
A T Huntingdon	*United Kingdom*
J Kakkuri	*Finland*
J Klerkx	*Belgium*
D A van der Kroef	*The Netherlands*
Y G Leonov	*Russia*
P Matte	*France*
L A Mendes Victor	*Portugal*
C Morelli	*Italy*
A Morosov	*Russia*
G Ni Uid	*Ireland*
G Poupinet	*France*
R A Stephenson	*The Netherlands*
J-B Weber	*Switzerland*

ESF Secretary: M Fratta

STUDY OF THE EUROPEAN ARCTIC SHELF (SEAS)

G Hempel (Chairman)	*Germany*
H G Fransz	*The Netherlands*
P Hall	*Sweden*
A V Neyelov	*Russia*
F Passelaigue	*France*
E Rachor	*Germany*
L Saldanha	*Portugal*
G Socal	*Italy*
P Wadhams	*United Kingdom*

ESF Secretary: M Fratta

APPENDIX 2

Scientific Programmes (continued)

EUROPEAN PALAEOCLIMATE AND MAN (EPC)

Advisory Committee and Co-ordination Committee

P Fricker (AC Chairman)	*Switzerland*
B Frenzel (EPCC Chairman)	*Germany*
S Andersen	*Denmark*
A Berger	*Belgium*
B Berglund	*Sweden*
G S Boulton	*United Kingdom*
J Dijkhof	*The Netherlands*
M Eronen	*Finland*
R Fantechi	*CEC*
P Huttunen	*Finland*
T Nanni	*Italy*
H Oeschger	*Switzerland*
G Orombelli	*Italy*
L Reisch	*Germany*
J L Turon	*France*
H F Vugts	*The Netherlands*

ESF Secretary: M Fratta

EUROPEAN GLACIOLOGICAL PROGRAMME (EGP)
GREENLAND ICE CORE PROJECT (GRIP)

GRIP Steering Committee (SC) and Management Group (MG)

B Stauffer (SC Chairman)	*Switzerland*
H Miller (MG Chairman)	*Germany*
H B Clausen	*Denmark*
R J Delmas	*France*
N Gundestrup	*Denmark*
C Hammer	*Denmark*
S J Johnsen	*Iceland*
C Lorius	*France*
H Oeschger	*Switzerland*
G Orombelli	*Italy*
D Peel	*United Kingdom*
R Souchez	*Belgium*
E Wolff	*United Kingdom*

ESF Secretary: M Fratta

POLAR NORTH ATLANTIC MARGINS (PONAM)

Steering Committee and Scientific Advisory Committee

A Elverhøi (Chairman)	*Norway*
G S Boulton	*United Kingdom*
J Dowdeswell	*United Kingdom*
S Funder	*Denmark*
J P Henriet	*Belgium*
C Hjort	*Sweden*
H C Larsen	*Denmark*
J Mangerud	*Norway*
R Stein	*Germany*
J Thiede	*Germany*
T O Vorren	*Norway*

ESF Secretary: M Fratta

ESF CONSORTIUM FOR OCEAN DRILLING (ECOD)

ESF Management Committee for the ODP (EMCO)

R Sartori (Chairman)	*Italy*
T Pedersen (Vice-Chairman)	*Norway*
B Brandt	*Sweden*
E S Bringmann	*The Netherlands*
S Egelund	*Denmark*
C Ehlers	*Finland*
J Hertogen	*Belgium*
F Maltezou	*Greece*
G Palmason	*Iceland*
A Pérez-Estaún	*Spain*
M L Ruscitto	*Italy*
J B Weber	*Switzerland*
Y Yilmaz	*Turkey*

Liaison with ESCO: N Mikkelsen, Science Coordinator
ESF Secretary: M Fratta

(continued overleaf)

APPENDIX 2

Scientific Programmes (continued)

ESF Scientific Committee for the ODP (ESCO)

H-C Larsen (Chairman)	*Denmark*
J McKenzie (Vice-Chairman)	*Switzerland*
J Backman	*Sweden*
M B Cita-Sironi	*Italy*
M C Comas	*Spain*
C Ehlers	*Finland*
N Görür	*Turkey*
C Katagas	*Greece*
A Myhre	*Norway*
G Olafsson	*Iceland*
J Smit	*The Netherlands*
D Weis	*Belgium*

Secretary: N Mikkelsen (Denmark)

POPULATION BIOLOGY

S Stearns (Chairman)	*Switzerland*
R Barbault	*France*
N Barton	*United Kingdom*
B O Bengtsson	*Sweden*
I Hanski	*Finland*
W Lampert	*Germany*
V Loeschcke	*Denmark*
J Pasteels	*Belgium*
W van Delden	*The Netherlands*

ESF Scientific Secretary: N M Petersen
ESF Administrative Secretary: P Cosgrove

ENVIRONMENTAL DAMAGE AND ITS ASSESSMENT (EDA)
(Monitored by the Scientific Advisory Committee on Environmental Toxicology, SACET – see page 163)

ENVIRONMENTAL TOXICOLOGY

Scientific Advisory Committee for Environmental Toxicology (SACET)

M Pugh (Chairman)	*Ireland*
D Barcelo	*Spain*
Ph Bourdeau	*CEC*
D Calamari	*Italy*
H Govers	*The Netherlands*
J Jackson	*United Kingdom*
J Kniewald	*Croatia*
K G Mäler	*Sweden*
C Papantoniou	*France*
P J Peterson	*United Kingdom*
F Ramade	*France*
Ch Schlatter	*Switzerland*
M Söndergaard	*Denmark*
M I Sorsa	*Finland*
E Steinnes	*Norway*
R Verheyen	*Belgium*

ESF Secretary : J-H Kock

MATHEMATICAL TREATMENT OF FREE BOUNDARY PROBLEMS (FBP)

J F Rodrigues (Chairman)	*Portugal*
H W Alt	*Germany*
H van Duijn	*The Netherlands*
M Fremond	*France*
M A Herrero	*Spain*
P Neittaanmaki	*Finland*
M Niezgodka	*Poland*
J Ockendon	*United Kingdom*
M Primicerio	*Italy*

ESF Secretary: G Dalu

Scientific Programmes (continued)

CHEMISTRY OF METALS IN BIOLOGICAL SYSTEMS

C D Garner (Chairman)	*United Kingdom*
J Ulstrup (Vice-Chairman)	*Denmark*
I Bertini	*Italy*
R R Crichton	*Belgium*
S Forsén	*Sweden*
C Gomez-Moreno	*Spain*
F Gonzales-Vilchez	*Spain*
H Sigel	*Switzerland*
I Sóvágó	*Hungary*
A Trautwein	*Germany*
C Veeger	*The Netherlands*
R Weiss	*France*
A Xavier	*Portugal*

ESF Secretary: N Petersen

RELATIVISTIC EFFECTS IN HEAVY ELEMENT CHEMISTRY AND PHYSICS (REHE)

P Pyykkö (Chairman)	*Finland*
E J Baerends	*The Netherlands*
J P Desclaux	*France*
K Faegri	*Norway*
I P Grant	*United Kingdom*
B Hess	*Germany*
J Karwowski	*Poland*
K Schwarz	*Austria*
A Sgamellotti	*Italy*

ESF Secretary : H U Karow

KINETIC PROCESSES IN MINERALS AND CERAMICS

E Salje (Chairman)	*United Kingdom*
M Catti	*Italy*
M O Figuereido	*Portugal*
J M Garcia Ruiz	*Spain*
P Kofstad	*Norway*
K L Komarek	*Austria*
K Korsman	*Finland*
Y Limoge	*France*
F Seifert	*Germany*
G van Tendeloo	*Belgium*

ESF Secretary: H U Karow

DYNAMICS OF GAS-SURFACE INTERACTIONS

Steering Committee

D A King (Chairman)	*United Kingdom*
G Casalone	*Italy*
G Comsa	*Germany*
G Ertl	*Germany*
A Gonzales-Urena	*Spain*
S Holloway	*United Kingdom*
B Kasemo	*Sweden*
A Kleyn	*The Netherlands*
J Lapujoulade	*France*
J Norskov	*Denmark*

ESF Secretary: H U Karow

APPENDIX 2

Scientific Programmes (continued)

PROCESS INTEGRATION IN BIOCHEMICAL ENGINEERING

K Ch A M Luyben (Chairman)	*The Netherlands*
A M van der Wielen (Secretary)	*The Netherlands*
J J Van Beeumen	*Belgium*
J M S Cabral	*Portugal*
E Cernia	*Italy*
S O Enfors	*Sweden*
G Goma	*France*
D Levine	*Norway*
M Lilly	*United Kingdom*
M Reuss	*Germany*
U von Stockar	*Switzerland*
L Viikari	*Finland*
J Villadsen	*Denmark*

ESF Scientific Secretary: N Petersen
ESF Administrative Secretary: P Cosgrove

STUDY CENTRES IN NON-LINEAR SYSTEMS

N Riley (Chairman)	*United Kingdom*
G Casati	*Italy*
P L Christiansen	*Denmark*
D G Crighton	*United Kingdom*
J P Eckmann	*Switzerland*
S Grossmann	*Germany*
J Guckenheimer	*United States of America*
G Maino	*Italy*
B Hess	*Germany*
P Manneville	*France*
L A Peletier	*The Netherlands*
A Provenzale	*Italy*

ESF Secretary: G Dalu

BIOPHYSICS OF PHOTOSYNTHESIS

A J Hoff (Chairman)	*The Netherlands*
J Aghion	*Belgium*
R J Cogdell	*United Kingdom*
G Garab	*Hungary*
G Giacometti	*Italy*
J Korppi-Tommola	*Finland*
S Malkin	*Israel*
P Mathis	*France*
M E Michel-Beyerle	*Germany*
M Miller	*Denmark*
J Ormerod	*Norway*
S Styring	*Sweden*

ESF Scientific Secretary: N M Petersen
ESF Administrative Secretary: P Cosgrove

ARTIFICIAL BIOSENSING INTERFACES (ABI)

R P Revoltella (Chairman)	*Italy*
M Mascini (Co-Chairman)	*Italy*
S Alegret	*Spain*
P Coulet	*France*
W Göpel	*Germany*
J M Kaufmann	*Belgium*
M Koudelka-Hep	*Switzerland*
J Lekkala	*Finland*
B Liedberg	*Sweden*
D S Papastathopoulos	*Greece*
P Tunon	*Spain*

ESF Secretary: J-H Kock

APPENDIX 2

NEW SCIENTIFIC PROGRAMMES

TROPICAL CANOPY RESEARCH

E Linsenmair (Chairman)	*Germany*
HH Balslev	*Denmark*
A Cleef	*The Netherlands*
W Morawetz	*Austria*

Observers

F Hallé	*France*
N Stork	*United Kingdom*

ESF Secretary: N Petersen

CLIMATE AND FAUNA: A DATABASE OF THE QUATERNARY MAMMALS OF EUROPE

W von Koenigswald (Chairman)	*Germany*
L Werdelin (Secretary)	*Sweden*
J Chaline	*France*
M Fortelius	*Finland*

ESF Secretary: J-H Kock
ESF Administrative Secretary: P Cosgrove

AIRBORNE POLAR EXPERIMENT (APE)

L Stefanutti (Chairman)	*Italy*
V Khattatov (Deputy Chairman)	*Russia*
G Braathen	*Norway*
G Busca	*Switzerland*
P Crutzen	*Germany*
R Jones	*United Kingdom*
J Ström	*Sweden*

Observer

A Tuck	*United States*

ESF Secretary: G Dalu

TRANSPORT PROCESSES IN THE ATMOSPHERE AND OCEANS (TAO)

V Artale (Chairman)	*Italy*
A Babiano	*France*
K Fraedrich	*Germany*
P Haynes	*United Kingdom*
O Piro	*Spain*
R Pasmanter	*The Netherlands*
A Provenzale	*Italy*
T Stocker	*Switzerland*

ESF Secretary: G Dalu

VAPOUR-PHASE SYNTHESIS AND PROCESSING OF NANO-PARTICLE MATERIALS (NANO)

H Fissan (Co-Chair)	*Germany*
J Schoonman (Co-Chair)	*The Netherlands*
B J Briscoe	*United Kingdom*
J Carlsson	*Sweden*
M Grätzel	*Switzerland*
J C Joubert	*France*
E I Kauppinen	*Finland*
M Pérez-Amor	*Spain*
V Prodi	*Italy*
P Wagner	*Austria*
R Winand	*Belgium*

ESF Secretary: H U Karow

CONTROL OF COMPLEX SYSTEMS (COSY)

(Committee in course of formation)

M Thoma (Chairman)	*Germany*

ESF Secretary: H U Karow

APPENDIX 2

New Scientific Programmes (continued)

ASIAN STUDIES

Th Svensson (Chairman)	*Denmark/Sweden*
D Lombard (Vice-Chairman)	*France*
W A L Stokhof (Secretary)	*The Netherlands*
J C Breman	*The Netherlands*
E Collotti Pischel	*Italy*
G Dudbridge	*United Kingdom*
Gh Gnoli	*Italy*
T King	*United Kingdom*
I Hijiya-Kirschnereit	*Germany*
W Klenner	*Germany*
B Kölver	*Germany*
U Kratz	*United Kingdom*
C MacDonald	*France*
W Marschall	*Switzerland*
J Martinussen	*Denmark*
G Oberhammer	*Austria*
K M Schipper	*The Netherlands*
P-E Will	*France*

Observers

M Boiteux	*Ministère de l'Enseignement Supérieur et de la Recherche, France*
M Van Hall	*Ministry of Education, Cultural Affairs and Science, The Netherlands*

ESF Secretary: M Sparreboom

ESF COMMITTEES FOR SCIENTIFIC NETWORKS

THE HISTORY OF EUROPEAN EXPANSION

H L Wesseling (Chairman)	*The Netherlands*
P C Emmer (Scientific Secretary)	*The Netherlands*
N Canny	*Ireland*
C Coquery-Vidrovitch	*France*
A Guiméra	*Spain*
S Marks	*United Kingdom*
D Rothermund	*Germany*
N Steensgaard	*Denmark*

ESF Secretary: M Sparreboom

CRYSTALLOGRAPHY OF BIOLOGICAL MACROMOLECULES

J Drenth (Chairman)	*The Netherlands*
K S Wilson (Scientific Secretary)	*Germany*
M Bolognesi	*Italy*
C I Branden	*Sweden*
B F C Clark	*Denmark*
P R Evans	*United Kingdom*
D Moras	*France*
T Richmond	*Switzerland*
G Schulz	*Germany*
J Sussmann	*Israel*
S J Wodak	*Belgium*

ESF Secretary: N Petersen

FINANCIAL MARKETS

C Mayer (Chairman)	*United Kingdom*
J-P Danthine	*Switzerland*
J Dermine	*France*
G Franke	*Germany*
P Johns	*United Kingdom*
B Näslund	*Sweden*
R Repullo	*Spain*
R Schiattarella	*Italy*
C Schilbred	*Norway*
C Wolff	*The Netherlands*

ESF Secretary: J H Smith

APPENDIX 2

ESF Scientific Networks (continued)

THE SEMANTICS OF CLASSICAL HEBREW

J Hoftijzer (Chairman)	*The Netherlands*
G Davies (Scientific Secretary)	*United Kingdom*
B Albrektson	*Sweden*
M Amadasi Guzzo	*Italy*
H Fabry	*Germany*
E Jenni	*Switzerland*
A Lemaire	*France*
E Lipinski	*Belgium*
H P Müller	*Germany*
W Richter	*Germany*
A van der Woude	*The Netherlands*
I Zatelli	*Italy*
J Barr (Observer)	*United States of America*
J Greenfield (Observer)	*Israel*
M Mayrhofer (Observer)	*Austria*

ESF Secretary: P Colyer

MOLECULAR DYNAMICS OF BIOMEMBRANES

W Neupert (Chairman)	*Germany*
A Watts (Vice-Chairman)	*United Kingdom*
B de Kruijff (Scientific Secretary)	*The Netherlands*
H Garoff	*Sweden*
V T Ivanov	*Russia*
C Montecucco	*Italy*
W Neupert	*Germany*
A P Pugsley	*France*
G Schatz	*Switzerland*
K Simons	*Germany*

ESF Secretary: J-H Kock

WRITTEN LANGUAGE AND LITERACY

C Pontecorvo (Chairman)	*Italy*
L Verhoeven (Secretary)	*The Netherlands*
C Blanche-Benveniste	*France*
U Frith	*United Kingdom*
H Günther	*The Netherlands*
G Lüdi	*Switzerland*
A Teberosky	*Spain*
E Ferreiro (Observer)	*Mexico*

ESF Secretary: G Darmon

THE CLASSICAL TRADITION IN THE MIDDLE AGES AND THE RENAISSANCE

B Munk Olsen (Chairman)	*Denmark*
K Friis-Jensen (Secretary)	*Denmark*
L Holtz	*France*
J IJsewijn	*Belgium*
C Leonardi	*Italy*
W Ludwig	*Germany*
N Mann	*United Kingdom*
P Petitmengin	*France*
P Schmidt	*Germany*
H Schwabl	*Austria*

ESF Secretary: M Sparreboom

DYNAMICS OF COMPLEX SYSTEMS IN BIO-SCIENCES

J-P Aubin (Chairman)	*France*
G Weisbuch (Scientific Secretary)	*France*
A Babloyantz	*Belgium*
G Da Prato	*Italy*
O Diekman	*The Netherlands*
M Iannelli	*Italy*
W Jäger	*Germany*
J Murray	*United Kingdom*
K Sigmund	*Austria*
L Wolpert	*United Kingdom*

ESF Secretary: J-H Kock

APPENDIX 2

ESF Scientific Networks (continued)

METAL CLUSTERS

P Braunstein (Chairman)	*France*
J O Bovin	*Sweden*
D Fenske	*Germany*
Lord Lewis	*United Kingdom*
G Longoni	*Italy*
D M P Mingos	*United Kingdom*
L A Oro	*Spain*
A Simon	*Germany*
K Vrieze	*The Netherlands*

ESF Secretary: H U Karow

MEDITERRANEAN MARINE GEO-SCIENCES

J Woodside (Chairman)	*The Netherlands*
M Marani	*Italy*
M Ivanov	*Russia*
J Mascle/G Bellaiche	*France*
D Troost/A Suzyumov	*UNESCO*

ESF Secretary: P Colyer

WHOLE PLANT PHYSIOLOGY

H Lambers (Chairman)	*The Netherlands*
E Garnier (Secretary)	*France*
C Körner	*Switzerland*
C-M Larsson	*Sweden*
D Lawlor	*United Kingdom*
J Merino	*Spain*
J S Pereira	*Portugal*
J Roy	*France*
E-D Schulze	*Germany*

ESF Secretary: P Cosgrove

HLA AND ALLERGY

M Ricci (Chairman)	*Italy*
A Ruffilli (Scientific Secretary)	*Italy*
X Baur	*Germany*
D Charron	*France*
M L Kapsenberg	*The Netherlands*
D Kraft	*Austria*
H Lowenstein	*Denmark*
E Möller	*Sweden*
R E O'Hehir	*United Kingdom*
G Peltre	*France*

ESF Secretary: J-H Kock

QUANTUM FLUIDS AND SOLIDS

H E Hall (Chairman)	*United Kingdom*
S Balibar	*France*
A S Borovik-Romanov	*Russia*
G Frossati	*The Netherlands*
M Krusius	*Finland*
F Pobell	*Germany*
F B Rasmussen	*Denmark*
L Reatto	*Italy*

ESF Secretary: H U Karow

THE PALAEOLITHIC OCCUPATION OF EUROPE

G Bosinski (Chairman)	*Germany*
W Roebroeks (Secretary)	*The Netherlands*
C Farizy	*France*
C Gamble	*United Kingdom*
L Larsson	*Sweden*
M Mussi	*Italy*
N D Praslov	*Russia*
L Raposo	*Portugal*
M Santonja	*Spain*
A Tuffreau	*France*

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APPENDIX 2

ESF Scientific Networks (continued)

CELL STRESS GENES AND THEIR PROTEIN PRODUCTS

R J Mayer (Co-Chairman)	*United Kingdom*
B Maresca (Co-Chairman)	*Italy*
P M Kloetzel (Secretary)	*Germany*
P Arrigo	*France*
O Bensaude	*France*
C Georgopoulos	*Switzerland*
K Hendil	*Denmark*
A Leone	*Italy*
C Rodrigues-Pousada	*Portugal*
G Santoro	*Italy*

ESF Secretary: J-H Kock

IMPACT CRATERING AND EVOLUTION OF THE EARTH

D Stöffler (Chairman)	*Germany*
Ch Koeberl (Secretary)	*Austria*
J H Doukhan	*France*
P Farinella	*Italy*
M Lindström	*Sweden*
A Montanari	*Italy*
L Pesonen	*Finland*
U Schärer	*France*
J Smit (Editor, Newsletter)	*The Netherlands*

Observers

R A F Grieve	*Canada*
V L Masaitis	*Russia*
H J Melosh	*United States of America*

ESF Secretary: P Colyer

HIGHLY STRUCTURED STOCHASTIC SYSTEMS

P J Green (Chairman)	*United Kingdom*
A J Baddeley	*The Netherlands*
A Frigessi	*Italy*
A E Gelfand	*United States of America*
S Lauritzen	*United Kingdom*
A O'Hagan	*United Kingdom*
A Racine-Poon	*Switzerland*
S Richardson	*France*
N Wermuth	*Germany*

ESF Secretary: G Dalu

TRANSITIONS IN YOUTH

D Raffe (Chairman)	*United Kingdom*
J Planas (Secretary)	*Spain*
R Breen	*United Kingdom*
D Hannan	*Ireland*
W Müller	*Germany*
H Rutjes	*The Netherlands*
P Werquin	*France*

ESF Secretary: P Cosgrove

EUROPEAN-AFRICAN SONGBIRD MIGRATION

F Bairlein (Chairman)	*Germany*
P Berthold	*Germany*
J Calderon	*Spain*
A Hedenström	*Sweden*
G Jarry	*France*
L Jenni	*Switzerland*
A van Noordwijk	*The Netherlands*
W Peach	*United Kingdom*
S Rumsey	*United Kingdom*
F Spina	*Italy*

ESF Secretary: N M Petersen

APPENDIX 2

ESF Scientific Networks (continued)

DATABASES OF GENE EXPRESSION DURING MAMMALIAN DEVELOPMENT

D Davidson (Chairman)	*United Kingdom*
J Bard (Secretary)	*United Kingdom*
F Afrati	*Greece*
R Baldock	*United Kingdom*
E Boncinelli	*Italy*
B Foehring	*Germany*
M Gulisano	*Italy*
M H Kaufman	*United Kingdom*
Kavalieros	*Greece*
W Lammer	*The Netherlands*
K Lawson	*The Netherlands*
M Mark	*France*
G Muller	*Austria*
T Pexieder	*Switzerland*
P Rigby	*United Kingdom*
K Schughart	*Germany*
J Streicher	*Austria*
I Thesleff	*Finland*
F Verbeek	*The Netherlands*
J L Vonesch	*France*
D Wilkinson	*United Kingdom*

ESF Secretary: J-H Kock

FISHES OF THE ANTARCTIC OCEAN

G di Prisco (Co-Chairperson)	*Italy*
A Clarke (Co-Chairperson)	*United Kingdom*
E Pisano (Secretary)	*Italy*
S E Fevolden	*Norway*
C Gerday	*Belgium*
G Hubold	*Germany*
J-C Hureau	*France*
A Nevelov	*Russia*
K Skora	*Poland*
R E Weber	*Denmark*

+ two non-European Observers

ESF Secretary: N M Petersen

NEW SCIENTIFIC NETWORKS

OXIDE CRYSTALS

G Corradi (Chairman)	*Hungary*
M Wöhlecke (Secretary)	*Germany*
F Agulló-López	*Spain*
R Capelletti	*Italy*
B Jannot	*France*
D Schoemaker	*Belgium*
J C Soares	*Portugal*
P D Townsend	*United Kingdom*

ESF Secretary: H U Karow

CATALYTIC MEMBRANE REACTORS

E Drioli (Chairman)	*Italy*
L Cot	*France*
R Hughes	*United Kingdom*
K I Zamarev	*Russia*
M Morbidelli	*Italy*
R Bredesen	*Norway*
J-A Dalmon	*France*
H Strathmann	*The Netherlands*
H-D Behling	*Germany*

ESF Secretary: H U Karow

APPENDIX 2

New Scientific Networks (continued)

SYSTEMATIC BIOLOGY

S Blackmore (Chairman)	*United Kingdom*
N Donlon (Secretary)	*United Kingdom*
P Alberch	*Spain*
K Bremer	*Sweden*
W Los	*The Netherlands*
C Naumann	*Germany*
B Øllgard	*Denmark*
G Pinna	*Italy*
S Tillier	*France*
P Trojan	*Poland*
M Turkay	*Germany*
M Vincx	*Belgium*
R Wehner	*Switzerland*

Observers

J Busby	*Australia*
R Gamez	*Costa Rica*
D V Geltman	*Russia*
P Raven	*USA*
S Wirjoatmodjo	*Indonesia*

ESF Secretary: N Petersen

MOLECULAR BIOLOGY AND ECOLOGY OF PLASMID-MEDIATED GENE SPREAD

M Espinosa (Chairman)	*Spain*
E M Wellington (Deputy Chairman)	*United Kingdom*
C M Thomas (Secretary)	*United Kingdom*
M Couturier	*Belgium*
S Molin	*Denmark*
E Lanka	*Germany*
P J J Hooykaas	*The Netherlands*
J D Van Elsas	*The Netherlands*

ESF Secretary: J-H Kock

GENDER INEQUALITY AND THE EUROPEAN REGIONS

S Duncan	*United Kingdom*
B Pfau-Effinger	*Germany*
M D Garcia-Ramon	*Spain*
L Gonäs	*Sweden*
D Perrens	*United Kingdom*
S Walby	*United Kingdom*

ESF Secretary: P Cosgrove

SOCIAL TRANSFORMATIONS IN CENTRAL AND EASTERN EUROPE

W Adamski (Co-Chairman)	*Poland*
M Dobry (Co-Chairman)	*France*
M Baethge	*Germany*
B Greskovits	*Hungary*
M Illner	*Czech Republich*
D Lane	*United Kingdom*
M Morlino	*Italy*
I Papadopoulos	*Greece*
H van der Wusten	*The Netherlands*

ESF Secretary: J Smith

APPENDIX 2

NATIONAL SOCIALIST OCCUPATION POLICY

W Benz (Chairman)	*Germany*
J Th M Bank (Secretary)	*The Netherlands*
F Bédarida	*France*
W Dlugoborski	*Poland*
H Fleischer	*Greece*
H Graml	*Germany*
R Hilberg	*United States*
G Otto	*Germany*
R J Overy	*United Kingdom*
T Pirker	*Germany*
H Rousso	*France*
P Sipos	*Hungary*
J H Ten Cate	*The Netherlands*
A Trommer	*Denmark*
E Weinzierl	*Austria*

ESF Secretary: M Sparreboom

ESF SECRETARIAT

PETER FRICKER
(Secretary General-Chief Executive)
Veronica Schauinger
(Assistant to the Secretary General)
Isabelle Riedinger
(Assistant)

Earth, Marine, Polar Sciences	Michele Fratta	Philippa Pirra * Marie-Aimée Comte *
Ocean and Polar Secretariat	Laurent d'Ozouville Carol Williams	Jane Swift
Medical, Life Sciences	Jan-Henrik Kock Pat Cosgrove *	Blanche Schaller Chantal Durant (ENP) Philippa Pirra (PFT) *
	Niels Petersen Pat Cosgrove *	Catherine Heiné *
Physics, Chemistry, Mathematics	Giovanni Dalu Hans Karow	Catherine Werner
Humanities	Max Sparreboom	Geneviève Schauinger * Sabine Schott*
	Gérard Darmon	Catherine Heiné *
Social Sciences	John Smith	Elizabeth Altham
Strategy Unit	Lesley Wilson (from 1.10.94)	Carole Mabrouk *
Scientific Networks	Peter Colyer	Carole Mabrouk *
European Research Conferences	Josip Hendekovic Caroline Grimont	Valérie Allspach Anne Guehl Sybille Maizoué Jacqueline McLelland (from 1.12.94)
Finance, General Administration	Jean-Pierre Roth Jacqueline Steydli Nathalie Karamanoukian Brigitte Klimek	Nazik Thierry Muriel Champeau Sandrine Muckensturm Jane Swift (Reception until 30.8.94) Marie-Aimée Comte* (from 1.9.94)
Informatics	Anthony Moillic Pierre Oftinger	
Publications	David Wainwright (*Consultant*)	Geneviève Schauinger * Sabine Schott *

**Staff members occupying two different positions*

APPENDIX 3

1994 PROGRAMME OF EUROPEAN RESEARCH CONFERENCES

MATHEMATICS

- **Mathematical Methods in Industrial Problems: Multi-scale Analysis in Image Processing**, P. L. Lions (Paris) - Lunteren, The Netherlands, 15-20 October

PHYSICS

- **Fundamental Aspects of Surface Science: Surface and Thin Film Magnetism**, M. Landolt (Zurich) - Port d'Albret, France, 10-15 June
- **Nuclear Physics: Physics of High Energy Heavy Ion Collisions**, I. Otterlund (Lund) - Helsinki, Finland, 17-22 June
- **Electronic Structure of Solids: Excitations and Dynamics**, R.M. Nieminen (Espoo) - Gausdal, Norway, 27 August-1 September
- **Electronic and Atomic Collisions: Processes at Low and Ultralow Energies**, H. Hotop (Kaiserslautern) - Giens, France, 10-15 September
- **Dynamical Properties of Solids: Phonon in Solids and at Surfaces**, V. Bortolani (Modena) - Il Ciocco (near Pisa), Italy, 17-21 September
- **Complex Systems in Subatomic Physics: Thermodynamics of Quarks and Hadrons**, H. Satz (Geneva) - Seeheim (near Frankfurt), Germany, 20-25 September
- **Quantum Optics**, J.P. Woerdman (Leiden) - Davos Platz, Switzerland, 24-29 September
- **Particle - Solid Interactions: Electronic Excitations in Bulk and Surfaces**, P.M. Echenique (San Sebastian) - San Sebastian, Spain, 1-6 October

MATERIALS

- **Physical Metallurgy: Recent Advances and Future Needs in the Microscopy of Materials**, C.J. Humphreys (Cambridge) - Giens, France, 19-25 September

CHEMISTRY

- **Stereochemistry**, I.D.N Reinhoudt (Enschede) - Bürgenstock, Switzerland, 1-7 May
- **Inorganic Chemistry: Surface Organometallic Chemistry, Molecular Materials and Catalysis**, G. van Koten (Utrecht) - Davos, Switzerland, 11-16 June
- **Reactivity in Organized Microstructures: New Materials**, M.P. Pileni (Paris) - Mont Ste-Odile (near Strasbourg), France, 6-11 July
- **Supramolecular Chemistry: 100 Years Schloss-Schlüssel-Prinzip: Molecular Recognition from Biclogy to Materials**, H. Ringsdorf (Mainz) - Mainz, Germany, 11-16 August
- **Molten Salts**, W. Freyland (Karlsruhe) - Bad Herrenalb, Germany, 21-26 August
- **Theoretical Models of Chemical Reactivity: Modelling Photochemical Reactivity**, M. Robb (London) - San Feliu de Guixols, Spain, 8-13 September

LIFE SCIENCES

- **Bioseparation: Fundamentals and Engineering Aspects of Protein Purification**, J. Cabral (Lisboa) - Dourdan, France, 28 May-2 June
- **Biophysics of Photosynthesis**, J. Amesz (Leiden) - York, UK, 27 August-1 September
- **Neural Mechanisms of Learning and Memory: Localisation and Formation of Memory Trace**, M. Kossut (Warsaw) - Il Ciocco (near Pisa), Italy, 9-14 September
- **Self-Nonself Discrimination: Unresponsiveness versus Memory**, P. Ricciardi-Castagnoli (Milano) - Il Ciocco (near Pisa), Italy, 15-19 October

BIOMEDICINE AND HEALTH

- **Molecular Epidemiology of Cancer**, D. Forman (Oxford) - Aghia Pelaghia, Crete, Greece, 17-22 September
- **Therapeutic Immunomodulation: Tolerance Induction in the Adult: Means and Mechanisms**, F. Emmrich (Erlangen) - Le Bischenberg, Obernai, France, 2-6 September
- **Cardiac Electrophysiology: Potassium Channels and Arrhythmia Mechanisms**, G. Breithardt (Münster) - Aghia Pelaghia, Crete, Greece, 21-25 September
- **Biology of Cartilage and Bone: Molecular and Cellular Aspects of Cartilage and Bone Remodelling**, K. von der Mark (Erlangen) - Giens, France, 1-6 October
- **Development of Sensory, Motor and Cognitive Capabilities in Early Infancy: From Sensation to Cognition**, F. Simion (Padova) - Acquafredda di Maratea, Italy, 8-13 October
- **Molecular Pathogenesis of Infectious Diseases: Mechanisms of Colonization and Invasion of the Intestinal Barrier**, P. Sansonetti (Paris) - Obernai, France, 4-9 November

OCEANOGRAPHY

- **The Deep Sea Floor as a Changing Environment**, X. Le Pichon (Paris) - San Feliu de Guixols, Spain, 8-13 February
- **Oceanography: Biodiversity and Production in the Ocean**, J.O. Strömberg (Fiskebäckskil) - San Feliu de Guixols, Spain, 3-8 May
- **Arctic Ocean Grand Challenge: Scientific Rational-Strategy-Science Plan**, O.M. Johannessen (Solheimsviken) - Helsinki, Finland, 2-7 September
- **Glacial-Interglacial Sealevel Changes in Four Dimensions: Continental Shelf Evidence of Sealevels over the Last 20 ka.**, R.T.R. Wingfield (Nottingham) - St. Martin (near Mannheim), Germany, 5-10 November

GEOSCIENCES AND ENVIRONMENT

- **Natural and Anthropogenically Induced Hazards: Earthquake Hazard**, A. Cisternas (Strasbourg) - Granada, Spain, 14-19 May
- **Alluvial Basins: Present and Past Environments**, G.G. Ori (Bologna) - Lunteren, The Netherlands, 10-15 September
- **Space-Time Modelling of Bounded Natural Domains: 3-D-Modelling: Developments and Problems of Correlation and Interpolation**, H.H. Voss (Hannover) - Canterbury, UK, 10-15 September

SOCIAL SCIENCES

- **Economics of Aging**, A. Cigno (Pisa) - Sitges, Spain, 25-29 June
- **Migration and Development: The European Migration Problem**, K.F. Zimmermann (Munich) - Aghia Pelaghia, Crete, Greece, 7-12 October
- **European Societies or European Society?: Changes in the Labour Markets and European Integration**, J. Dronkers (Amsterdam) - Espinho, Portugal, 22-26 October
- **Integration and Disintegration in Europe**, L.J. Sharpe (Oxford) - St. Martin (near Mannheim), Germany, 22-27 October

HUMANITIES

- **Logic, Language and Information: Inference and Information Structure within Computational Semantics**, E. Klein (Edinburgh) - Espinho, Portugal, 10-14 December

ESF PUBLICATIONS IN 1994

The following publications were produced by ESF, or under its auspices, in 1994:

Annual Report 1993
164 + 12 pp, ISBN 2-903148-75-9
Published by ESF, Strasbourg, France

Rapport Annuel 1993
176 + 12 pp, ISBN 2-903148-79-1
Published by ESF, Strasbourg, France

About the ESF, 1994
28 pp, brochure
Published by ESF, Strasbourg, France

ESF Communications No.30, April 1994
40 pp, ISSN 0293-082 X
Published by ESF, Strasbourg, France

ESF: The Next Decade: A Reappraisal of ESF's Strategic Mission (Presented to the ESF Annual Assembly, November 1993)
50 + 14 pp, ISBN 2-903148-74-1
Published as a Supplement to *ESF Communications No.30, April 1994*, ISSN 0293-082 X
Published by ESF, Strasbourg, France

ESF Communications No.31, October 1994
40 pp, ISBN 2-903148, October 1994
Published by ESF, Strasbourg, France

ESF Scientific Networks: Additional Characteristics and Criteria.
4 pp, leaflet, November 1994
(An update to the booklet ESF Scientific Networks, November 1993, ISBN 2-903148-73-2)
Published by ESF, Strasbourg, France

EUROPEAN SCIENCE RESEARCH COUNCILS

VOLCANOLOGY

European Volcanological Project (EVOP),
Progress Report No.1
74 pp, ISBN 2-903148-78-3, 1994
Published by ESF, Strasbourg, France for ESF and the Commission of the European Communities (DGXII)

Continuous Geochemical Monitoring of Volcanoes: State of the Art
by R Cioni and G Taddeucci,
EVOP Monograph No.1
36 pp, ISBN 2-903148-76-7
Published by ESF Strasbourg, France, 1994

Automated Systems for Volcano Monitoring
Report of an ad hoc ESF-EVOP Working Group
EVOP Monograph No.2
20 pp, ISBN 2-903148-77-5
Published by ESF Strasbourg, France, 1994

LIFE SCIENCES

Managing the Mediterranean: Information for Decision Making
Proceedings of a joint ESF-CEC Workshop, Venice, Italy, 18-20 November 1993. 192 pp.
Published by CNR-ISDGM for ESF, 1994

TECHNICAL SCIENCES

Aerosols Methods and Advanced Techniques for Nanoparticle Science and Nanopowder Technology
Edited by H Fissan, H U Karow and Th Kauffeldt. 142 pp
Published by ESF, Strasbourg, France, 1994.

APPENDIX 4

ENVIRONMENTAL TOXICOLOGY

Environmental Toxicology, Economics and Institutions: The Atrazine Case Study
Edited by L Bergman and D M Pugh
182 pp ISBN 0 7923 2986 4
Published by Kluwer Academic Publishers, Dordrecht, The Netherlands, 1994

STANDING COMMITTEE FOR THE SOCIAL SCIENCES

REGIONAL AND URBAN RESTRUCTURING IN EUROPE (RURE)

Transnational Corporations and European Regional Restructuring
Edited by P Dicken and M Quévit
(Netherlands Geographical Studies 181)
168 pp The Royal Dutch Geographical Society and the Faculty of Geographical Sciences, Utrecht University, 1994

Globalization, Institutions, and Regional Development in Europe
Edited by A Amin and N Thrift
268 pp ISBN 0 19 82 8897 2
Published by Oxford University Press, United Kingdom, 1994

ENVIRONMENT, SCIENCE AND SOCIETY

Economic Incentives and Environmental Policies: Principles and Practice
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