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I FEEL sure that nothing during this century will rival the effect that quantum theory had on physical chemistry. In my opinion successes in finding ways of dealing with many-body systems offer the greatest rewards in real terms. These must be achieved by inventing new models and by finding useful approximations which made it possible to treat ever more complex systems. The growth of the third generation of computers will contribute tremendously, but chemical systems can involve so many particles that, even with larger computers, the full effect will only be achieved if new simplifying models are invented as well. Liquids and solutions present similar difficulties as regards the description of their structure and the calculation of their properties. Molecules of biological importance, such as haemoglobin, are also very large and a full understanding of their behaviour will involve understanding interactions within the whole complex system.

Molecular biology, so called, is potentially an exciting field for the physical chemist. Important advances in these areas will also result from well-devised approximations, together with perhaps a judicious admixture of theory and empiricism. In this context the importance and interest of polymers, colloids and other macromolecular systems must be borne in mind. Precise treatments cannot conceivably carry chemists far in any of these fields during the next twenty years. Such treatments will have to be reserved for much smaller systems and much simpler interactions. Whereas such thorough and complete treatments are essential as a basis for the development of physical chemistry, conclusions having broad consequences probably will not appear in this area, although an added significance has been provided in simple systems by the growing interest in the upper atmosphere.

In the past fifty years there have been great improvements in the understanding of gas phase reactions because more and more about collision processes at the molecular level has been studied. In other fields, such as those concerning surface processes, the structure of non-stoichiometric crystals, new techniques and new instruments allow examinations to be made directly at the atomic and molecular level. The profits will be considerable and genuine advances should be possible. I am sure that new instruments and new techniques will continue to appear over the next two decades so that we can examine with increasing detail the processes involved and interpret them at the atomic and molecular level.

As far as chemical bonding is concerned, it has been rare to predict new structures successfully. For example chemists failed to predict the structure of the higher hydrides of boron even after the bridge structure of diborane had been proved. Likewise, prediction of structures for the new and variegated organo-metallic molecules has not been markedly successful; chemists have usually depended ultimately on X-ray diffraction measurements. It is certainly to be hoped that developments in the valency field will improve the ability to predict, or at least suggest, new structures rather in the way that the stability of $B_{12}H_{12}^{2-}$ was predicted.

At this stage, it is important to try to make an especially clear assessment of the effect of the computer during the coming years. For some simple systems it will prove possible to calculate what we need to know but, probably for the next twenty years at least, most chemical systems will be too large for exact treatment. Therefore it is vital that sufficient physical understanding be obtained from the numerical solutions of small systems so that the treatment of larger systems can be improved.

I think that, besides the continued appearance of new instruments, advances of the greatest potential can occur in the area of large and complex systems (many-body systems). Here the computer will prove helpful but new models (or approximations) will be necessary. Small systems will continue to receive a lot of attention and because of the appearance of new instruments and techniques there will be progress in the details of interpretation and description.

Histories of the Societies

Each of the bodies that will be brought together in the new Chemical Society has a distinguished history. Many of the well established traditions will be continued by the divisions of the new society.

Chemical Society

THE first meeting of the Chemical Society was held on March 30, 1841, at the Society of Arts (now the Royal Society of Arts) in John Adam Street, Adelphi, WC2. Some seventy-seven persons had given their support to the formation of the society, and these must be regarded as the original founder members. The first president was Thomas Graham, who held the chair of chemistry at University College, London, from 1837 to 1855. The original designation of the society was "The Chemical Society of London" but after seven years, during which time the membership had increased to more than two hundred, many of whom had no connexion at all with London, the need was felt for steps to be taken to obtain a Charter of Incorporation. The charter was obtained in November 1848 in the name of the Chemical Society. Similar bodies of a national character were founded elsewhere at much later dates. The Société Chimique de France was founded in 1857, the Deutsche Chemische Gesellschaft in 1867 and the American Chemical Society in 1876.

The moving spirit in the foundation of the Society in 1841 was Robert Warington, who held an appointment as chemist with Messrs Truman, Hanbury and Buxton. He became the first secretary, and the first treasurer was Arthur Aiken, a lecturer in chemistry at Guy's Hospital. Other founder members included Richard Phillips, a contemporary of Davy and Wollaston, William Thomas Brande, the successor to Davy as professor of chemistry at the Royal Institution, J. F. Daniell, C. G. B. Daubeny, Warren de la Rue, Charles Macintosh and John Mercer. Michael Faraday was admitted to membership in 1842.

In 1857 the government agreed to accommodate the Royal Society and the Linnean and Chemical Societies in the old Burlington House, which it had purchased in 1854. The present buildings known as Burlington House were completed in 1873 and these have provided a permanent home for the society for nearly one hundred years.

The charter of 1848 provided for the admission of fellows, associates, honorary and foreign members. The class of associate was later abolished. The early activities of the society were also concerned with publications, the establishment of a library and with the setting up of a museum and of a laboratory for research. The last two objectives were allowed to lapse, but in both publications and the library the interest and activities of the society steadily grew.

Royal Institute of Chemistry

As early as 1867 there were discussions among the fellows of the Chemical Society on the conditions of admission and there were moves to restrict membership to qualified chemists—or at least to set up a new grade of membership denoting a standard of qualification. After considerable discussion and the taking of legal advice, however, it was decided that such a development was not practicable and that a separate organization was desirable. Accordingly the Institute of Chemistry was founded in 1877 and incorporated under the Companies Act in October of that year, with Professor Frankland as its first president. It was reincorporated by Royal Charter in 1885 (a second charter in 1949 adding the title "Royal").

There were initially two grades of membership—associateship and fellowship—and 255 fellows were elected as founder members in 1877. Examinations for the associateship were held early in 1879, based on approved courses at several colleges, and these examinations (since 1956 leading to graduate membership) still continue. A high standard of competence was demanded—particularly in experimental work—and this has been a feature of the institute throughout its history. A non-corporate grade of student membership was added in 1889.

This system of examinations for the associateship, which were in different branches of chemistry, and of subsequent election to the fellowship continued until 1918. In that year the associateship examination was recast as an examination in general chemistry, and examinations for the fellowship were introduced in special branches of chemistry. Also in that year exemption from the associateship examination was granted for the first time on the basis of university degrees with first or second class honours in chemistry. In 1956 the fellowship examinations were discontinued, the fellowship again becoming a grade to which admission was by election, and the former associateship examination now led to graduate membership—a non-corporate grade. Associateship henceforth denoted more than a qualification and required at least two years of postgraduate experience. The most recent change in membership grades took place in 1962 when the licentiateship was introduced—a corporate grade denoting the standard of a good pass degree in chemistry together with a minimum of one year of post-qualification experience.

The institute also awards a research diploma at PhD level and three masterships — in chemical analysis (MChemA), in pharmaceutical analysis (MPharmA), and in clinical biochemistry (MCB). The MPharmA and MCB are operated jointly with other professional bodies. The mastership in chemical analysis is particularly important in that its possession is a statutory requirement, for example, for a public analyst in Britain.

Faraday Society

On June 30, 1903, a few scientists, all members of the (now defunct) Faraday Club, met at the Royal Institution, the home of Michael Faraday himself, and founded a new scientific society "to promote the study of electrochemistry, chemical physics, metallography and kindred subjects"; inevitably, it was named the Faraday Society. Its first secretary was F. S. Spiers, who originated the particular technique of scientific discussion for which the society has become so famous. During his twenty-three years of service, the society's interests began to turn away from the more technical aspects of its original objects and towards the broader, fundamental topics of physical chemistry. This change was greatly accelerated during the tenure of Spier's successor, G. S. W. Marlow; in particular, the Discussions became an international and truly characteristic feature of the society's activities. The Electrodepositor's Technical Society (later, the Institute of Metal Finishing) took over the metallurgical and electrochemical technological aspects and the Faraday Society stimulated the increasing interest in colloid science by the acceptance under its auspices of (Sir) Eric Rideal's Colloid Committee, which had been formed in memory of Sir William Hardy. In 1948, this emerged as the Faraday Colloid and Biophysics Committee, with wide and active representation from other societies; in 1951, the objects of the society were redefined: "to promote the study of sciences lying between chemistry, physics and biology". A few years later, the society promoted the creation of a separate Biophysical Society; but the colloid science interests remained and a Colloid and Interface Group, affiliated to the Faraday Division of the (new) Chemical Society, has already been formed.

The Faraday Society now becomes the Faraday Division of the Chemical Society; its council and officers retain the sole responsibility for future Discussions and Symposia, and all their traditional features will be faithfully maintained.

Society for Analytical Chemistry

The Society for Analytical Chemistry was founded in 1874 by a group of public analysts as a means of exchanging information on methods of analysis. As the use of analytical chemistry became more widespread the public analysts were joined in the society by other consultants and by analytical chemists employed by industrial concerns, and the original name of the Society of Public Analysts was modified to the Society of Public Analysts and Other Analytical Chemists. In 1954 the public analysts, although retaining their membership of the society, formed a separate association; at this time the name of the society was again changed so as to reflect its wider activities and it became the Society for Analytical Chemistry (SAC).

As a result of the amalgamation negotiations the SAC will, in effect, become the Analytical Division of the new Chemical Society from January 1, 1972, for a three year trial period, and will cater for members joining the Analytical Division who are not members of the SAC. The SAC will celebrate its centenary in 1974, and before the end of that year a final decision on complete amalgamation will be taken.

The objects of the division will be those of the SAC, that is, "to encourage, assist and extend the knowledge and study of analytical chemistry and all questions relating to the analysis, nature and composition of natural and manufactured materials by promoting lectures, demonstrations and conferences and by publishing journals, reports and books". The present very full programme of meetings, symposia and conferences will be maintained.

Much of the strength of the SAC lay in the activities of its sections (now known as regions) and subject groups; these will be maintained in the Analytical Division. The boundaries of the regions have in most cases been altered to correspond to the new boundaries adopted by the Chemical Society and their organization will continue as before. The SAC first introduced specialist subject groups in 1944; it now has eleven and one joint group with the Pharmaceutical Society of Great Britain.