

Division of Professional Relations
1155 16th Street, NW
Washington, DC 20036

DENNIS CHAMOT, *Editor*



No. 42
July, 1988

FROM THE EDITOR . . .

Election Results

For the record, the following are the official results of the DPR election held at the end of last year. They were inadvertently left out of the last issue of the *Bulletin*:

<i>Chairman-elect</i>	
Bela Buslig	59
John Connolly	234*
<i>Secretary</i>	
Paul Rebers	243*
Write-in	1
<i>Councilor</i>	
Dennis Chamot	253*
Write-in	5
<i>Alternate Councilor</i>	
Raquel Diaz-Sprague	215*
Linda Hutchings	64
<i>Member-at-Large</i>	
Bela Buslig	130
Adrienne Dey	32
Glenn Fuller	41
Attila Pavlath	216*
Modercai Treblow	148*

* = elected.

Report from Toronto

As usual, we were kept quite busy at the ACS national meeting. One of your Councilors (and current chairman-elect), John Connolly, ran his first meeting as chairman of the Committee on Economic Status (CES). Your other councilor, Dennis Chamot, was appointed to the Committee on Professional Relations (CPR), and is serving as the committee's secretary. DPR member-at-large of the Executive Board, Attila Pavlath, is currently chairman of the Membership Affairs Committee (MAC). DPR Treasurer Valerie Kuck serves as chair of the Committee on Meetings and Expositions. Other Executive Committee members were at the meeting, and many serve as members of various ACS committees.

We've come a long way since the Division was formed about 15 years ago by a tiny group of chemists who were perceived in

some circles as the beginning of the end of the ACS! Looking back, we can all be proud of the strong positive impact the Division and its members have had on the Society and its programs. Victory is not yet secure, though. As with freedom, the price of progress is eternal vigilance.

For example, I heard a presentation by a knowledgeable and friendly member of ACS staff who described a plan to do an extensive marketing survey of ACS members. Nothing wrong with that, on the surface. It would be useful to check now and then as to member views on ACS products and services. However, the results of such a survey could be quite misleading, and subject to abuse. For example, Esther Hopkins, who chairs the Committee on Professional Relations, noted that there have been fewer than 250 member assistance cases handled by the committee during the *entire history* of this valuable program. With a total Society membership of well over 100,000, it is possible that the true significance and value of this program would not show up in the numbers gathered by the statisticians.

There are a host of *member service* programs that are used by very few members at any given time, but their value goes well beyond the numbers. I would bet that very few of you have used the Employment Clearing House, or have been involved in an ACS investigation of a multiple termination at your former employer, but I am sure you would agree that having these programs *available* increases the value of your ACS membership. Yet if you were asked to rank the importance of journals *versus* the member assistance program, you would have to rank journals higher *at this time*. The results could then be used to argue for dropping the member assistance program as not being "cost effective."

Let me clear about this. The ACS staffer who made the presentation gave no indication whatsoever of such plans. He is honestly involved in a legitimate market research exercise, and was seeking input from various groups within ACS. On the other hand, those of us who are concerned about professional relations issues have earned the right to be a bit leery. We gave him our input, and expect to hear more of this effort in the future.

The other interesting happening was the debate at the Council meeting over this year's dues increase proposal. As you may know, the system currently in place calls for an automatic increase based upon the consumer price index unless Council specifically votes for a smaller increase. Several times in the past a smaller increase was put in place. This time around, the full increase, according to the proper calculations, would be \$3.00.

I went to Toronto prepared to support the full three dollars, for several reasons. First, I want to see that the dues-supported, membership oriented programs are fully supported. Second, I felt that it was time for such an increase, in that inflation has been relatively low and dues were raised less than the full amount in the past. Third, although we need a system to assist students, young people, and low paid chemists, for most of us ACS dues are not high compared to many other professional societies. I changed my mind at the Council meeting itself.

To its credit, the Committee on Budget and Finance gave a long, rather detailed presentation, with a great deal of information on where the money comes from, where it goes, how dues supported programs are funded (only about two-thirds come from dues), and so on. Then the Membership Affairs Committee presented some other views, and presented a motion for a reduced increase of two dollars. In the course of debate, it became clear that the deficit projected for the dues supported activities could be accounted for entirely by a recent accounting change related to the calculation of overhead costs charged to each program in the Society.

It also became clear that a lot of the concern for the financial position of the Society derived from the fact that the capital debt of ACS has skyrocketed recently, in essence because of real estate speculation related to the Belmont conference center that was purchased recently, and the construction of a new building adjacent to the old headquarters in Washington. In other words, the Society as a whole has to be even more conservative fiscally than in the past to satisfy the requirements of the banks that hold the loans.

Well, there are many worthwhile programs that are dues supported, and there are others that need to be established or expanded (for

example, increasing the public's understanding of chemistry). The real question is whether it is fair to put so much pressure on the dues, when all dues supported programs account for less than ten per cent of the total budget. If the *C&EN* allotment were lowered from 23% of dues to 18%, say, or if the publications program of the Society were required to contribute an additional *one half of one per cent* of their budget to the dues supported programs, the deficit would be pretty much eliminated. According to the Executive Director's report, in 1987, "we added a net surplus of \$5.2 million to reserves. This marks the *12th consecutive year that reserves exceeded expenses*" (emphasis added).

Your two Councilors voted for the two dollar increase in dues. Unfortunately, the Council voted by more than two to one to allow the full three dollar raise to take effect. The rest of the meeting was much less eventful.

As for divisional activities, there was much discussion at the Executive Committee meeting about the current activities and the future of the DPR. It was recognized that a major effort to attract new members, as well as to retain older members, needs to be undertaken. Also, the Division needs "new blood" (an ongoing concern), and a good way to receive the necessary transfusion is to encourage more of our members to organize symposia for the Division. See the notice elsewhere in this issue.

So I leave you with two thoughts to ponder. First, think about getting your colleagues to join the member oriented division. Second, think about grabbing the limelight yourself, and suggest a symposium for the meetings in Dallas and Miami next year.

---Dennis Chamot

NOTICE

The Division is most visible through its symposia at national meetings, and the publications that derive from them. Over the years, the DPR has presented some of the most interesting and important symposia of them all, ranging across a wide range of subjects as diverse as lobbying, international professional relations activities, financial planning, the problems of women chemists and minorities, and many others.

It's a lot of fun, and highly rewarding professionally, to organize a DPR symposium. Your Division invites you to suggest a topic, and join the elite ranks of DPR symposia chairmen and chairwomen. To get in on the fun, contact the DPR program chairman:

Dr. Thomas J. Kucera
9310 Hamlin Avenue
Evanston, Illinois 60203

DPR Membership Application

I am a member of the American Chemical Society.
Enclosed is \$4 to cover dues through December 31, 1988

My ACS membership number is: _____
(if known)

Signature: _____

Printed Name _____
Last First

Address: (As it appears on my C&EN mailing label.)

Mail to:
Paul A. Rebers, Secretary
Division of
Professional Relations
P.O. Box 70
Ames, Iowa 50010

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THE PROFESSION OF CHEMISTRY IN THE UNITED KINGDOM

Barry Henman
Registrar, The Royal Society of Chemistry
London

In the United Kingdom, chemistry emerged as a profession relatively recently, in the mid-part of the last century. Yet some 700 years ago, in the twelfth century, there were 'professional' pleaders or *narratores*—the forerunners of today's legal profession. Following after the legal profession, in the fifteenth century, medicine began to emerge as a profession; and by the sixteenth century, the Company of Barber-Surgeons and the Royal College of Physicians of London were formed. The same need that saw the formation of the medical profession was one that would become familiar down the centuries.

How did medicine become established as a profession? At the end of the fifteenth century, medicine was in a deplorable state. Among those who practised medicine were many untrained, unskilled practitioners and quacks. There was no central organization nor a set of standards that any user of services could look to in good faith. Something had to be done. In 1518, on the advice of Cardinal Wolsey, Henry VIII of England founded the Royal College of Physicians of London, which was incorporated under the monarch's Royal Charter. This was a first step in formal organization and control of the medical profession and has provided a model for the emergence of other professions in the United Kingdom.

Over the next two to three hundred years, several new organizations emerged. Some were little more than gentlemen's clubs. Others developed into distinguished bodies. During the nineteenth century, many old organizations underwent reform and a large number of new associations came on the scene. One old organization that underwent reform was the Royal Society which had been founded in 1660. It transformed in 1860 from a 'club' dominated by amateurs and non-scientists, into an exclusive society for eminent professional scientists, as elected Fellows of the Royal Society, and came to signify a certain level of distinction in science.

A pertinent example of a new association was the Chemical Society of London, one of the parent bodies of the Royal Society of Chemistry. It was formed in 1841. One of the aims of the Chemical Society was to hold meetings "... for the communication and discussion of discoveries and observations, an account of which shall be published by the Society, in the form of Proceedings or Transactions". The importance of the Chemical Society, and of the developing science of chemistry, was recognized seven years later with the award of a Royal Charter.

In the words of the Charter, the Chemical Society existed "for the general advancement of chemical science, as intimately connected with the prosperity of the manufactures of the United Kingdom, many of which mainly depend on the application of chemical principles and discoveries for their beneficial development, and for a more extended and economical application of the industrial resources and sanatory condition of the community".

With the rapid development of the chemical industry, the nineteenth century was a period of great social and industrial change. In the UK, developments in the alkali and other industries, and in explosives, agriculture and metallurgy produced a need for analytical chemists. Much of the "analytical work" at that time was being carried out by workers with very little (or no) training in chemistry. Additional problems existed in these and other industries. In the fields of food, water supply, and medicines, there was a danger of contamination of substances. As a result, Parliament passed laws to improve the situation. However, insufficient knowledge of the science of analytical chemistry coupled with a shortage of qualified analytical chemists meant that the laws themselves could not overcome the problems.

As had been the case some three hundred years earlier in the field of medicine, the field of chemistry (particularly analytical chemistry) was adversely affected by the presence of untrained and unskilled practitioners. So there was a need to improve the *science* of chemistry and to develop the *profession* of chemistry.

In order to improve the science of analytical chemistry, a new body was formed—the Society of Public Analysts. And in response to the need to develop a profession of chemistry and the need for qualified analytical chemists, and also in response to pressures from within the Chemical Society itself, a third new body came into being. This new body was the Institute of Chemistry of Great Britain and Ireland, which seventy years later became the Royal Institute of Chemistry and in 1980 became a central part of the Royal Society of Chemistry. The Institute's aim was to adopt

"such measures as may be necessary for the advancement of the profession of chemistry and particularly for the maintenance of the profession of the consulting and analytical chemist on a sound and satisfactory basis".

Those who formed the Institute saw a clear connection between qualifications and profes-

sional status. One of the Institute's aims was "to ensure that consulting and analytical chemists are duly qualified for the proper discharge of the duties they undertake by a thorough study of chemistry and allied science in the application of the Arts, Public Health, Agriculture and Technical Industry".

It awarded the qualifications of Fellow of the Institute of Chemistry (FIC) and Associate of the Institute of Chemistry (AIC). The Fellowship was seen as the hallmark of professional competence while the Associateship was seen as the badge of sound general training.

In 1885, the Institute received its first Royal Charter, which clearly recognized the importance of qualifications. The Charter stated

"... it is a matter of increasing importance to government departments, corporate bodies and others requiring the assistance of persons competent to practise in analytical chemistry and to advise in technological chemistry that such persons should be properly trained and that their qualifications should be attested by Certificates of competency granted by a scientific body possessing sufficient status ...".

The Charter also made clear the strict ethical standards which members of the Institute had to uphold:

"... the said Institute was not established for the purpose of gain nor do the members thereof derive or seek any pecuniary profits from their membership but [the Institute] aims at the elevation of the profession of Consulting and Analytical chemistry and the promotion of the efficiency and usefulness of persons practising the same by compelling the observance of strict rules of membership and by setting up a high standard of scientific and practical proficiency".

For over three-quarters of a century, the Institute and the Chemical Society developed in their separate but complementary roles. The Institute, as a professional and qualifying body, grew to have a qualified membership of nearly 30,000 chemists. The Chemical Society, as a learned body, concentrated on the science of chemistry and built up a successful publishing operation. In 1972, the Chemical Society and the Institute, together with the Faraday Society and the Society for Analytical Chemistry (a successor body to the Society of Public Analysts) took the first steps towards a merger. In 1975, the Institute was

awarded a Supplemental Charter which permitted its Fellows and Members (previously Associates) to use the designation "Chartered Chemist" (CChem). The merger was completed in 1980 with the formation of the Royal Society of Chemistry which then had 30,000 members in the UK and a further 10,000 abroad.

The present Royal Charter, among other things, states that:

"The object for which the Society is constituted is the general advancement of chemical science and its application and for that purpose (it has an obligation):

- (i) to foster and encourage the growth and application for such science by the dissemination of chemical knowledge;
- (ii) to establish, uphold and advance the standards of qualification, competence and conduct of those who practise as a profession;
- (iii) to serve the public interest by acting in an advisory, consultative or representative capacity in matters to the science and practice of chemistry; and
- (iv) to advance the aims and objectives of members of the Society as far as they relate to the advancement of the science or practice of chemistry."

In more everyday language, and by reference to the work of the Society, its roles are:

- to disseminate knowledge (a learned society function);
- to set examinations and to issue professional qualifications (a professional body function);
- to make representations to government and other bodies of chemistry and chemists (a professional body function).

Examinations and professional qualifications

The Society has been setting examinations and issuing professional qualifications for over a hundred years. Each year around 300 people pass the Society's examination for Graduateship of the Society—equivalent to a 1st or 2nd class honours degree in chemistry—or in North American parlance—to a degree with a grade point average equal to A or AB.

The Society's professional qualifications are those of Fellow, Member, Graduate and Licentiate and the official abbreviations for these qualifications are FRSC, MRSC, GRSC and LRSC.

Fellow and Member—the target professional qualifications for chemists—carry in addition the designation Chartered Chemist (CChem). These qualifications and those of Graduate and Licentiate are highly respected and sought after. Indeed some people have sought them so hard that they have found them even when the Society has not awarded the qualifications.

A man in Yorkshire used to offer his services as an analyst of asbestos and displayed

an impressive list of qualifications on his letterhead, including CChem and MRSC. Unfortunately for the man two things operated to his disadvantage:

- he wasn't a member of the Society;
- members brought to our attention his misuse of our letters.

We placed advertisements in 'The Times' of London and in the newspaper in his locality advising readers that the man of that address was not in membership and never had been.

Another person tried a slightly different trick. He was operating a business in the area of England which includes Liverpool—running an analytical laboratory. He styled himself LRSC. As you will recall, LRSC in the United Kingdom is an abbreviated form of Licentiate of the Royal Society of Chemistry. The man from Liverpool, it appears, claimed his was an abbreviated form of the Liverpool Rock Science Club. Solicitors' letters from us followed and at the same time there was a quite separate newspaper expose.

It is important that the standard of the Society's qualifications is upheld. Not only is there a need to protect the public from imposters (the man from Yorkshire could have been failing to detect blue asbestos and as far as the man from Liverpool was concerned there was a testing laboratory elsewhere in England staffed and owned by professional members of the Royal Society of Chemistry using a closely similar name and with a good reputation to uphold). There are also legal considerations.

Chemists and statutory duties

When the Institute of Chemistry was formed in 1877 it looked to "the maintenance of the profession of the consulting and analytical chemist on a sound and satisfactory basis". A little over 60 years later, in 1939, the Public Analysts Regulations made under the, then, Food and Drugs Act made it a requirement for future Public Analysts to have passed one of our examinations in the analysis of food and drugs and to be (in present day parlance) Chartered Chemists. The requirement continues to this day. Certificates of analysis made under Food Acts have to bear the signature of a public analyst.

Chemists in the UK have statutory duties in the pharmaceutical industry. In common with certain professional biologists and registered pharmacists, certain chemists have statutory duties in the quality control field. Under a directive of the European Communities and laws implementing the directive in the UK, chemists who seek to be 'Qualified Persons' have to satisfy a panel of Society assessors that they are up to the job. They also have to measure up, in the long term, to standards of conduct set by the Society.

Other statutory duties falling upon chemists include the analysis of fertilizers and feeding stuffs.

The Society has another statutory duty which stems in part from a confusion about the meaning of the word 'chemist'. In the UK, generally, pharmacists are called chemists and pharmacies are called chemists'

shops. As part of an endeavour to reduce this confusion, the Society is called upon by a provision of one of the UK's Companies' Acts to comment on requests to use the name chemist in company names—particularly in respect of wholesale trade. Where it is to do with chemistry and chemists, the Society doesn't mind. Where it isn't, the Society does mind and sends a letter of objection to the UK's Civil Service.

Representations to government and other bodies

The Society makes representations to government on matters affecting the science and profession of chemistry. It has been in this business for the best part of three-quarters of a century. The Society is, of course, non-party political and over the years we have made representations to governments not only of the left but also of the right. The Society has strong connections with the UK's Houses of Parliament and maintain a links scheme with parliamentarians, set up in 1977.

The Society also retains the services of two Parliamentary Advisers. In keeping with its non-party political role, one is from the government benches, the other from the official opposition benches. (Today, that means Conservative and Labour; but it could change in the future.)

In the late 1970s, the Society sought to ensure that professional people had a voice under proposals for introduction of supervisory boards of management in companies. In the early 1980s, it promoted the cause of professional people being excluded from particular kinds of trade union bargaining units. In the mid 1980s, in response to proposals for local government reform, we sought to ensure that scientific services units were kept intact.

Chemists and other professionals in the UK

There are several ways of classifying professions in any country but one that is always useful is whether a given profession falls into the category of being wealth-creating for a country or wealth-consuming. Without any shadow of doubt, chemists fall into the wealth-creating category. In this, chemists can be grouped with other scientists and with engineers. Yet it has to be said, that, in the UK, these are not the 'glamour' professions. People will look to accountancy, to the law and to the financial sector for the glamour and the money. However, it is quite possible that things will change in the coming years.

There is already evidence of a shortage of civil and mechanical engineers—starting salaries are rising rapidly. The chemical industry is getting anxious about being able to hire people of the necessary standard—but some of the chemistry jobs on offer are in expensive parts of our country. In the next decade there will be an absolute shortage of school-leavers that a few years later may form a shortage of new graduates in the beginning of the next century. All these things may lead to a surge in the economic fortunes of chemists.

Chemists, pay and collective bargaining

The Society has carried out earnings surveys of chemists for nearly seventy years—since 1919 to be exact. These are available for use by employers, by individual members, and by trade unions on behalf of their members.

In the UK there is a strong tradition for professional people in the public or state sector to be in trade union membership and in the private sector not to be in trade union membership. Table 1 shows results from a comprehensive survey that the Society carried out in 1984 and gives a flavour of where there is trade unionism for professional chemists—and where there isn't.

At the beginning of 1988 the Society carried out a study entitled 'A Comparative Survey of the Education, Employment and Attitudes of Men and Women Members of the Royal Society of Chemistry'. The table below is a very small extract from the survey results but nevertheless gives a flavour of the study. The score in each instance is derived from averaging out responses to each state-

Table 1. Degree of union membership by employment sector

Education work	85%
Scientific work (in a non-managerial capacity)	49%
Scientific work (in a managerial capacity)	42%
Production	33%
General administration	28%
General management	22%
Marketing and/or sales	16%
Consultancy	15%
Public sector	82%
Private sector	27%

ment ranging from very important to me = 5, important to me = 4; neither important nor unimportant to me = 3, unimportant to me = 2, very unimportant to me = 1.

Table 2. Reasons for working

Reason	Men	Women
To pursue own career	3.78	3.86
Interest in work	4.05	4.03
Financial necessity	4.22	3.80
Benefits of additional income	3.25	3.48
Opportunity to meet people	3.80	3.38
To utilise special skills	4.29	4.45
Opportunity to get out of house	2.97	3.83
Social pressure	2.53	2.41

Conclusion

In 1991, the Royal Society of Chemistry will celebrate the 150th anniversary of the formation of the Chemical Society of London. The profession of chemistry in the UK has come a long way in that time. It should go a lot further in the next 150 years.

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My ACS membership number is: _____
(if known)

Signature: _____

Printed Name _____
Last First

Address: (As it appears on my C&EN mailing label.)

Mail to:
Paul A. Rebers, Secretary
Division of
Professional Relations
P.O. Box 70
Ames, Iowa 50010

CHEMISTS AND OTHER PROFESSIONALS IN EUROPE: COMPARISONS AND CONTRASTS

Barry Henman

Working Party on Professional Affairs of the Federation of European Chemical Societies

In comparison with North America and Mexico, Europe is small. The European Community accounts for 870,000 square miles and the whole of Europe for 1,700,000 square miles. In contrast, Canada accounts for 3,850,000 square miles, the USA for 3,620,000 square miles and Mexico for 760,000 square miles.

So Mexico alone is almost as big as all of the twelve countries of the European Community put together. Canada and the USA, meanwhile, are each over twice the size of all Europe. However, Europe's compactness makes it relatively easy to travel by air between the countries of Europe for joint meetings in the member countries of the FECS. The Federation of European Chemical Societies (FECS) covers all of the countries of Europe (with the exception of Albania) and its Working Parties cover a wide range of activities.

This paper is concerned with the FECS's Working Party on Professional Affairs (WPPA) and how its activities may affect professional chemists in Europe.

The WPPA was formed in 1973 and since then it has met twice yearly. One member country's chemical society hosts each meeting, which of course means that there are meetings throughout much of Europe. Other business is conducted by letter between meetings. It is not just a talking shop however.

The WPPA is concerned with chemists in the practice of their profession. The WPPA collects statistics, runs symposia and, more recently, has begun to publish papers on the role of professional chemists in society at large. In 1984 it issued a policy statement on chemists and trade unions. More recently, it produced a working paper on the image of chemistry and what professional chemists in member countries can do to improve the image of chemistry. Recently the WPPA has been paying a great deal of attention to the jobs and the status of chemists compared with other professionals. There are many factors that contribute—not least of which is the nature of Europe itself.

Europe, with its many different countries is very diverse. There are monarchies and republics, big countries and small countries, new countries and old countries, federations and single states, countries whose borders have been fashioned by recent wars, and countries who have not seen a war for very many years.

The standing of individual professions varies from country to country as does the nature of the accountability of individual professionals. Many variations can be attributed to the culture of a given country—to its system of laws, and also how long it has had its laws.

The WPPA has been looking at the way chemists relate to other professionals and has been trying to find ways of improving the position of chemists in circumstances where other professions are ahead of chemists. In some countries, chemists are in a strong position, and the Working Party is trying to use these "good" examples to the best effect.

The WPPA has identified two sets of interfaces with other professionals:

- “long standing” including medical practitioners, pharmacists and veterinarians;
- “newer” including biologists, computing professionals, and engineers.

We did look for interfaces with other groups, such as architects, but found little or no direct contact in the context of supervision of one by the other. We then surveyed the relationships country by country. Many interesting similarities and differences emerged.

The United Kingdom is a monarchy, and the profession of chemistry is covered by the Royal Society of Chemistry which operates under a Royal Charter granted by the monarch. It is an old country with laws dating back to the 1300s. There is a long tradition of self-regulation among the professions. Lawyers and advocates have to pass examinations set by either the Law Society or the Bar Council—bodies independent of governments. Pharmacists who sell pharmaceutical products to the public have to be registered with the Pharmaceutical Society of Great Britain (or the Pharmaceutical Society of Northern Ireland)—again, bodies independent of government.

Physicians and surgeons can trace their origins back over many centuries. People who now cut our hair—barbers—used to be surgeons as well. They were known as barber-surgeons. These professions—essentially the law and medicine—are the long standing or “classical” professions. So by the time chemistry as an industry came on the scene, in the mid to late 19th century, they were very well entrenched. Physicians and surgeons have well-recognised professional standing and have their status enshrined in laws. Chemists in the medical field on the other hand, have

no such status. However in some countries, chemists *can* be in charge of clinical laboratories.

In some countries in Europe, in the field of pharmacy we encounter semantic difficulties. To the public in the UK and the Republic of Ireland, a pharmacist is known as a chemist, while a pharmacy is known as a chemist's shop. Even worse than this is the fact that, in the UK, pharmacists have a legal monopoly over the title 'chemist' in the context of sale on a retail basis of pharmaceuticals. Happily, this monopoly of title does not extend into chemistry so chemists can be chemists in industry, and particularly in the pharmaceutical industry.

And it is in the pharmaceutical industry in the UK that chemists and pharmacists can be on an equal statutory footing. A professional in the quality assurance area who has legal responsibilities is known as a 'Qualified Person'. In the UK, such people can be chemists, pharmacists, biologists, or similar professionals. There is no monopoly of any one profession. The situation is similar in Italy, the Netherlands, the Republic of Ireland, Spain and Switzerland. However, in Belgium, the Federal Republic of Germany, France and Hungary there is (or will be) a monopoly to the pharmacist—unless the chemical societies can effect a change.

Another classical professional grouping which has some curious interfaces is that of veterinarians. The immediate picture that we have is of the person in the white coat who makes animals better—sometimes animals in the home such as cats and dogs, and at other times animals on the farm or in the zoo.

This is a picture, of course, of live animals and livestock. There is another side: meat analysis and analysis of food and feeding-stuffs. In the United Kingdom, Members or Fellows (Chartered Chemists) of the Royal Society of Chemistry who hold the Society's Mastership in Chemical Analysis, can become public analysts. As such, they are authorised to sign certificates of analysis of foods. Chartered Chemists can be authorised to analyse feedingstuffs and fertilizers. These statutory rights have existed for around 50 years.

In Belgium, veterinarians are responsible for the analysis of medicated and premedicated foodstuffs; and in the Federal Republic of Germany for foodstuffs. In Greece veterinarians (and agricultural scientists) hold gov-

ernment managerial posts for the analysis of foodstuffs. In Italy top positions are reserved for veterinarians. In the Netherlands veterinarians control production and food chemists protect the consumer. In the Republic of Ireland chemists certify analyses of fertilizers, feedingstuffs and foods; and veterinarians certify meat analyses. The situation is similar in Spain and Switzerland.

So, in some cases, all meat (live and dead) is the monopoly of the veterinarian. In others, chemists can carry out analyses of meat.

The FECS Working Party was able to suggest that relationships between chemists and other professions vary from Member State to Member State because of:

- the historical status of certain professional groups in society at large, e.g. medical practitioners;
- laws affecting certain activities, e.g. the manufacture of pharmaceutical products;
- the nature and extent of a chemical industry in a country.

The Working Party was able to identify that as far as the long-standing interfaces are concerned:

- the main contact with medical practitioners is in the field of clinical chemistry where, in some circumstances, chemists can head clinical laboratories;
- in some countries, in the pharmaceutical industry, the qualified person (in the field of quality control) can be the person best qualified for the job and in other countries the post is reserved to pharmacists;
- in some countries veterinarians are responsible for control of live animals, of feedstuffs and of food, and in other countries the responsibility for control and analysis is separated on the basis of livestock (veterinarians) and food (chemists).

Of course, it's all very well to have the information, but is there much that can be done with it? As far as the European Community is concerned, the answer is yes—the principal aim is to create a Community that is essentially without frontiers; a Community where people are free to move around among Member States and take up jobs in any given Member State. In theory, that should mean that a chemist in the pharmaceutical industry in the UK who is a Qualified Person can set up practice in France or vice versa.

But wait: pharmacists have a monopoly in France. However, it may be possible that, armed with all the knowledge about the systems in various countries, we collectively may be able to make it possible for French chemists to become Qualified Persons, and for migrant chemists from the UK to work as Qualified Persons in France. That's the theory: let's wait and see what the practice is going to be.

Of more immediate importance is where we are with newer interfaces. The Working Party took a hard look at interfaces between

chemists and biologists, chemists and computing professionals, and chemists and engineers.

It appears that as far as chemists and biologists are concerned they seem, most of the time, to be working alongside each other much at the same level. In those countries that do not have a pharmacist monopoly in the Qualified Person field, both chemists and biologists can be Qualified Persons. In some circumstances, however, directors of clinical laboratories have to hold a degree in either biology or medicine; this is certainly the case in Hungary and was the case in Italy until the Supreme Court handed down a judgement authorizing chemists alone to be directors of clinical laboratories that carry out chemical analyses.

Belgium, by the way, appears to have a simple way of dealing with biologists. By law it seems that they do not exist: there are only botanists or zoologists.

Chemistry and computing provides many examples of interactions. On some occasions the computing professional is in charge; on others, it is the chemist. Let us not forget that computing and computers belong to a young profession, which has grown up since the 1940s, with many professionals contributing to its early growth. We can have:

- computing professionals who run computer hardware in the form of big machines and on whom chemists are highly dependent;
- people who write programs who are software specialists and who can be computing professionals or other specialists such as chemists;
- users of microcomputers who can be chemists who need the facility for their own research or analytical application

We are therefore in an environment where the best person for the job can be called upon to do it.

There is a role for chemical societies to fulfill in the field of computing and some are already doing so. Some chemical societies have divisions (or specialist groups) on computer applications in chemistry. This is already happening in Switzerland and the United Kingdom.

The third newer interface that fell within our investigation was with engineers: in different European countries an engineer can mean different things. In the United Kingdom, the engineering profession has a very large number of professional societies separately covering aeronautical engineering, chemical engineering, civil engineering, electrical and electronic engineering, gas engineering, marine engineering and naval architecture, mechanical engineering, mining and metallurgy, production engineering, and finally structural engineering. In spite of all these different societies, the general public in the UK thinks the engineer is the man (never the woman) who wields a wrench, uses an oily rag and repairs your car.

Around 20 years ago in an attempt to improve the understanding of the term engineer, the UK's engineering bodies introduced the term 'Chartered Engineer', that is, an engineer in membership of a chartered body. (Chemists weren't far behind. The Royal Society of Chemistry introduced 'Chartered Chemist' in the UK in 1975 partly to help in clarifying the 'chemist' and 'pharmacist' terminology).

By and large, in the UK, perhaps with the exception of 'chemical engineer', the term 'engineer' does not carry much weight. In France it is quite the opposite. The *ingenieur* is a person who commands high respect. Indeed a '*chimiste*' may want to be called '*ingenieur*' as a term of respect.

So apart from these terminological considerations where are the interfaces between chemists and engineers? Obviously there is an interface in the chemical industry where chemists and chemical engineers work more or less alongside each other. There are also interfaces with electrical and mechanical engineers in the engineering industries themselves.

The one area where there are the most interfaces was in water purification and waste treatment. In the Federal Republic of Germany, purification of waste water is managed by engineers and in Greece it is engineers who sign certificates concerning the disposal of waste. In Italy there is a preference for engineers in water control. In the United Kingdom engineers often control chemists in the water industry. We should perhaps not be too surprised at this state of affairs. Many of the problems of water purification (and of waste treatment) have been solved over the last century by chemists. Today's challenges (apart from dealing with new contaminants) are to do with equipment and management of people. Nevertheless these can, of course, be dealt with by chemists.

There is no doubt that with the increasing complexity of industrial society there will be much more interdisciplinary working. Chemists are well-equipped for such a role, perhaps exemplified by the way in which chemists have embraced computers and computing.

In Europe (particularly in the European Community) the barriers posed by physical frontiers are coming down. Chemists will have to be more mobile than they were in the past. British people will have to improve their French language; and French speaking people their English language.

There is of course the matter of perception. The term 'Chartered Engineer' came into being in the UK some twenty years ago, followed not long after by 'Chartered Chemist'. The engineers have gone a step further with the designation 'European Engineer'. Could we European chemists pay engineers the ultimate compliment of imitation by adopting the term 'European Chemist' for suitably qualified professional chemists?