

1st Swiss COST Chemistry Symposium

'Coopération Européenne dans le domaine de la recherche Scientifique et Technique'

November 20, 1996

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Introduction

COST (a French acronym for 'Coopération Européenne dans le domaine de la recherche Scientifique et Technique') was set up in 1971 to stimulate and to give a

framework for the European cooperation in the field of science and technology. This forum of research brings now together 25 European countries including the

members of the European Union, of the EEE and seven central and eastern European states.

The goal of this symposium was to present to the Swiss scientific public the progress of the research of the Swiss group in this European collaboration after three years of activities. The program consisted of seven invited lectures (see them below) by prominent European and Swiss scientists and 68 posters communications from Swiss scientists active in COST Chemistry.

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Chemistry: Europe and the Future

Gilbert Balavoine*

Chemistry and chemical engineering are core sciences which lie at the heart of the scientific innovation which underpins Europe's successful industries. The future welfare and prosperity of European Society will be crucially dependent upon our continuing ability to generate new scientific knowledge and to achieve the successful commercial exploitation of this new knowledge in world markets. A strong and diverse science base coupled with versatile, flexible and entrepreneurial process industries will be necessary to ensure Europe's success.

Industry and the world academia stand ready to play their full part in making a successful future – but government must play their part too. Firstly, we look to governments to establish regulatory regimes which – whilst offering society the

necessary level of protection – nevertheless place the prime emphasis on scientific discovery and the innovative application of new technologies. Secondly, governments have an important role to play in guiding and sponsoring novel research programmes by the judicious use of public funding, and we regard the European R&TD framework programme and procedures of scientific cooperation in Europe as good examples of such initiatives. Recently, in recognition of the need for concerted action by chemists and chemical engineers in both academia and industry to secure Europe's future, we have taken the step of formalizing an alliance which we called 'AllChemE'.

The community of chemists and chemical engineers in Europe is represented by five organizations promoting in complementary ways chemical sciences and technologies in areas of basic research and applied research in connection with the industrial world, education and training. They are all concerned with the develop-

ment of science and technology policy in Europe. These organizations are:

- CEFIC (European Industry Chemistry Council) for the chemical industry,
- CERC-3 (Chairmen of the European Research Council's Chemistry Committees) for the national research agencies,
- COST (European Cooperation in the Field of Scientific and Technical Research; Technical Committee for Chemistry) for the networks of laboratories and researchers,
- ECCC/ FECS (European Communities Chemistry Council / Federation of European Chemical Societies) for the learned and professional societies of chemistry,
- EFCE (European Federation of Chemical Engineering) for the learned and professional societies of chemical engineering.

The idea of a more formal alliance between the bodies, aimed at giving chemistry in Europe a single voice. AllChemE is the acronym for this 'Alliance for Chemical Sciences and Technology in Europe'. AllChemE is not a new organization, but rather a platform to generate messages from the concertation of the five organizations. The primary objective of AllChemE is to promote chemical science and technology in Europe in order to maintain and strengthen the science base in recognition of the contributions which chemistry and chemical engineering make to European industrial competitiveness and to the quality of life of European citizens.

*Correspondence: Prof. G. Balavoine
Laboratoire de Chimie de Coordination du CNRS
205 route de Narbonne
F-31077 Toulouse Cedex

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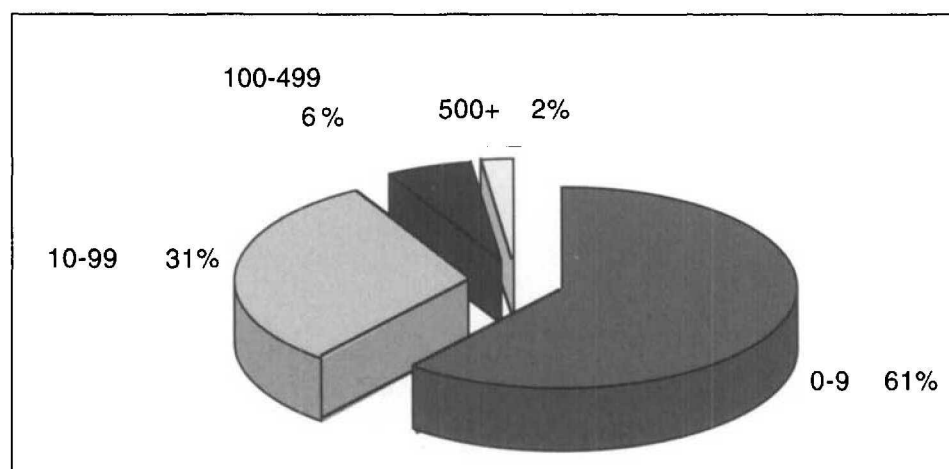


Fig. 1. Number of enterprises by employment size class in the European Union chemical industry

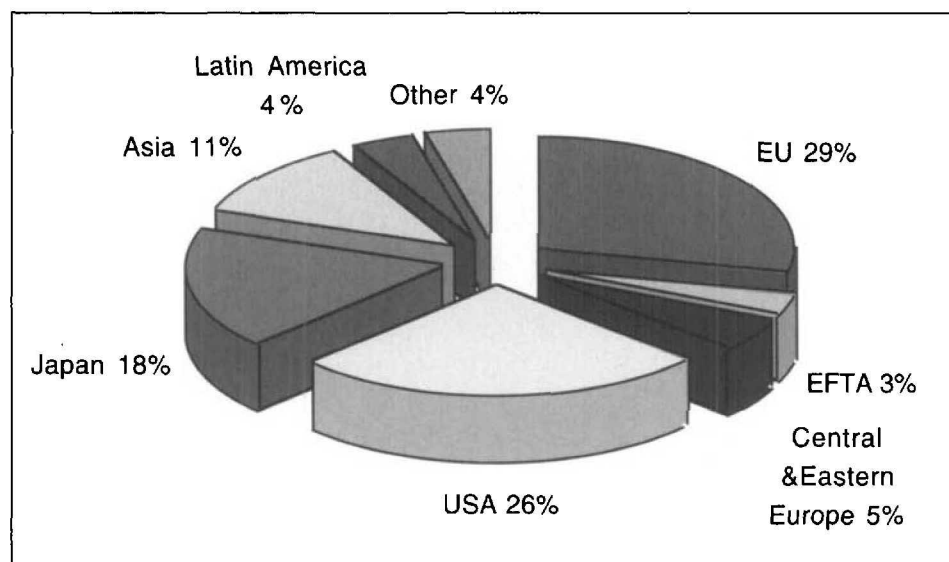


Fig. 2. Geographic breakdown of world chemicals turnover

A report entitled 'Chemistry, Europe and the Future' has been produced by the alliance AllChemE. The main objective in providing this document is to help in the preparation of the fifth framework programme, and, hopefully, that it will have some influence on the policies of national governments towards chemistry and its industry throughout Europe. AllChemE has enlisted the patronage of four very distinguished and renowned chemists who have helped greatly in producing this report, namely Prof. R.R. Ernst (Nobel Laureate), Prof. J.-M. Lehn (Nobel Laureate), Prof. Lord Lewis of Newnham (FRS) and Mr. Simon de Brée (President of CEFIC).

It is impractical to describe all the areas where chemistry and chemical engineering make a powerful impact on mankind's welfare. However, to highlight the particular concern of European chemists and chemical engineers, the report presents some research in European university laboratories, research institutes and industries, which is likely to lead to dramatic

inventions of high significance in the near and more distant future in the areas of health and agriculture (**Life Processes**), the creation of new materials (**Mastering Molecular Matter**), the issues posed by energy consumption and chemical processing (**Energy and Processing**) and the protection of our environment (**Caring for our Planet**). In the final section (**Chemistry and Society**), the report describes the impact which national governments and European commission policies can have on promoting the effectiveness of European chemists in research and development to sustain a world-class chemical industry.

The chemical industry in Europe is a world leader: six of the top ten chemical companies in the world are located in Europe. Europe's chemical industry contributes more than 30 billion Euro to Europe's trade balance and generates a turnover of more than 300 billion Euro from small, medium size and large companies. This amounts to nearly 1000 Euro for

every man, woman and child in Europe. The chemical industry employ 1.65 million people, with many more employed in related economic activities. This impressive economic strength which maintains Europe as the world leader in chemical industry originated over 150 years of fruitful interaction between the industrial and academic sectors.

The report emphasizes on the following messages and recommendations:

- *A globally competitive chemical industry is vital for Europe's future prosperity.*
- *The universities and research institutes provide the ideas and trained scientists on which the industry relies for commercial success through innovation.*
- *Educational institutions and their research laboratories are mainly supported by public funds: the maintenance of which is an important role for national governments.*
- *Exchange of scientists between laboratories in Europe and effective collaboration between academia and industry aided by the European commission can strengthen the competitiveness of the European industry.*

The four distinguished chemists conclude their introducing letter to the report by:

'... Currently our chemical industry is performing well and making a very significant contribution to the economy of European countries, but there are clouds on the horizon. As the attractiveness of Europe as an industrial base diminishes, the chemical industry is starting to relocate to other parts of the world. As the number of industrial jobs declines, chemistry will be taught to fewer people and research in our universities will suffer as a result. We could enter a downward spiral of less innovation, less creativity and, ultimately, a loss in the quality of life. It is possible that in 15-20 years' time, unless action is taken now, Europe may be importing what it once had difficulty in producing and we may be paying patent royalties on what we might otherwise have invented ourselves. We will then see our brightest young scientists leaving to work elsewhere, reversing the tradition of Europe attracting young chemists from around the world.

This report, while sounding a note of warning about changes ahead, offers messages of hope. We urge you to read it, because we believe there is much to be gained in Europe from accepting the challenges presented by its recommendation.'

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