

# JOINING NATIONS

A History of the International Institute of Welding  
1947-1990



P. D. BOYD

'Joining Nations' charts the background, foundation and evolution of the International Institute of Welding and looks at the people and events that have influenced its development since its creation in 1948.

There were initially 13 member countries who had as their objectives:

- to promote and encourage the development of welding and provide for the exchange of scientific and technical information relating to welding research and education;
- to assist in the formulation of international standards for welding in collaboration with the ISO;
- to organise periodical congresses.

These are still the IIW's objectives but its membership is now a great deal more representative of global industry than it was 45 years ago.



Henry Granjon.

# JOINING NATIONS

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A HISTORY OF THE  
INTERNATIONAL INSTITUTE OF WELDING

1947-1990

P D BOYD

Dedicated with affection and respect to the memory of  
Henry Granjon

Change is not made without inconvenience,  
even from worse to better.

Richard Hooker

1554-1600

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## PREFACE

For the student of welding technology in the second half of the 20th century, the archives of the working units of the IIW constitute a rich mine of material relating to the development of the welding processes, to the attempts to solve the problems associated with their application in industry and to the needs of welding personnel in respect of education and training, health and safety, and sources of information.

In the following account of the IIW's background, foundation and development, that mine has not been exploited. Since the chief purpose of the IIW has in practice been to provide a framework for co-operative studies of different aspects of welding technology and the means for disseminating the results of such studies, it must appear that any work devoted to the IIW which does not deal with the activities of its working units is Hamlet without the Prince of Denmark. That charge is justified but it would be impossible to produce a coherent book, particularly a short one, covering, over a period of 40 years, the progress of studies so diverse in nature and topic as those undertaken by the working units of the IIW. On the other hand, the circumstances contributing to the foundation of the IIW and its evolution as a living organism responding to the political, economic and technical changes in its environment are matters which may all be of general interest and are certainly relevant to the development of the Institute's technical activities.

This is nowhere more evident than in the choice of themes for the public sessions, colloquia and international conferences which have been organised at Annual Assemblies and which have notably contributed to the dissemination of information on what were perceived to be current problems. Since these events are not in the mainstream of IIW activities, they are only touched upon in the text of this study, but their titles are listed in Appendix III.

The tangible results of the activities of the working units are to be

found in the definitive documents which they have produced. Some of these are referred to in the chapters recording the development of the IIW but it was impossible to do justice, on however selective a basis, to this aspect of the IIW's achievement without overloading the narrative. Instead, certain significant publications or types of publication, together with relevant policy matters, are briefly discussed in a separate chapter.

The working units responsible for these documents are presided over by Chairmen whose competence and goodwill have been an indispensable factor in the IIW's continuing existence in its present form. It has not proved possible to mention more than a few Chairmen by name, and then for other reasons, in the text of this book, but all their names are recorded in Appendix II, together with the titles, in many cases subject to change, of the units over which they have presided.

It can hardly be too strongly emphasized that all the Chairmen of the working units and the hundreds of their members who, over the years, have participated in the activities of the IIW, have done so *gratis* and that no task performed by a Chairman, delegate or expert has ever been paid for by the IIW. It has to be recognised that delays have sometimes been occasioned by the obligation to give priority to the business of an employer over that of the IIW, but there is no doubt that the personal conviction of members of the working units has been one of the strengths of the Institute.

While the work of the staffs of the two Secretariats has been remunerated by the IIW, the Institute has been fortunate to command the loyalty of a number of staff members who have served it with a dedication out of all proportion to their remuneration. Most of their names go unrecorded but an exception is made for the following whose contributions to the Institute deserve particularly to be remembered: the late Mlle J Defond, Mme R Holtz, Mme F Lavarenne, Mme C Lévy, Mrs E Miskin, Mrs A Oehler, the late Lady Owen, Mme G Paratore, Mme M Poisson, the late M C Poisson.

While the author of this study is entirely responsible for the opinions expressed in it and for any errors of commission or omission which it may contain, he would like to thank Mr M Bramat, Mr F R Coe, Mr J Hicks and Mr R P Newman for much help and advice and Mrs Nadine Earp for her assistance in making available the records consulted in its preparation. He would also wish to thank the Executive Council of the IIW for authorising him to make use of this material.

Current staff and members of the founder societies of the IIW (listed in Appendix 1) have been most helpful in supplying information about their organisations and the co-operation of the following is recorded with gratitude: Mr C Ritzen (Belgium), Mr M Evrard (France), Dr Ing G Costa (Italy), Mrs D Henze (Netherlands), Professor Dr Eng H Wintermark (Norway), Mr C Smallbone (S Africa) Miss J Fernandez Ballesteros (Spain), Dr P Kunzmann (Switzerland) and Mr O Dellby (Sweden).

Finally, the author wishes to express his thanks to his publisher, Mr M Woodhead, for his encouragement, understanding and forbearance.

P D BOYD

## ONE

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### SETTING THE SCENE

#### THE BACKCLOTH OF WAR

THE IIW was conceived in Western Europe in 1947 and born in 1948.

At the time of writing, no one under the age of 65 can have adult memories of the years immediately after the end of the Second World War in 1945. To understand the forces which contributed to the creation of the IIW, it is necessary to try to place the vision and the initiative of the founders in the context of a period which is increasingly remote.

Bliss was it in that dawn to be alive  
But to be young was very heaven

wrote the English poet Wordsworth of the outbreak of the French Revolution. There can have been few, young or old, at least in Europe, who shared these sentiments in the uneasy dawn of peace in 1945. Relief at the end of the fighting was tempered by grief for the casualties of war and by the unwelcome discoveries about human nature revealed in the aftermath of the conflict – discoveries epitomised by expressions such as holocaust, gas chamber, concentration camp, collaboration and deportation. A new cause for disquiet was the existence of the atomic bomb, first revealed when two were dropped on Japan in August 1945; the morality of the use of the bomb was anxiously debated amid a universal perception that an irrevocable step had been taken towards future dangers too horrible to contemplate.

By 1947, this post-war gloom was made darker still by the realisation that the victorious war-time alliance was not only breaking up but turning into two antagonistic camps, symptomatic of which was the civil war which raged in Greece until 1948. Equally characteristic of the widening division between East and West was the refusal of the countries of Eastern Europe to participate in the Marshall Plan

which offered American financial aid on a vast scale for the reconstruction of Europe; like the IIW, this plan was conceived in 1947 and carried into effect in 1948 with the founding of the Organisation for European Economic Cooperation.

It is difficult now to realise how great was the need for the Marshall Plan but to understand its inception and, *mutatis mutandis*, that of the IIW, it is necessary to recall the conditions pertaining in Europe in 1947. Reference has been made to the prevailing atmosphere of gloom and foreboding; for many Europeans this was exacerbated by the depressing conditions of everyday life.

The destruction caused by the war had been on an unparalleled scale because of the mobility of the fighting and the extent of aerial bombardment; only the handful of European countries which had been able to preserve their neutrality escaped damage. In those countries which were the theatres of fierce and prolonged warfare and bombardment, this damage was horrendous, so that large sections of the population spent years of their lives living and working in more or less ruined towns and cities.

Naturally, the means of transport had been a principal target for attack and the destruction of ports, railway stations and bridges impeded communications and trade for years after the end of hostilities.

The inadequacy of transport was but one of the reasons why virtually all goods were in short supply in Europe in 1947/48. The electricity and gas industries, then largely or entirely dependent on coal and its transport, had similarly been prime wartime targets. Consequently, shortage of power was another impediment to the recovery of industry, much of which faced formidable problems in the rebuilding and re-equipment of factories.

However, the most basic shortage was of food; vast tracts of land had been mined and fought over, fertilizers were in short supply and the stock of draught animals on which, before the universal use of tractors, farmers were dependent, had been decimated during hostilities.

Finally, five years of war had brought the majority of European countries to the verge of economic collapse and foreign currency was lacking for the purchase of the capital goods and materials required for the re-birth of industry.

Against this sombre background, it was a natural reaction of those who had experienced the suffering of two world wars to feel that international co-operation at all levels would help to guarantee future

peace, as well as facilitate the urgent task of reconstruction. This reaction led to the formation at this period of numerous international non-governmental organisations, of which the IIW was one.

Before we examine the circumstances of its foundation, it will be helpful to remind ourselves how different then were the material resources of society from those which exist today. The most fundamental change between then and now has been the development of the computer and, for an international body such as the IIW, its effect on communications. In 1948 automatic telephones were still restricted to individual cities and trunk calls requiring the services of an operator were often slow and always expensive. Since neither telex nor fax existed, urgent communications were often made by telegrams which passed from the post office of the sender to that of the recipient. Letters could of course be sent, at a price, by airmail but in 1948 commercial jet services did not exist; air travel was dependent on piston-engined aircraft which flew relatively slowly at low and bumpy altitudes with frequent stops for refuelling; for example, the standard route from Northern Europe to the USA included refuelling stops in Ireland and Newfoundland and took many hours. Not surprisingly, many people preferred to use the luxury liners which plied the Atlantic until the introduction of jet aircraft in about 1960 made them uneconomic.

In the office, communication of the printed word was, by today's standards, laborious and slow. Letters were typed on manual typewriters, copies being in the form of carbons, while documents for reproduction were typed on stencils from which copies could be printed on an office duplicating machine. For the IIW, whose effectiveness depends in large measure on ease of communication and travel, the deficiencies in those areas at the time of its foundation presented inherent obstacles which certainly impeded its growth in the early years. But what is not known is not missed and to contemporaries the increase in air travel and in airmail facilities were factors which encouraged international collaboration in the post-war years.

#### THE WELDING BACKGROUND

Welding as an industrial process was invented in the closing years of the 19th century by scientists working independently in various countries. Initially, its main application was in repair work and oxy-acetylene welding, with its portable power source, was virtually the

only process used. However, the increasing availability of electric power in the early years of this century favoured the growth of arc and subsequently resistance welding. As is so often the case, warfare proved a catalyst for development and the use of welding as a manufacturing, as distinct from a repair, process began during the 1914-1918 war, after which it was increasingly employed.

Between 1897 and 1914, the importance of acetylene, which was widely used for lighting, led to the formation in several countries of trade associations comprising firms in the acetylene industry. Inevitably these associations became interested in welding which eventually superseded lighting as the principal market for acetylene. In some countries, notably France, Germany and Switzerland, these associations gradually transformed themselves into the present national welding organisations. In view of the rivalry between gas and electricity as power sources, it is not surprising that in other countries new welding societies were formed, an early example being the American Welding Society in 1919.

These national welding institutes or societies had and still have a number of different functions, partly dictated by the prevailing traditions in the country concerned. Some were primarily learned societies, bringing together users of welding and manufacturers of welding supplies; others were more overtly educational or concerned with functions such as research, standardisation or inspection. In the course of time, most came to perform more than one function and almost all are publishers of welding journals and other technical literature.

It does not appear that these bodies had significant contacts with each other before the creation of the IIW. People then travelled less than they do today and consequently there were fewer contacts with foreigners who were regarded by many, irrespective of nationality, with some degree of apprehension. There was thus less need to speak foreign languages, an attainment still largely confined to the leisured classes.

Nevertheless, in the years between the two world wars there did exist an international organisation which was concerned with welding, albeit only gas welding. This was the Commission Permanente Internationale de l'Acétylène (CPI) and it brought together representatives of the national acetylene trade associations, generally speaking in the persons of the proprietors or senior staff of companies making acetylene or using it. While the influence of the CPI on the development of welding was necessarily limited, its existence ensured the

acquaintance with one another of senior members of the gas welding industry in many European countries. This was certainly advantageous to the IIW in its formative years.

It is difficult now to realise that during the period up to at least the end of the Second World War, welding was still a process seeking to establish itself. Up to 1950 and beyond, rivetting was widely employed and of course there were many vested interests in retaining this traditional means of fabrication. One of the reasons why the adoption of welding was so gradual lay in its origins. Though invented and initially developed by scientists, it was seen as a craft practised by workers who required manual skills rather than engineering knowledge. In general, the engineering profession was slow to recognise the scientific implications of the use of welding with the result that welding education was largely seen as a matter of craft training. Consequently the pioneers who could advocate, on a scientific, technical or economic basis, the introduction of welding were relatively few and far between. In Norway, welding was taught at Trondheim University in the 1930s and the French Institut de Soudure broke new ground in introducing a one-year post-graduate welding engineering course in 1931 but its example was not quickly followed in most other countries. It is thus not surprising that even up to 1950 and beyond, few of those responsible for the control of welding operations had what today would be considered appropriate qualifications in welding technology.

People learn from experience and where experience is lacking mistakes will occur. For this reason, even had better education in welding technology been more widely available in the years preceding the Second World War, some spectacular failures which occurred when welding began to be applied to large scale structures would probably not have been prevented. In the 1930s the collapse of various bridges in Belgium offered a series of examples of failures of welded structures involving public safety. Slightly later examples concern the so-called Liberty ships whose mass-production in the US during the war was made possible by the use of welding. A number of these ships were lost or damaged as a result of fractures. These failures and others, less spectacular, affecting pressure vessels, were naturally a matter of great concern to the institutions and companies interested in the promotion of welding. The establishment, on a scientific basis, of the causes of such failures thus became a priority for the welding community at large. The evident need for international collaboration in the research required to ensure the

safety of welded constructions was a powerful factor in favour of the creation of the IIW. Equally, there were strong positive reasons for promoting international co-operation in the study of a process whose scientific implications were becoming clear. This is illustrated by the titles of the Commissions which the IIW initially set up, as will be presently apparent. Finally, in the uncertain post-war atmosphere previously evoked, people from different nations had an instinctive desire to work together, the reasons for which have already been noted.

## TWO

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### THE BIRTH OF THE IIW

#### PRELIMINARY ACTIVITIES

THE first notion of an international welding organisation was expressed at a symposium arranged by the Netherlands Welding Society in Utrecht on 5 June 1947. The idea was quickly taken up by the British Institute of Welding whose President, Mr J L Adam, called an international conference in London on the following 11 and 12 September. This conference was attended by representatives of eight European countries, Australia and the USA. Unanimous support was given to the establishment of an international welding organisation with a membership composed of technical institutes and similar bodies. The objectives of the organisation were specified in draft form and a provisional committee was appointed to draw up a constitution with a view to the establishment of the new body at a conference to be held in Brussels in May 1948. The Belgian and British delegations were respectively invited to nominate the Chairman and Secretary of the Provisional Committee which, it was agreed, should hold its first meeting in Paris two months later. The other members of the Committee were representatives of France, the Netherlands, the Scandinavian countries, Switzerland and the USA but in the event no American member was appointed.

The principal business of the Paris meeting, under the chairmanship of Mr L Isaac, the President of the Belgian Institute of Welding, was the study of a draft constitution which had been prepared by Mr G Parsloe, the Secretary of the Committee. The document which emerged at the end of the meeting contains many of the administrative provisions in the present Constitution, it being agreed that the formulation of a technical and scientific programme should be discussed by the Committee in Basle in February 1948.

In fact the Basle meeting, under the chairmanship of Mr Paul Goldschmidt, introduced substantial changes to the draft constitution, including sections on the membership of the Executive Council, the

discussion of which had been deferred in Paris, and on the establishment of Commissions. It was agreed to recommend that five Commissions should be initially set up, dealing respectively with gas welding, electric arc welding, resistance welding, documentation and education. Other subjects envisaged were testing and measurement, terminology, standardization, industrial applications and health and safety. The programme of the inaugural meeting of the IIW was also discussed; it included an assembly to constitute the Institute, a meeting of the Governing Council and a series of lectures, of which four were specified:

Mr R Weck – The present position on residual stresses in welded structures

Mr C G Keel – Oxy-acetylene pressure welding

Professor A Portevin – Metallurgical problems of welding

Professor T van Iterson – Brittle fractures

Almost exactly a year after the creation of an international welding organisation was first mooted, the IIW was duly constituted by the representatives of 14 countries and 22 member societies meeting in Brussels on 9 June 1948 under the chairmanship of Mr Isaac. Some of these countries intimated that their adhesion was subject to confirmation and in the event one society, the Australian Welding Institute, decided against becoming a founder member and only joined in 1954. There were thus initially 13 member countries which, together with the names of their member societies, are listed in Appendix 1.

#### THE FOUNDER MEMBERS

The original constitution of the IIW limited membership to non-profit making bodies concerned with scientific or technical aspects of welding. This was intended to mean national welding societies and it was indeed these which constituted and still constitute the essential element in membership. As we have seen, such societies were diverse in origins and objectives and this diversity is reflected in the founder members of the IIW.

Of these, the majority were organisations of modest size; some combined two or more functions such as research, teaching, inspection, standardization and publishing; characteristic of this type of body were the Institut Belge de la Soudure (founded 1942), the Svetskommissionen (Sweden) (founded 1931), the Société Suisse de l'Acétylène (founded 1911), and the Instituto de la Soldadura (Spain)

(founded 1946). Others included a significant number of individual members and thus some of the activities of a learned society; examples are the Istituto Italiano della Saldatura (founded 1948), the Nederlandse Vereniging voor Lastechniek (founded 1934) and the Norsk Sveiseteknisk Forening (founded 1932).

In Austria, France and the UK, founder membership was held by each of two separate organisations devoted to welding, one being a learned society primarily composed of individuals and the other an organisation concentrating on research and other functions.

In South Africa and the USA, the founder members were first and foremost learned societies, created respectively in 1948 and 1919.

In addition, a small number of other organisations, whose interest in welding was more marginal, participated in the foundation of the IIW, primarily, it may be assumed, to broaden the base of their country's delegation.

#### THE CONSTITUTION

At the first meeting of the Governing Council, held on 11 June 1948, two days after the foundation of the IIW, the draft constitution was further amended and adopted. Its main provisions were as follows:

##### Objectives

- To promote and encourage the development of welding and provide for the exchange of scientific and technical information relating to welding research and education
- To assist in the formulation of international standards for welding in collaboration with ISO
- To organise periodical congresses

##### Membership

- Non-profit making bodies concerned with the scientific and technical aspects of welding and allied processes

##### Finance

- Subscriptions payable by member countries not member societies

##### Management

- By the Governing Council, consisting of up to three delegates per country and meeting at least once a year

##### Commissions

- Appointed by the Governing Council which determines their terms of reference. Each national delegation entitled to appoint a representative on each Commission. Meetings on the occasion of

congresses organised by the Institute, but work to be carried on continuously under the direction of the Chairman. Progress reports to be submitted twice a year for circulation to the member societies.

#### Officers

– President, three Vice-Presidents and Treasurer to serve non-renewable terms of three years (exceptionally the initial Treasurer and one of the initial Vice-Presidents to serve for five years). The Secretary General to serve indefinitely renewable terms of three years.

#### Languages

– English and French

### THE IIW LAUNCHED

At the first meeting of the Governing Council the first significant disagreement arose. The French delegation objected to the provision by which the office of Secretary General was indefinitely renewable and proposed a maximum of two terms after which the new candidate must be of a different nationality from that of his predecessor. The difficulty was resolved by appending the French proposals to the Constitution which would be reviewed after two years – a decision which was to have significant consequences in 1950.

Another difficult problem was that of finance. The Secretary General envisaged an expenditure of £600 in 1948 and £750 in 1949. It was finally agreed to fix for 1948 the subscription of each member country (Austria being exempted) so as to bring in a total of £620. The level of subscription ranged from £150, payable by the UK and the USA, to £20, payable by Denmark, Norway and South Africa. The budget included expenditure of £300 for General Secretariat staff salaries, this money being paid to the (British) Institute of Welding as the employer of the Secretary-General and his staff and the owner of the accommodation which they used. An identical arrangement was made when the Scientific and Technical Secretariat was set up, the amount paid by the IIW in respect of each Secretariat being the same; happily this solution to the problem of the remuneration of the Secretariats has proved to be a durable one. Another item of the original budget was the provision of £65 to cover postage and telephone. In this connection it is perhaps of interest to record that in 1948 the sum of £1 would buy 160 standard rate postage stamps or 240 copies of popular newspapers.

The titles of the Commissions initially set up by the Governing Council were as follows: – Gas welding, Arc welding, Resistance welding, Documentation, Testing and measurement, Terminology, Standardization, Hygiene and safety, Weldability, Residual stresses, Stress relieving, Brittle fractures.

Finally, the following were elected as the first officers of the IIW:

President	Mr P Goldschmidt (Belgium)
Vice-Presidents	Professor Ir H E Jaeger (Netherlands) Professor A Portevin (France) (exceptionally with a term of office of five years) A nominee of the American Welding Society
Treasurer	Mr W Edström (Sweden)
Secretary General	Mr G Parsloe (UK)

This group constituted the Executive Council, then known as the Bureau and in effect responsible for management of the Institute. In spite of the statutory restrictions on their terms of office, by one expedient or another Messrs Goldschmidt, Jaeger, Portevin and Edström continued to serve on the Executive Council until their deaths and Mr Parsloe until 1969. They, together with one or two others who will be introduced later, thus had a decisive influence on the formative years of the IIW and it remains today in a large measure their creation. Each of them showed a very real dedication to the organisation in whose foundation he had played a major role and it is fitting that several of their names are still commemorated within the Institute.

Most of them had also served on the Provisional Committee whose work had been exceptionally dynamic and effective. It is easy to underestimate what a remarkable achievement it was, particularly in the conditions of 1947/48, for a small group of persons of different nationalities and mostly previously unknown to one another, to create within a year an international organisation whose objectives, methods of work and constitution have remained relevant after over 40 years of profound change, both in the membership of the Institute and the technology which it serves.

In the context of their achievement as the effective founders of the IIW, it is perhaps of interest to say something of their careers.



Paul Goldschmidt-Clermont, Founder President of the IIW, receives the Edström Medal from F L Plummer, President, in 1967.

#### THE FOUNDING FATHERS

Paul Goldschmidt, or Goldschmidt-Clermont as he subsequently became, was born in 1890 and served with distinction as an officer in the Belgian army in the First World War. An engineer by education and training, his subsequent career was more in management and administration than in engineering. He played an important part in the foundation of the Belgian social security system and was also largely responsible for the creation of the Belgian Institute of Welding of which he was for many years the Director. As the first President of the IIW, his capacity for leadership was made more effective by his diplomatic gifts, his greatest achievement being perhaps to create, from among the first members of the Executive Council, a loyal and harmonious team which commanded the support of the national delegations.

But his contribution was by no means only of a general order. His background gave him a keen interest in the safety of welded structures and it was at his instigation and under his chairmanship that Commission V Testing and Measurement was set up. In recognition of his unique service, the Governing Council invited him in 1954 to accept life membership of the Executive Council on which he served up to his death in 1969. When he received the Edström Medal in 1967 he made a moving speech from which the following is a quotation:

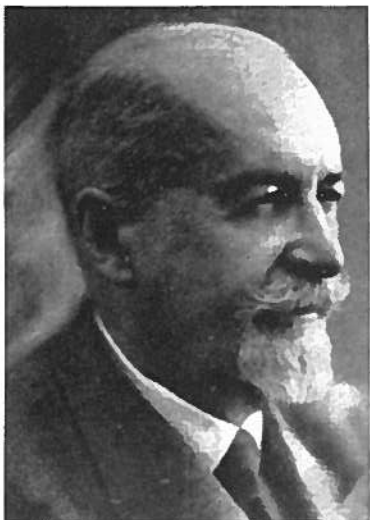
*Nous pouvons regarder avec fierté ce que nous laissons derrière nous, mais qui n'est qu'une moisson à ses débuts, car qu'est-ce que vingt ans dans l'histoire des temps?*

*Mais, pour moi, la faveur que vous me faites est encore bien autre chose. Car, au moment où une vie active approche de son terme, le feu qui brûle au coeur de l'homme et qui éclaire pour lui le cours de sa carrière passée, met en relief, plus que toute autre chose, la figure très chère de ceux avec qui il a travaillé et lutté, ceux à qui l'a lié l'oeuvre commune et auxquels va sa propre reconnaissance . . .\**

On the expiry of his term of office as one of the first Vice-Presidents of the IIW, Professor Albert Portevin was similarly offered a seat for life on the Executive Council with the title of Founder Vice-President and he thus continued at the heart of the Institute's affairs until his death in 1962. A distinguished metallurgist, he had been one of the pioneers in the scientific study of welding and as such played a leading part in the foundation and subsequent direction of the Ecole Supérieure de Soudure Autogène which, during the 1930s, led the world in teaching welding technology at post-graduate level. Similarly, in the IIW, Professor Portevin was a moving spirit in the creation of Commission XIV Welding Instruction. The author of numerous important papers and a master of lucidity and precision both in speech and writing, his work received national and international recognition, as exemplified by his election as Academician in France and as a Fellow of the Royal Society in the UK, to mention

*\*We can look back with pride on what we leave behind us although it is only the beginning of the harvest, for what is twenty years in the context of history?*

*But, for me, the privilege which you have conferred upon me is something quite different. For, at the moment when an active life is drawing to its close, the fire which burns in a man's heart and which illuminates for him the course of his past career, throws into relief, more than anything else, the cherished lineaments of those with whom he has worked and struggled, those with whom he has been associated in the common task and to whom he owes a debt of gratitude.*



A Portevin, France, Founder Vice-President.



H E Jaeger, The Netherlands, Founder Vice-President and President, 1951-4.

but two of the prestigious honours bestowed upon him. There is no doubt that his support for the foundation of the IIW and his subsequent association with it conferred upon the Institute in its formative years an intellectual status which it would otherwise have lacked and without which it would have been the poorer.

The second of the Founder Vice-Presidents was Professor Ir H E Jaeger who, after an early career in shipbuilding, was appointed to the chair of naval architecture at the Technical University of Delft. In the IIW he went on to hold the offices of President and Treasurer before succeeding Professor Portevin as Founder Vice-President with a permanent seat on the Executive Council which he occupied until his death in 1984. For 19 years Chairman of the Commission on Arc Welding, Professor Jaeger also took a lead in promoting the IIW in international scientific circles, in particular UNESCO and the Union of International Technical Associations, as President of which he served for six years. Unlike the other original members of the Executive Council, Hans Jaeger was an excellent linguist, a gift which he fully exploited both in his academic work and as a member of numerous international organisations.



W Edström, Sweden, Treasurer, 1948-60.

The only industrialist to belong to the first Executive Council of the IIW was the Treasurer, Walter Edström. By training an electrical engineer, he had held a number of challenging posts, notably in pre-revolutionary Russia, before joining Oscar Kjellberg in the firm in Göteborg which first manufactured covered electrodes and which, under the leadership of Walter Edström, rapidly developed into a world-wide business under the name of ESAB. If Professor Portevin's presence conferred upon the infant IIW respectability in academic circles, the same could be said of Walter Edström with regard to the business community. This was doubly important. Firstly, the often prestigious companies which produced welding equipment and consumables exercised at that time an influence over national welding institutes which would be inconceivable today. Through his many contacts with these companies, Edström was in a position to promote membership of the IIW. Secondly, he was able to encourage the same companies to appoint on the Commissions members of their own staff, the welding supplies industry initially contributing a large proportion of the total contingent of delegates and experts. With his powerful industrial base and his many contacts, Walter Edström was an effective ambassador for the IIW as well as a persuasive Treasurer

– a position which he held until he was elected President in 1960. Unhappily he died in office in 1962.

Unlike his colleagues on the first Executive Council, the Secretary General, Guy Parsloe, was not an engineer but a historian. His early career had been devoted to historical research at London University but during the Second World War he was appointed Secretary of the (British) Institute of Welding and was thus largely responsible for organising the conference in London in 1947 at which the principle of the creation of the IIW was agreed. He was then primarily responsible for drawing up the Institute's constitution and for introducing the administrative mechanisms which ensured the relatively smooth development of the IIW throughout its early years. Guy Parsloe was particularly interested in the dissemination of information and was thus a strong advocate of the Institute's involvement in documentation and terminology which attracted little support from the majority of engineers. Equally, he was much concerned with the arrangements for the publication of the IIW's work and developed the policy, maintained throughout the life of the Institute, under which the member societies have the opportunity to act as publisher of IIW books of particular interest to them. This policy was, however, thought to be inappropriate for the IIW's journal *Welding in the World*; when it was



G Parsloe, United Kingdom, Secretary General, 1948.

founded in 1962 with Mr Parsloe as joint editor in chief it was published directly by the Institute and was only transferred to a commercial publisher in 1983.

Such, in cameo, were the backgrounds and professional interests of the five men whose vision and enthusiasm played the most significant part in the foundation of the IIW and who directed its policy in its first years. The fact that a representative of the USA was appointed one of the first Vice-Presidents did not unfortunately guarantee an American contribution to the Executive Council in the early years but the IIW continued to encourage and soon gained US support.

## THREE

## EARLY DEVELOPMENTS, 1949-1954

## THE FIRST ASSEMBLY

IF credit is due to the founders of the IIW for the speed and enthusiasm with which they acted in creating the Institute, they are equally deserving of admiration for the originality of their creation. Traditionally, international technical associations had a quite different role from that of the IIW - namely to organise periodical congresses at which papers were presented and discussed. In this context, the concept of a series of international technical commissions working more or less continuously was a new one; it is not therefore surprising that in the early years the officers of the IIW and its Governing Council devoted much of their energies to dealing with the organisational problems which arose as soon as activity began.

On the foundation of the Institute in 1948, 12 Commissions were established and these held their first meetings at the Annual Assembly (though this term was not in regular use until several years later) in Delft in May 1949. Only two days were allocated to the initial and simultaneous meetings of the Commissions, and since many of the 130 delegates present served on more than one Commission, attendance was necessarily sparse; nevertheless, terms of reference were established and programmes outlined while the Documentation Commission assumed responsibility for the IIW's first publication - the quarterly *Bibliographical Bulletin for Welding and Allied Processes* which is described in more detail in Chapter 9.

At the time of the Delft Assembly and for some years afterwards, the notion of a conventional international conference was still present in the minds of members; this explains why a whole day was devoted to a plenary session at which verbal reports were presented on the work of the Commissions; unfortunately these are not recorded.

## SCIENTIFIC AND TECHNICAL SECRETARIAT

The initial discussions of the Commissions revealed a number of problems concerning overlapping of work and during the succeeding months it became increasingly clear that action was needed to ensure closer collaboration among the Chairmen and more uniform methods of work. It was accordingly proposed in the Executive Council that a Scientific and Technical Secretariat should be established to oversee the work of the Commissions. After some hesitation the Governing Council agreed at the 1950 Assembly in Paris to the creation of this office in parallel with the General Secretariat, that is to say, each with a term of three years indefinitely renewable. At the same time, Mr André Leroy, the Director of the French Institute of Welding, was elected to the new post and the French delegation withdrew its reserves concerning the provision in the constitution for the re-election of the Secretary-General without any limitation of time.

André Leroy was one of the dominant personalities in the IIW from 1950 until his retirement 24 years later and his contribution to the Institute was comparable with those of the five original members of the Executive Council. A chemist by training, he joined the Institut de Soudure as chief of the chemical laboratory and when the directorship of the Institut became vacant during the war he was appointed to this post while still in his thirties. A man of great energy, blessed with a prodigious memory and the possessor of an encyclopaedic knowledge of welding technology, he brought to his task qualities which enabled him to conduct the band of disparate and often individualistic Chairmen of Commissions with a surprising degree of harmony and effectiveness. His role was particularly difficult in the early years when the concept of teamwork on which the IIW is based was not always clearly understood, when the operational rules of the Commissions were still being established, and when not all the existing Chairmen welcomed what was in effect the imposition of a new boss. With persuasiveness and patience, André Leroy overcame these difficulties and deserves much of the credit for the creation of a system which has in essence been maintained to this day and which has ensured both co-ordination and collaboration in the activities of the Commissions.

In his work as Scientific and Technical Secretary, André Leroy had the assistance of two persons who each made a remarkable contribution to the IIW in their own right. One was his eventual successor, Henry Granjon, of whom more will be written later. The



A Leroy, France, Scientific and Technical Secretary, 1950-74.

other was Mademoiselle Lise Blosset, a senior staff member of the Institut de Soudure, who was a French delegate on the Governing Council from the creation of the IIW and who succeeded Mr Leroy as Chairman of the Documentation Commission in 1950. When the latter joined the Executive Council he was accompanied to each meeting by Lise Blosset in the role of assistant. Qualified both as a lawyer and an engineer, she was well able to hold her own in a world essentially dominated by men, while her charm and tact greatly facilitated harmonious discussions within the Executive Council and the passage of measures proposed by the Scientific and Technical Secretariat. Inevitably a woman of her abilities was not content to play a subsidiary role indefinitely and she left the Institut de Soudure in 1961 to become a director of the French National Centre for Spatial Studies where she pursued a successful career until her untimely death in 1974. Such was the esteem in which she was held by the Executive Council that her departure was felt so to diminish the Scientific and Technical Secretariat as to necessitate some form of reinforcement – in the event the Technical Committee whose creation and role are described later.

Following the creation of the Scientific and Technical Secretariat in 1950, the Executive Council evolved further in 1951 when Pro-

fessor Jaeger succeeded Mr Goldschmidt as President, its membership being composed as follows:

President, Past President, four Vice-Presidents, Treasurer, Secretary General, Scientific and Technical Secretary, one of the Vice-Presidents being a representative of the country where a forthcoming Annual Assembly would be held – an arrangement which has been maintained ever since.

#### ANNUAL ASSEMBLIES

It is of some interest to trace the evolution of the programmes of the early assemblies of the IIW since inevitably it took some time to arrive at the formula which has now been followed for many years. The Paris Assembly in 1950 saw the introduction of preliminary meetings of the Executive Council and the Governing Council, the division of the Commissions into Groups A and B, each composed of six Commissions meeting simultaneously, and each holding three sessions spread over two and a half days, a plenary session with presentations by the Commission Chairmen, and a closing meeting of the Governing Council with the Chairmen of the Commissions at which Commission resolutions were discussed.

The following year the IIW was invited by the United Kingdom to hold what was entitled a Congress to coincide with the Festival of Britain, itself organised to commemorate the centenary of the Great Exhibition of 1851. This Congress, held in London and Oxford, was unique in the annals of the IIW in that for five nights the delegates were lodged in three Oxford colleges undergoing what Professor Portevin described as a *bain de jeunesse* which included a good deal of undergraduate behaviour, notably a ghost party which was long remembered within the IIW. The programme allowed for three sessions for each Commission together with a full-day plenary session for the presentation of reports, the innovations being, firstly, works visits, and secondly, three public sessions for the presentation and discussion of previously invited papers. Both of these innovations became permanent features of the Assemblies and the titles of the Public Sessions and subsequently Colloquia and International Conferences are given in Appendix III. They constitute a record of what were seen to be topics of contemporary interest and concern from 1951 to 1990.

It was in 1952 that the title 'Annual Assembly' passed into current usage and its programme assumed what became the definitive pattern. Held in Göteborg with, thanks to the Treasurer, all the facilities of ESAB available, there was sufficient staff to type and duplicate day by day the minutes of the Commission meetings, minutes which were prepared by Drafting Committees appointed by each Commission. This meant that it was no longer necessary to hold the unsatisfactory day-long plenary session at which the Chairmen of Commissions presented verbal reports, since the commission resolutions could be submitted in writing to the final meeting of the Governing Council. Thus the pattern of four half-day Commission meetings and four half-day Drafting Committee meetings was established, to be maintained with minor variations over the next 40 years.

It must not be supposed, however, that the principle of holding an annual meeting was accepted without question. Traditionally, the conferences of international engineering associations took place every few years for the presentation of papers. Initially, within the IIW, there was a strong current of opinion which held that annual meetings were too expensive, including as they did elaborate social and ladies' programmes, and that it would be preferable in alternate years for the Governing Council and the Commissions to hold independent and separate meetings. Finally, a compromise was reached in 1952 to the effect that Annual Assemblies should be of two categories:

- (1) Congresses with a public session, official reception, etc.
- (2) Working sessions of the Governing Council and the Commissions.

In the event, the only assembly which was specifically of category 2 was that held the following year (1953) in Copenhagen and which was otherwise notable for the first exhibition of national publications, an established feature at virtually all subsequent assemblies. When it came to the point, the member countries proved unwilling to organise the austerity assemblies envisaged in the compromise decision of 1952; indeed the assemblies in the following years in Florence (1954), Zurich (1955), Madrid (1956), Essen (1957) and Vienna (1958), all with attendances of approximately 500, were, from the social point of view, probably the most elaborate ever organised.

Banquet on the occasion of the 1951 Annual Assembly.



## US MEMBERSHIP

A peculiar feature of the early years of the IIW was the position of the US delegation. In 1947 the industrial dominance of the US was generally recognised and it was therefore natural that the American Welding Society should have been invited to be represented on the Provisional Committee. It is perhaps not surprising that no representative in fact attended though the USA was represented at the inaugural meeting of the IIW in 1948 when the AWS became a founder member. Invited to nominate one of the first three Vice-Presidents, it duly did so but its nominee was never able to attend though at the 1950 and 1951 Assemblies he was represented by Dr Howard Eiers who succeeded him as Vice-President in the latter year.

Dr Biers was an exceptionally anglicized American who held a senior position with Union Carbide. He had numerous contacts with the European iron and steel industry and was thus in a position to make frequent visits to Europe at a time when, as we have seen, trans-Atlantic travel was a great deal less convenient than it is today. A firm believer in the IIW, Dr Biers did his utmost to encourage active participation by the AWS and the Welding Research Council. Similarly, it was largely as a result of his efforts that a European team of welding experts from 11 countries visited the US on a study tour in 1953. This tour, which included participation in an AWS convention, was sponsored by the Organisation for European Economic Cooperation, its secretary being the Secretary-General of the IIW. Dr Biers also promoted the presentation and publication of European papers in the US at a time when Americans tended to discount the importance of welding research and practice abroad. His success in these endeavours made it fitting that he was elected to the Presidency for the term 1954-57 during which US participation was consolidated.

A somewhat similar pattern was seen in connection with the chairmanship of commissions. Initially, the US was invited to nominate the Chairman of Commission III Resistance Welding and Commission XII Brittle Fracture, members of European delegations being appointed Vice-Chairmen. Neither Chairman was able to attend and in 1951 the US delegation proposed their withdrawal as Chairmen. This occurred at the same time as Dr Biers was becoming involved in the IIW, thus ending a period of difficulties which was perhaps inevitable in the circumstances.



H Biers, USA, President, 1954-7.

## ELECTIONS TO MEMBERSHIP

The first countries to be elected to membership subsequent to the foundation of the Institute were Finland in 1949 and New Zealand in 1950; there followed the elections of the then Federal Republic of Germany and Canada in 1951, Japan in 1952, Uruguay and the then Yugoslavia in 1953 and Australia in 1954. It is ironic to note that, on the election of Japan, the chief of the Japanese delegation expressed the view that, for geographical reasons, Japan's contribution would be small.

## COMMISSIONS

It would have been astonishing if all the Commissions initially set up in 1948 had survived even six years without change. Such was not the case and the following changes were introduced between 1949 and 1954:

- 1949 Commission XIII Fatigue Testing set up
- 1950 Commission XIV Welding Instruction set up
- 1950 Commission X Residual Stresses and XI Stress Relieving merged as Commission X which combines both subjects in its title

- 1951 Commission XV Fundamentals of Design and Fabrication for Welding set up
- 1954 Commission IX Weldability and XII Brittle Fracture merged as Commission IX Behaviour of Metals Subjected to Welding
- 1954 Commission XI Pressure Vessels, Boilers and Pipelines set up
- 1954 Commission XII Special Arc Welding Processes set up

#### OTHER INNOVATIONS

##### *Reference system for documents*

The reference system for documents, which has remained unchanged, was introduced at the beginning of 1953, the use of Roman numerals to denote the numbers of the Commissions being adopted at the same time.

##### *Sub-Commissions*

Sub-Commissions began to be appointed in 1951, when the first regulations concerning them were drawn up.

##### *Emblem*

As might be expected, there was general agreement that the Institute should have an emblem, but little agreement as to its appearance. The present design was finally adopted in 1953; it was immediately incorporated in an IIW flag, presented by the Danish delegation as hosts of the 1953 Annual Assembly, and duly transmitted to the Italian hosts of the 1954 Assembly.

##### *Annual Report*

The annual report of the Executive Council and the Secretariats was submitted to the Governing Council for the first time in 1953 and has appeared year by year since then.

##### *Meeting of Chairmen of Commissions*

To ensure that the Commissions were not working in isolated compartments, the Scientific and Technical Secretary prepared, on

the basis of the minutes of the 1951 meetings of the Commissions, a report setting out points of interest to more than one Commission and circulated it to the Chairmen. The same procedure was followed in 1952, a meeting of the Chairmen being called in March 1953 to discuss the 1952 report. Since then this meeting has been held annually and has been of cardinal importance in achieving the harmonious execution of the complex programme of work of the Commissions.

## FOUR

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### CONSOLIDATION, 1954-1961

WHEN Dr Biers took over the Presidency at the close of the 1954 Assembly, he had good reasons for feeling satisfied with the state of the IIW. The Institute had just held its most prestigious assembly to date – perhaps the most prestigious in its whole history – with an attendance of 470, by comparison with approximately 270 in 1952 and 1953. Vexed technical questions had just been resolved with the amalgamation of two Commissions and the creation of two others. The US and German delegations had been fully integrated, the former providing the President and the latter the Chairman of one of the new Commissions as well as of that resulting from the amalgamation which had just taken place. Three important works by the Institute were on sale and a number of significant documents had been issued to the member societies for publication. Finally, satisfactory relations were being maintained with a number of influential international bodies.

Inevitably new problems arose, but the principal ones, while difficult to resolve, could be viewed with a degree of satisfaction. Approaches concerning membership were received from certain countries in Eastern Europe. It is difficult now to imagine the degree of suspicion and fear which in 1954 dominated the relations between the then Soviet Union and its allies on the one hand, and the Western powers, represented in the IIW, on the other. In July 1954 an application for membership was received from the Czechoslovak Welding Institute and was followed by a verbal enquiry from the German Democratic Republic. Subsequently, just before the 1955 Assembly in Switzerland, approaches were received from the Soviet embassies in Berne, London and Paris, as a result of which a delegation of four Soviet observers attended the 1955 Assembly. The upshot was that Czechoslovakia, together with Poland and Turkey, was elected to membership in 1956, Rumania in 1957, the USSR and also the Argentine in 1958 and the GDR only in 1973, after

complex questions concerning its status and the attitude of the existing delegation of the Federal Republic had been resolved.

Among the Soviet observers at the 1955 Assembly in Zurich was Professor N N Rykalin. Since, as leader of the Soviet delegation, he was to command extraordinary deference within the IIW over nearly 20 years, it is perhaps appropriate to say something of him at the moment when he first appeared on the IIW stage. A member of the Moscow Academy of Sciences and a physicist, he was not directly connected with the Paton Institute in Kiev which was the principal centre of welding technology in the Soviet Union. Nevertheless, he appeared to dominate the Soviet delegation, perhaps by means similar to those with which, from a position of relative weakness, he was able to influence the leaders of the IIW. A small, stooped, elderly man, he spoke slowly and gently, with an elaborate courtesy which did not conceal a luminous intelligence and a strong will. Those to whom he revealed his mastery of the art of mockery felt that they had enjoyed his intimate confidence without necessarily realising what subtle forms flattery can take. To a generation reared on the proletarian images of Stalin and Krushchev, Professor Rykalin was a powerful revelation who exercised his considerable influence to enhance the IIW and thus the advantages which his country could derive from it.

The 1956 Assembly, which was held in Madrid, was distinguished by three innovations which were to become permanent features of the IIW. One was the introduction of a supplement to the enrolment fee for the Assembly; this supplement was collected by the Organising Committee and remitted to the IIW, thus constituting an additional source of income for the Institute. In 1956 the supplement was fixed at £1 sterling per person, a figure which needs to be seen in the context of a slightly earlier decision to fix the *per diem* subsistence allowance of official representatives of the IIW at £3.

Secondly, the increasing attention which the Executive Council was required to give to problems concerning publications prompted the appointment of a Publications Committee under the chairmanship of the Treasurer.

Thirdly, it was decided to elect Dr Biers' successor as President one year in advance of his taking office and to accord him, as President-Elect, a seat on the Executive Council for that year. The choice of a candidate had given rise to much heart-searching among the members of the Executive Council. Some considered that, after eight years in office as Treasurer, Mr Edström had merited the Presidency while others felt that his business competitors would

resent his election and consequently be less supportive of the IIW. In the end the latter view prevailed and Dr Guerrero served as President from 1957 to 1960. The choice was appropriate for several reasons. He had shown his dynamism and his persuasiveness in securing the creation of Commission XV in 1951, since when he had been its active and dedicated Chairman. As Director of the Italian Institute of Welding, he had been responsible for the successful 1954 Annual Assembly and had thus served as a Vice-President. Finally, he was the first President of the IIW to be a qualified welding engineer. His dedication to his work and his rigid standards of integrity were legendary but his manners were those of a man of the world, without trace of self-satisfaction or complacency.

Dr Guerrero took over the Presidency at the 1957 Assembly in Essen, the organisation of which was primarily the work of Professor E Houdremont whose career in the IIW was brilliant but tragically short. Appointed Chairman of the original Commission XII Brittle Fractures in 1953, in 1954 he became Chairman of the new Commission IX, resulting from the amalgamation of the former Commissions IX and XII. Because of his responsibilities for the 1957 Assembly, he was elected Vice-President in 1956 but he died in office shortly before the 1958 Assembly. His popularity was such that in 1958 his Commission passed a resolution, subsequently approved by the Governing Council, to the effect that Commission IX should organise in his memory an annual lecture; thus was a precedent created which, as we shall see, was followed by the commemoration in different ways of other leading IIW personalities. The fact that the precedent was set for Professor Houdremont, whose service lasted less than five years, is a tribute to the impression left on his contemporaries by his gifts as a leader, scientist, industrialist and musician as well as by his singular charm as a man.

It is of interest to record that it was under the chairmanship of Professor Houdremont that Commission IX issued recommendations concerning weldable steels which were to have a profound influence on specifications far beyond the circle of the IIW.

The year between the Assemblies of 1957 (Essen) and 1958 (Vienna) was marked by the completion of two exceptional tasks. The first was the preparation of a bilingual survey, comprising 250 pages plus illustrations, of the first 10 years of the IIW. The initiator of this work was the Founder President who acted as editor and saw the book through the press in time for its publication to coincide with the Vienna Assembly. It consisted of six general chapters outlining

the structure and general activities of the IIW together with a survey of the work of each of the 15 Commissions written by their respective Chairmen. In addition, there were numerous lists, including one of all the papers presented at the public sessions which had been held annually since 1951 except at the austerity Assembly of 1953. The chapters concerning the Commissions are of considerable interest in the context of the history of welding technology and it is to be regretted that other pressures prevented the preparation of a sequel in 1973 to mark the Silver Jubilee of the IIW.

The other task undertaken in 1957/58 was the revision of the Constitution and the separation of the various texts which had been adopted over the years into the Constitution proper and the Bye-Laws. The revised Constitution was adopted in 1958 and the Bye-Laws, which were extensively re-written, in 1959.

The Vienna Assembly was organised with considerable panache, Austria being perhaps still in a state of euphoria consequent upon its resumption of independence and the withdrawal of the four allied occupying armies in 1955. At the close of the Assembly, following the election of the Argentine and the USSR, 28 countries belonged to the IIW, the number having more than doubled since its foundation.

The ensuing Assembly took place in Opatija, Yugoslavia, and was thus the first to be held in a socialist country. It was marked by the discontinuance, never to be resumed, of the wearing of formal evening clothes at IIW banquets, as had up to then been the norm. Equally in tune with the times, it was agreed that the IIW's terms of reference covered the welding of plastics as well as of metals, though a proposal to substitute for 'plastics' the terms 'high resinous polymers' and 'high density polymers' was not adopted.

A further innovation at Opatija was to elect the capitalist Walter Edström, notwithstanding his occupation as a manufacturer of welding supplies, as President-Elect to succeed Dr Guerrero the following year.

The 1960 Assembly in Liège was the first to be held in a specially designed building, the then new Palais des Congrès, previous assemblies having generally been held in academic buildings or former palaces adapted for conferences. It was marked by the absence of the customary Public Session and by the inclusion for the first time of a colloquium – a form of public session organised by a Commission on a subject within its terms of reference. In fact two colloquia were held in 1960 and they were to be a frequent item in the programmes

of assemblies until the introduction of the International Conferences 23 years later.

By 1960 the Executive Council faced a grave problem: how to retain on it all the original founders? The Founder President and one of the Founder Vice-Presidents (Professor Portevin) had already been made members for life; Mr Edström was transferring from Treasurer to President and Mr Parsloe and Mr Leroy were indefinitely re-eligible. There remained Professor Jaeger, who in 1960 had completed the six years as Past President with a seat on the Executive Council which the constitution then allowed him. The solution adopted was to recommend his election as Treasurer, notwithstanding that he had already served as Vice-President, President and Past President and was still Chairman of Commission II; as a *quid pro quo*, it was proposed that the Treasurer should only serve for three years instead of being indefinitely re-eligible. The Governing Council approved these arrangements.

In fact, Professor Jaeger was accepting a poisoned chalice. In 1959 there had been a small deficit and there was a larger one in 1960. Furthermore, the original draft budget for 1961 showed another small deficit; when this budget was revised in April 1961 the projected income was £5478 and the projected expenditure £6683. In the circumstances the Executive Council felt obliged to recommend that annual subscriptions be increased by one-third in 1962 to recoup the losses. In the event, a serious discussion took place in the Governing Council when members questioned the *ad hoc* basis on which member countries' subscriptions were fixed. It was finally agreed that the 1962 subscriptions should be at the same level as those of 1961, but that member countries should be asked to make a special contribution equivalent to one-third of their subscription. On the other hand, the Executive Council undertook to review the whole financial position in the light of the discussion and to report back in 1962. As subsequent events will show, a call for a fundamental review of policy tended to become the standard reaction of the Governing Council to financial problems.

This discussion took place in New York, for in 1961 the IIW was holding its first Assembly outside Europe. Long distance travel had been greatly facilitated in the late '50s by the introduction of jet aircraft on commercial routes but fares were still expensive and the IIW found it economical to charter a jet to bring members of the European delegations to and from the USA. The attendance was not significantly less than in previous years and this prompted the Japanese

delegation to ask the IIW to hold its 1970 Assembly in Tokyo – an invitation which was neither accepted nor refused. Apart from the election to membership of Israel, which perhaps characteristically took place in New York, and also of Bulgaria, the 1961 Assembly was marked by the creation of Study Group 212. This was done on the initiative of Professor Rykalin, who felt that arc physics could best be studied within the IIW by a select group of scientists chosen by, and answerable to, the Executive Council but maintaining links with Commissions II and XII. This was a new constitutional formula for the IIW whose member countries had so far had the right to nominate a delegate and experts on each Commission. The innovation proposed by Professor Rykalin and accepted by the Governing Council was significant for its implicit recognition that some countries are more advanced technologically than others and because it was to serve as a model for the future.

Another significant innovation adopted at New York concerned the term of office and appointment of the Chairmen of Commissions who, up till then, could remain in office indefinitely. After 1961 the term of office was fixed at five years but the appointment could be renewed by the Governing Council if such was the wish of the Commission concerned. In consequence of this decision, four Commissions were consulted in New York about their Chairmanships with a view to appointments being made or renewed in 1962. So began a procedure which, although criticized, was maintained for want of a better alternative.

## FIVE

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A FIRST CRISIS AND ITS  
AFTERMATH, 1961-1964

UP to 1961, the progress of the IIW had been relatively smooth, one of the reasons being certainly the harmony which prevailed at all levels concerning the goals envisaged and the way to reach them. But increasing activity inevitably meant increasing expenditure; the proposal made at New York that member countries' subscriptions should be increased by one-third in 1962 led, as we have seen, to severe criticisms and a contested vote in the Governing Council, and to the promise by the Executive Council of a fundamental review of financial matters, including the delicate problem of the fixing of national subscriptions.

The review undertaken concentrated on two matters – publications and subscriptions. It was proposed that the procedures for treating documents recommended for publication should be simplified to reduce work, that the IIW should itself publish these documents in its own journal and that emphasis should be placed on publishing as a source of revenue. In respect of subscriptions, the principle was formulated that each national subscription should consist of a fixed sum for the primary member society, a lesser sum for each additional member society, and a sum proportional to the national steel consumption.

The departure early in 1962 of Mademoiselle Blosset from the Scientific and Technical Secretariat was one of the reasons which led President Edström to constitute a consultative committee composed of persons outside the Executive Council to review the organisation of the IIW. The Committee met once before the 1962 meeting of the Governing Council in Oslo which approved the revised publishing arrangements, including the plans for an IIW journal, and the new formula for fixing annual subscriptions. At the same time the IIW's share of enrolment fees for Annual Assemblies was increased from £2 to £4 per person with effect from 1963. Other decisions of the Governing Council were to elect Professor K Rühl to succeed President Edström the following year, to set up Commission XVI on the welding of plastics, and to elect Hungary to membership.

Less than a month after the 1962 Assembly Walter Edström died while sailing his yacht in the Baltic, his death following three months after that of the Founder Vice-President, Professor Albert Portevin. Thus vanished two of the five men who formed the initial Executive Council, one of them leaving a vacancy for which there was no precedent and which was not foreseen in the Constitution.

The solution adopted by the Executive Council was to invite the senior Vice-President, Mr F L Plummer, to take over the presidential responsibilities until the President-Elect started his term of office at the 1963 Assembly in Helsinki. It was also decided to recommend the amendment of the Constitution to make formal provision for the appointment of a President-Elect and to increase the number of Vice-Presidents from four to six as proposed by President Edström's Consultative Committee.

These amendments were duly approved by the Governing Council in 1963 when Professor Rühl took office as President. He was a leading member of the German delegation and had already served for four years in the exacting role of Chairman of Commission IX, a position maintained throughout his Presidency, which was marked by his tact, courtesy and deference to the opinions of his colleagues. Fortunately for him, by the time he assumed office the financial position had improved, the new system for fixing national contributions had been introduced, revenue from publications was rising and *Welding in the World* had been launched (see Chapter 9). However, one problem which he had to face concerned the future of President Edström's Consultative Committee whose work had been left unfinished. Professor Rühl immediately called a meeting of this committee, the result of which was a recommendation for the establishment of a Technical Committee of the Executive Council to co-ordinate the work of the Commissions, establish priorities and select new subjects for study; the Executive Council agreed that this Committee should be composed of five of its own members (of which four ex officio) and four other members – an arrangement which has continued largely unchanged ever since.

The attention of the Governing Council at the following Assembly in Prague in 1964 was mainly occupied by a prolonged debate concerning the terms of reference of Commission IX, the upshot of which was no great change. On less contentious matters, it was decided to commemorate Mr Edström by the Edström Medal, to be awarded to those who had rendered exceptional services to the IIW such as Professors Houdremont and Portevin who were both now to

be commemorated by biennial lectures in alternate years. On a more prosaic level, the Governing Council congratulated the Treasurer on the satisfactory state of the IIW's finances, while the People's Republic of China was elected to membership at an annual subscription of £230.

## SIX

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## A DIPLOMATIC CRISIS AND A PERIOD OF FURTHER PROGRESS, 1965-1975

BY 1965 the ripples which appeared in 1961 had subsided and the Institute entered a further phase of steady development, a new element in which was the detailed attention given by the recently appointed Technical Committee to particular problems facing various Commissions and to the relative priorities of their work. Indeed the establishment of the Technical Committee was the most significant and durable innovation which took place during the Presidency of Professor Rühl whose successor was chosen by the Governing Council at the 1965 Assembly in Paris and took up office the following year in Delft. The new President was Mr Fred Plummer, the second American to hold this office, though nationality was one of the few things he had in common with the previous American President, Dr Biers, whose death was to occur in 1967. While the latter was cosmopolitan and sophisticated, a high level negotiator as much at ease in Paris and London as in New York, Fred Plummer was a welding engineer who had become Director of the American Welding Society, the kind of American who takes pride in extolling the virtues of apple pie. As it happened, his nerve and his robust common sense were immediately to be put to the test.

At the time in question, the cold war was being vigorously waged and it was inevitable that it should impinge to some extent upon the IIW, given the essential role of welding in the defence industries, notably at that time in the construction of nuclear submarines. Thus it happened that certain delegations contained members who passed as experts but whose primary interest was in the containment, on the one hand, and the collection, on the other, of classified information. Unfortunately, at the end of the 1966 Assembly in Delft, an incident occurred which led to the death of a member of a national delegation and subsequently to the severance of diplomatic relations between his country and the Netherlands. Relations between the delegation concerned and the IIW were also extremely strained for several years



HRH The Prince of The Netherlands in conversation with IIW President, F L Plummer in 1966.

afterwards, the President in particular being the subject of a degree of criticism such that the Executive Council refused to accept the relevant communications. In responding to this unhappy sequence of events, President Plummer acted with commendable restraint, discretion and magnanimity. Consequently, few at the time were aware of what had happened and the damage was correspondingly limited, only a brief and enigmatic statement being made to the Governing Council in 1967.

A happier event which took place in Delft was the posthumous award to Walter Edström of the first Edström medal; this was presented to his son by HRH the Prince of the Netherlands, whose presence was symptomatic of the increasing standing of the IIW.

Another landmark of the 1966 Assembly was the resignation as Secretary-General of Mr G Parsloe who had held this office for 18 years and had been re-elected five times. At that time no one had held continuous office in the IIW for so long, but Mr Parsloe's election as Vice-President meant that he retained for three years longer a seat on the Executive Council, of which by then both

the first and second Presidents, Messrs Goldschmidt-Clermont and Jaeger, were life members. The author was elected to succeed Mr Parsloe as Secretary-General.

During 1966 the IIW's income from royalties more than doubled by comparison with the previous year, an increasing number of publications being available for sale, together with Image Quality Indicators which were manufactured under contract to the specifications of Commission V. It was thus all the more disappointing for the Governing Council to learn in 1967, at the Annual Assembly held in London, that the *Bibliographical Bulletin* was in ever deeper trouble as a result of falls in the number of subscriptions and lack of co-operation by the national delegations in providing abstracts. A number of remedial actions were taken but their success turned out to be limited. At the same time it was agreed that Commission IV Documentation, which was in charge of the *Bulletin*, and Commission VII Standardization should merge and become Commission VII Documentation and Standardization.

The 1967 Assembly saw the election of a Portuguese delegation and the award of the Edström medal to the Founder President. The same honour was conferred upon the Founder Vice-President, Professor Jaeger, in 1968 in Warsaw.

The Warsaw Assembly was also significant in that, after prolonged study by the Technical Committee and the Chairmen of Commissions, the Governing Council reorganised the Commissions dealing with the welding processes. The main feature of this reorganisation was the creation of a new Commission IV – Special Welding Processes – to be responsible for the study of most of the more recently developed processes – in particular electron beam and laser – thus allowing Commission XII, heretofore entitled Special Arc Welding Processes, to concentrate on flux and gas-shielded electrical welding processes and to change its title accordingly.

It was also in 1968 that the Governing Council elected Ireland to membership and appointed as President-Elect Professor Walter Soete who succeeded Mr Plummer in 1969. Professor Soete of Ghent University had been present at the foundation of the IIW and had then been appointed Chairman of the original Commission XI Stress Relieving. In 1950 this had been amalgamated with Commission X Residual Stresses and Professor Soete became Vice-Chairman of the new Commission presided over by Dr Weck whom he briefly succeeded in 1966. The new President consequently combined distinction as a scientist and engineer with a comprehensive experience

of the IIW, while his service on the Technical Committee gave him a greater insight into the problems affecting Commissions other than his own than any previous President. His assumption of the Presidency was however unfortunately overshadowed by the death, early in 1969, of his friend and compatriot, Paul Goldschmidt-Clermont, the Founder President. At its following meeting, the Governing Council decided to commemorate the contribution made by Mr Goldschmidt-Clermont by a triennial medal bearing his name to be awarded to the best film entered in a competition organised for this purpose.

In other respects, however, Professor Soete became President at an auspicious moment. The 1969 Assembly was held in Kyoto, Japan, and was remarkably successful from every point of view. By comparison with an attendance of some 700 participants at the 1968 Assembly, enrolments amounted to 950, those from Western Europe being so numerous as to warrant the IIW chartering two planes for the journey to Japan. Since part of the IIW's income was derived from enrolment fees, it was obvious that revenue for 1969 would be greater than expected, thus enabling the Executive Council, for the first and last time, to table a proposal to reduce the budgeted national subscriptions in the following year. Indeed already in 1968 more than 50% of the IIW's income came from 'trading' activities – enrolment fees, publications, royalties, etc – and this trend was set to continue for several years. At the beginning of Professor Soete's term of office the IIW was demonstrably prosperous, well-supported and active, the publisher of two periodicals and with some 20 other works currently on sale. In the area of international co-operation, an increasing number of the Commissions were producing drafts to serve as a basis for ISO standards while the representative of the IIW on the Union of International Technical Associations, Professor Jaeger, had just been elected its President.

This did not, however, affect the discontinuance of the subventions which, as a member of the Union, the IIW received up to 1966 in respect of its work on terminology and documentation. A change of policy within UNESCO was the reason for the suspension of these payments which affected adversely the publishers of the IIW's *Multilingual Collection of Terms* (MCT) and *Bibliographical Bulletin*. In 1969, the Swiss member of the IIW which had published the MCT since 1953 gave notice of its decision on financial grounds to terminate the publishing contract. At the 1970 Assembly, held in Lausanne, the Governing Council adopted an alternative scheme under which the countries whose languages appeared in each section

of the MCT would guarantee its publication through the compulsory purchase of a stipulated number of copies; this scheme was acceptable to the publisher and a new contract was accordingly signed.

The *Bibliographical Bulletin* also suffered from the cessation of UNESCO subventions, but it was primarily developments in information technology which led Commission VII at Lausanne to propose the setting up of an IIW Documentation Centre adapted to the use of computers and to invite the co-operation of member countries in this undertaking.

At the same time it was agreed that *Welding in the World*, which had hitherto been published quarterly, should appear every two months, starting in 1971, the material necessary to fill two more issues per year being the annual reports of the Chairmen of Commissions.

Another publishing innovation was approved at the 1970 Assembly when a film made by Study Group 212 was shown at a Colloquium on arc physics organised by the Group and afterwards put on sale.

In respect of attendance, the Lausanne Assembly was comparable with that of Kyoto, while further Asian interest in the Institute was demonstrated by a successful application for membership from India.

Dr U Guerrero was awarded the Edström medal at Lausanne and the Governing Council conferred the same honour on the previous Secretary-General, Mr G Parsloe, at the 1971 Assembly in Stockholm. On that occasion another medal was awarded for the first time – namely the Goldschmidt-Clermont medal to the winner of the eponymous triennial film competition held during 1970/71.



Prof W Soete, President of the IIW, in conversation with HRH Prince Bertil at the 1971 Stockholm Assembly.

The attendance at the Stockholm Assembly was nearly 900 and the Treasurer was able to report that the Institute's reserves stood at more than £15 000, or the equivalent of one year's expenditure, while the proportion of the total income derived from the subscriptions of member countries had been reduced to less than 44%.

The soundness of the IIW's financial position in 1971 was not reflected in that of the *Bibliographical Bulletin*. As in previous years, the French Welding Institute had to meet a deficit of the order of £8000, while the replies to the inquiry launched in 1970 showed that few member countries were interested in participating in a modern IIW documentation centre. Consequently, the French delegation decided to cease the publication of the *Bulletin* and Commission VII to restrict its bibliographical activities to work on an IIW thesaurus. This situation was greeted with consternation by the Governing Council which considered that it was an obligation for the IIW to ensure international co-operation in welding documentation. Accordingly the Executive Council was invited to set up a select committee under the chairmanship of the President to try to resolve this problem.

Among the members of this Committee was Professor H G Geerlings who had been appointed President-Elect at Stockholm. Professor Geerlings was another pioneer of the IIW and the first Chairman of the original Commission IX Weldability and after 1954 Vice-Chairman of the new Commission IX Behaviour of Metals Subjected to Welding, on which he continued to give effective service under a succession of Chairmen. Although he became a professor at Delft at the end of his career, Professor Geerlings had spent most of his working life as welding engineer with the Royal Dutch Petroleum Co. He was thus a man accustomed to taking decisions with far-reaching implications and to giving due emphasis to their financial and economic consequences. His experience in industry was reflected in his approach to the Presidency of the IIW and it is ironic that, through a combination of circumstances over which he had little or no control, a serious downturn in the IIW's financial position began at the close of his term of office.

No such worries were in the mind of the Governing Council in 1972 when in Toronto one of the most convinced and effective ambassadors of the IIW was succeeded as Treasurer by another. The first was Dr H Sossenheimer (Germany) who, shortly after the Annual Assembly in Essen in 1957, had been appointed Director of the German Welding Society (DVS), a position which he was to hold



The 25th Annual Assembly at Toronto in 1972.

for over 30 years with great distinction, as the growth in the importance and influence of the DVS testifies. During this period Dr Sossenheimer, as a leader of the German delegation, gave wholehearted support to co-operation with the IIW which he served with exemplary dedication in several capacities, one of them being as Treasurer in 1969-72. His successor, Dr I Oehler (USA), was an equally committed supporter of the IIW. An industrialist and a leading figure in the American Welding Society, Dr Oehler served for many years on Commission III and was appointed a delegate on the Governing Council in 1966. A convinced believer in international co-operation, to the extent of actively supporting during the cold war US-Soviet détente, Dr Oehler, like Dr Sossenheimer, served the IIW personally in various capacities, perhaps chiefly in presenting to his compatriots the IIW as an organisation deserving of their encouragement and active participation.

One of Dr Sossenheimer's last acts as Treasurer was to propose that the IIW's share of enrolment fees at Annual Assemblies should, after five years at £5 per person, be increased to £7 in 1973 when the Assembly marking the 25th anniversary of the IIW would be held in Düsseldorf.

With regard to documentation, the Presidential Committee, whose

formation had been proposed in Stockholm, reported that it was hoping to organise an exchange of abstracts on the basis of linguistic families with the initial participation of four delegations representing different groupings.

Ominous portents of future disagreements were evident in Toronto when the Executive Council proposed that the Governing Council should postpone until 1973 acceptance of an Israeli invitation for the 1975 Assembly, notwithstanding that no other invitations for that year had been received. This proposal was influenced by the presence on the Executive Council as a Vice-President of Professor Rykalin who was the principal antagonist of acceptance of the Israeli invitation. In the event, the Governing Council declined this prevarication and accepted the invitation from Israel.

In doing so, it underestimated the perseverance of Professor Rykalin which, at the 1973 Assembly in Düsseldorf, led to one of the few authentic dramas staged in the Governing Council. At its first meeting, Professor Rykalin questioned the advisability of holding an Assembly in Israel because of the uneasy political situation in the Middle East and said that it would be impossible for several delegations, among them that of the USSR, to attend. In reply Mr Yaron, for Israel, said that all delegations without exception would be welcome in his country and other speakers deplored the precedent which would be created if an invitation once accepted were subsequently declined for political reasons, given that no country could guarantee permanent exemption from violent incidents of one sort or another. Thereupon the Governing Council rejected a proposal that the matter should be re-discussed at the end of the Assembly and re-affirmed its acceptance of the Israeli invitation.

But that was not the end of the matter. Professor Rykalin made further representations to the Executive Council which, conscious of the need to respect minority rights, agreed to ask the Governing Council to settle the matter by secret ballot but without raising tension by further discussion. This proposal was approved and the result of the ballot was to confirm acceptance of the Israeli invitation by 16 votes to 9 with 3 abstentions.

Those present on that occasion will remember how, when the results of the vote were announced, Professor Rykalin shook hands with Mr Yaron and congratulated him on the outcome. But the incident illustrates, like that, already referred to, which took place at Delft seven years previously, what problems the IIW faced during the Cold War, in maintaining a spirit of co-operation among delegations

some of whose governments were mutually hostile, and how successful the Executive Council was in preventing the occurrence of occasions for confrontation.

A happier aspect to the 1973 Assembly was the celebration of the Silver Jubilee of the IIW. Four lectures were given by authors from the Far East (Professor Kobayashi), America (Dr Oehler), W Europe (Dr Wagner) and E Europe (Academician Paton). The delegations of the founder countries responded to a proposal of the Organising Committee to invite all those who had been present at the foundation of the IIW in 1948 to a commemorative luncheon which brought together a number of the pioneers of the Institute. As an exceptional measure, it was decided to award on this occasion four Edström medals to H de Leiris, outgoing Chairman of Commission XIII, Professor T Naka, Japanese Vice-President at the time of the Kyoto Assembly, F L Plummer, Past President and A Leroy, outgoing Scientific and Technical Secretary, whose term of office was to end in 1974 after 24 years.

It was inevitable that the impending departure of André Leroy should cause disquiet throughout the IIW. Almost since its foundation, he had been responsible, latterly with the assistance of the Technical Committee, for guiding and co-ordinating the work of the Commissions; their achievements had in turn ensured the continuing support for the Institute of the industrialised world and they had made a significant contribution, under his leadership, to the work of the ISO. The IIW was fortunate that, in his activities, he had been assisted by a colleague who was universally recognised as an appropriate successor. The Governing Council accordingly elected in 1973, as future Scientific and Technical Secretary, Mr Henry Granjon, Chairman of Commission IX. As a young man, Mr Granjon had attended the London Conference in 1947 and on the creation of Commission XIV Welding Instruction in 1951 he became its first Vice-Chairman, a position for which he was eminently qualified by reason of his functions as Director of Studies at the Welding High School in Paris. A metallurgist by training and a pupil of Professor Portevin, Mr Granjon also served on Commission IX Behaviour of Metals Subjected to Welding where his technical expertise and his gifts for leadership soon brought him into prominence, so that in 1967 he was a natural successor to Professor Rühl as Chairman of what was one of the largest and most active of the Commissions.

Another noteworthy event at the Düsseldorf Assembly was the breaking of the long-standing stalemate over the application of the

then German Democratic Republic which, together with Brazil, was elected to membership.

The end of 1973 was overshadowed by a severe international financial crisis caused by a sharp increase in the worldwide price of oil. Although this had no apparent direct effect on the IIW in 1974, it did underline the instability, already apparent for several years, of sterling as a currency. Consequently in 1974, when the Assembly was held in Budapest, the Governing Council decided that, with effect from 1975, subscriptions to the IIW should no longer be paid in sterling but in Swiss francs, in which currency the accounts would be kept. This did not however mean that the IIW's finances were unsound. On the contrary, total sales income from IIW publications in 1973 had amounted to some £34 000 and income from enrolment fees, royalties and investments represented 56% of total receipts.

There was thus no apparent cause for concern when Mr Granjon took office at the end of the 1974 Assembly and when the Governing Council elected as Dr Geerlings' successor as President in 1975, Professor Bengt Jakobsson of Sweden. Professor Jakobsson was a professor at the Chalmers Institute of Technology in Göteborg and had been leader of the Swedish delegation for several years. As such he had served as Vice-President at the time of the 1971 Assembly in Stockholm when his many gifts had so favourably impressed his colleagues as to mark him out as an ideal candidate for the Presidency – a judgement which was to be amply vindicated.

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## ADAPTING TO CHANGE, 1975–1982

AS predicted by Professor Rykalin, there was a severe fall in attendance at the 1975 Assembly held in Tel-Aviv. This was undoubtedly partly caused by the absence of the delegations from the entire bloc of socialist countries, the sole exception being Vice-President Skriniar of Czechoslovakia; but it is probable that participants from other countries were deterred by the combined factors of distance, regional instability and economic downturn following the oil crisis. However that may be, attendance was limited to some 360, by comparison with over 900 in Düsseldorf and Budapest. Absenteeism naturally had its effect upon the work of the Commissions, one indication being that the total number of resolutions adopted by them fell from 112 in 1974 to 66 in 1975.

With regard to the IIW's work on documentation, it was reported that the special Committee set up to see what action could be taken to compensate for the discontinuance of the *Bibliographical Bulletin* had been disbanded, the responsibility for overseeing the international exchange of abstracts which it had inaugurated having been referred back to Commission VII.

In 1971 the Australian delegation had originally proposed that the 1976 Assembly should be held in Australia. This invitation was confirmed in 1973, before the oil crisis and the emergence of problems in connection with the 1975 Assembly. It seems in retrospect, and no one could be held to blame, that the juxtaposition of Assemblies in Tel-Aviv and Sydney in successive years constituted a set-back for the IIW. This was all the more disappointing since both Assemblies were well-organised, enabled new contacts to be established and demonstrated the IIW's claim to play a part worldwide. The trouble was that, for different reasons, neither Assembly was well-attended and two poor attendances in succession inevitably had perturbing effects on the work of the Commissions.

It might have been expected that the small attendances would also have had serious financial consequences. In fact this was not so, for a



Prof B Jakobsson making his speech at the opening of the 1976 Assembly.

variety of reasons in 1975, and in 1976 because, among other factors, subscription rates were increased.

The 1976 Assembly was organised simultaneously with an Australian Metals Technology Conference to bring Australian experts into contact with the IIW. However, the two events were separate and attendance at the Annual Assembly was of the same order as in 1975, about 365. However, it was more representative, with at least some participation from the great majority of member countries, and it was thus in order for the Governing Council to take some far-reaching decisions.

One of these was to endorse the creation by the Executive Council of further Study Groups on the pattern of Study Group 212 to study specialised subjects of interest to only relatively few countries. This decision of principle was immediately applied and the establishment of a select committee and study group, devoted respectively to standardisation and documentation, was authorised and Commission VII disbanded. At the same time the Governing Council was informed that the Executive Council had set up a Working Group to study a proposal from the UK that the IIW should establish its own documentation

centre, the nucleus being the Welding Institute's information service which would be transferred to the IIW. However, the report of the Working Group intimated that it had subsequently been announced that France and Germany were planning, with government aid, to create a joint documentation centre with which the IIW was invited to associate itself. The Working Group in principle favoured this second solution which would not entail any major commitment by the Institute.

A further decision taken at Sydney was to restrict the terms of reference of Commission IV to electron beam, laser and plasma welding, the other processes nominally covered by this Commission to be the subject of study groups in the event of sufficient interest being forthcoming.

The Metallurgical Research Center of Iran was elected to membership at the 1976 Assembly but, because of the revolution in that country, this membership was not destined to be of long duration.

The Australian delegation did not agree with the practice by which the Organising Committee of an Assembly was required to ask accompanying persons to pay, with the Assembly enrolment fee, a contribution for the IIW and so this contribution was not collected at Sydney; this action was difficult to reverse and it was agreed that in future the enrolment fee for accompanying persons should be fixed at 50% of that of participants, the fees for 1977 being SF100 and SF50, making SF150 for a couple instead of SF160 (SF 80 + 80) previously.

Because of increased attendance, the income from enrolment fees increased at the 1977 Assembly when the Governing Council agreed also to increase the basic subscriptions of member countries to compensate for the decline in income derived from steel consumption which had been adversely affected by the recession.

The 1977 Assembly, held at Lyngly outside Copenhagen, was marked by the relatively rare event of an amendment to the IIW's constitution in order to make the qualifications for membership less rigid and thus facilitate the membership of developing countries where, experience had shown, there did not normally exist an organisation eligible for membership if the 1948 text were strictly interpreted.

Another example in 1977 of the increasingly flexible attitude of the IIW was the creation of two new Select Committees, dealing respectively with aluminium and underwater welding, their functions being essentially to stimulate work on their subjects within the various Commissions and to draw conclusions from such work.



HRH The Princess Benedikte of Denmark opening the 1977 Assembly. On the left is B Koch, Chairman of the Danish Organising Committee.

Although no one was aware of it at the time, the 1977 Assembly was the last to be attended by two of the dominant figures in the first 30 years of the IIW's life. One was André Leroy, the former Scientific and Technical Secretary, who had retired from his post as Director of the French Institut de Soudure and who was to die the following year. The other was his British counterpart, Richard Weck, who in the same year retired from his position as Director of The Welding Institute. Dr Weck had been present at the foundation of the IIW, had served for nearly 20 years as the first Chairman of Commission X and was a long-standing and highly critical member of the Governing Council and the Technical Committee. Although little love was lost between the two men, they each represented in their different ways the pioneering enthusiasm of the founding generation of IIW of which they were almost the last active survivors.

The Assembly in Denmark coincided with the penultimate year of the Presidency of Professor Jakobsson and thus with the election of his successor, Dr U Girardi. Dr Girardi was Secretary-General of the Italian Istituto della Saldatura and had for many years been a close collaborator of the former President, Dr U Guerrera. As such he had extensive experience of the work of the Commissions, notably II and XV, as well as of work within the ISO. Diligence and intelligence were two of the prerequisites for working with Dr Guerrera, so

it was inevitable that Dr Girardi possessed both these qualities, together with a wide general culture and a lack of preconceptions which ensured a pragmatic approach to the problems which he had to face in office.

The first of these was the determination of the Treasurer, Dr I Oehler, before the imminent expiry of his term of office, to increase in 1979 the annual remuneration paid in respect of the two secretaries from SF160 000 to SF225 000 which he regarded as a fairer figure. This was accepted by the Executive Council which recommended that the basic annual subscription of the principal member society in each country should be increased from SF700 to SF1500, resulting in increased subscription income of SF40 000. It was also proposed to abandon altogether the practice of allocating to the IIW part of the Assembly enrolment fee paid by accompanying persons, but to increase the amount paid by participants. These changes were duly approved by the Governing Council with the result that the IIW became increasingly financially dependent on attracting delegates and experts to its annual assemblies.

The amendment of the Constitution the previous year enabled the Governing Council in Dublin in 1978 to elect to membership the Welding School of the Petroleum Training Institute of Nigeria – a body whose membership proved to be brief owing to its inability to contribute to the IIW.

Invitations were received and accepted in Dublin to hold the 1981 and 1982 Assemblies in what was then the USSR and India respectively but in the event neither invitation was to come to fruition. Another decision taken in Dublin and which was not to be later reversed was to award the Edström medal to the author.

A new problem which arose in 1978 was the future of the *Multilingual Collection of Terms*. On the one hand, the great majority of the member countries had refused to contribute, against an allocation of copies, to the financing of the impression of the latest section prepared by Commission VI on the welding of plastics. (As an exceptional arrangement, a trilingual edition (English, French, German) was printed in Slovenia under the personal supervision of the Chairman of the Commission, Professor Stular, and with the aid of a subvention from UNESCO.) On the other hand, the official publisher of the Collection since the first section appeared in 1953, the Association Suisse pour la Technique du Soudage, decided to terminate its contract in 1979. The tentative solution reached at the Bratislava Assembly in that year was that the existing stock should be held and

marketed by various member societies and that future sections should in principle be published in Slovenia under the supervision of Professor Stular.

These developments could hardly be seen as evidence of popular enthusiasm for the IIW's work on terminology, notwithstanding its essential contribution to the dissemination of welding knowledge. The difficulty perpetually confronting Commission VI is that the number of people to whom its work is indispensable, principally librarians and translators, is insufficient to justify publication on a normal commercial basis, thus making all the more remarkable the achievement of Professor Stular in ensuring the publication of succeeding sections.

In the related field of documentation, another setback was registered. The plans for a Franco-German documentation centre had been abandoned in 1977 and in 1979 the Study Group 'Thesaurus and Exchange of Abstracts' reported that for various reasons it was not practicable to establish an IIW documentation centre. The Group thus envisaged restricting itself to more modest objectives – the continued supervision of the exchange of abstracts scheme, the updating of the IIW's Thesaurus and the preparation of a General Bibliography of Welding. After 30 years, there can have been few present in Bratislava who recalled how in 1949 the launch of the *Bibliographical Bulletin* was greeted with optimism as the first concrete achievement of the IIW.

The disappointment caused by these developments was relieved by the award in Bratislava of the Edström medal to Mr Granjon, not only in recognition of his work over the last five years as Scientific and Technical Secretary but also of the substantial contribution which he made from 1948 to 1974.

So seriously does the IIW and its members take its industrial vocation that 21 years were to elapse between the holding of the 1959 Assembly at the seaside resort of Opatija and the 1980 Assembly at Estoril. Unfortunately the mood of the 1980 Assembly was not to match its cheerful location.

One disappointment was the announcement that the invitations from the USSR and India for the 1981 and 1982 Assemblies had been withdrawn because neither country was in a position to guarantee that the delegations of all member countries would receive identical treatment in Kiev and New Delhi. The IIW thus found itself for the first time uncertain whether it would even be possible to hold an Assembly in the following year. In the event, the Portuguese delega-

tion offered to prolong the existence of its Organising Committee to prepare the 1981 Assembly in Oporto and the then Yugoslav delegation subsequently agreed to organise the 1982 Assembly in Ljubljana.

As in 1961, a further and prolonged debate on fundamental issues arose out of financial worries. As we have seen, in recent years the remuneration of the Secretariats had been fixed at a more realistic level and the levy on the Assembly enrolment fees of accompanying persons had been discontinued. Thus a larger income was required from fewer sources of revenue. In the worldwide recession of the mid and late seventies, the income linked to the steel consumption of member countries actually decreased while the attendance at Annual Assemblies did not regain the levels achieved before the Assemblies of 1975 and 1976 in Tel-Aviv and Sydney and in 1977–1980 remained within the range 500–550. All these factors obliged the Treasurer, again Dr Sossenheimer, to present a budget for 1981 showing a substantial deficit. Not surprisingly, there were demands for a review of activities, including those of the Secretariats, for a reorganisation of the Public Sessions and Colloquia so that they should provide independent sources of income, and for greater emphasis on the role of developing countries. It was agreed that these and other comments which were invited should be reviewed by the Executive Council which would report in 1981.

A less contentious issue was the adoption of the rules for the Leroy Prize Competition (audio visual presentations for use in teaching) which was to take place every four years alternately with the Goldschmidt-Clermont film competition.

An Assembly which had been exceptionally difficult for the President ended with the announcement that his successor, who would take up office at the close of the following Assembly, was Mr J Skrinari, the Director of the Czechoslovak Welding Institute in Bratislava. Mr Skrinari's personal qualities had won him the confidence of all, while his commitment to the IIW was demonstrated by his leadership of an exceptionally active delegation which, under his guidance, had whole-heartedly co-operated in almost every activity of the IIW.

Dr Girardi's problems did not however vanish with the appointment of Mr Skrinari as President-Elect since he had to preside over the Executive Council's review and present its report to the Governing Council at the Oporto Annual Assembly which had been organised at such short notice by the Portuguese delegation and is so far the unique example of an Assembly held in the same country as the preceding one.

The Executive Council's initial review of the IIW's working methods was based mainly on the views expressed in Estoril but its report gave rise to so many comments as to necessitate a further study and the promise of a second report in 1982. The first report, adopted in 1981, dealt primarily with the need to reconcile the requirement for teamwork in the Commissions with the desire that the IIW should be a forum for the presentation of individual work to a large audience. The conclusion was that the Public Session and Colloquium should each year be on the same subject and constitute a two-day international conference, open to all, within the framework of the Annual Assembly. It was also suggested that a most valuable function of the Commissions was the preparation of state of the art reports and that the sale of *Welding in the World* might be increased if it were published by an international publishing house.

Another difficult issue which was tackled at the 1981 Assembly was the proposal that a Commission on Research should be established. This arose out of a meeting in Osaka of representatives of welding research centres who considered that a permanent forum for the exchange of information and the co-ordination of work would be desirable. This proposal was examined by a representative group at Oporto which concluded, with the approval of the Governing Council, that a provisional Commission (identified by the abandoned number VII) on welding research strategy and collaboration should be established under the Chairmanship of Professor Arata (Japan).

It fell to the lot of the new President, Mr Skrinari, to conduct the lengthy discussions of the Executive Council on the numerous comments received from the national delegations on the first report on the working methods of the IIW. These discussions resulted in a second report which was submitted to, and adopted by, the Governing Council in Ljubljana in 1982. This carried further the proposals contained in the first report with detailed plans for an international conference at the 1983 Assembly, and for the transfer of *Welding in the World* to a commercial publisher. It was also proposed that means should be found, for example poster sessions, to make more widely known the existence of individual contributions to the Commissions. In separate appendices, detailed arguments were set out for rejecting proposals that French should be dropped as an official language and that there should be a single secretariat. All these conclusions were unanimously approved by the Governing Council and the IIW was thus set on a slightly different course although the changes were primarily formalising trends already in evidence, notably the recent

emphasis on Public Sessions and Colloquia, for the latter of which the IIW itself preprinted the papers in 1981 and 1982.

The report of the Executive Council coincided with a proposal for an increase in subscriptions in 1983, the accounts for the year 1981 having shown a substantial deficit as a result of serious falls in income, while a number of unpaid subscriptions had to be written off. The accounts also showed two disconcerting trends: the proportion of income from subscriptions and from publications amounted to 59.5% and 11% respectively, as against 53.5% and 21.5% three years previously. The Governing Council pinned its faith to the introduction of international conferences and commercial publishing to reverse these trends.

A happier event associated with the 1982 Assembly was the award of the Edström medal to Mr C H Rosendahl on the occasion of his retirement. Mr Rosendahl had made important contributions over many years to Commissions II, IX and XII and was considered to be the epitome of the dedicated and industrious national delegate at his best.

## EIGHT

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 INTERNATIONAL CONFERENCES  
 AND REGIONAL DEVELOPMENT,  
 1983 - 1990

THE 1983 Assembly in Trondheim was the first at which full effect was given to the ideas resulting from the review of activities in 1980/81. It incorporated a two-day international conference on the subject of underwater welding with both invited lectures and submitted papers. Contrary to expectations, this did not lead to any significant increase in attendance at the Assembly, but the conference itself was successful with an enrolment of approximately 400.

The year 1983 saw a change in IIW publishing policy. The publication of *Welding in the World* was transferred to the international publishing house Pergamon Press which also undertook the publication of the Conference Proceedings and agreed to issue an important textbook on the physics of welding compiled by Study Group 212. Up to that time, apart from the IIW itself, only member societies or their agents had published IIW works, but none had been willing to risk the capital required to publish this textbook and so the IIW had to find an alternative.

The Institute's financial position continued to be precarious, partly because widespread falls in steel consumption led to automatic decreases in national subscriptions. As a result, the Treasurer had again to propose an increase in the rates of the corresponding levy for the year 1984.

Mr Skrinari having completed two of the three years of his term of office as President, the Governing Council elected Dr F Wallner to succeed him in 1984. Dr Wallner was the first President for many years to work directly in industry where he occupied a senior position with the Austrian steelmaker Voest Alpine. He had been over a long period a member of Commission IX, had recently served as a Vice-President and had had considerable experience of working in the ISO. Accustomed to represent his company at a high level in many

parts of the world, he brought to his office a profound knowledge of international industry and wide experience as a negotiator.

The change in orientation of the IIW's working methods which started at the Trondheim Assembly was confirmed in 1984 in Boston. An international congress on welding research, organised jointly by the US delegation and Provisional Commission VII Welding Research Strategy and Collaboration occupied two days before the start of the Assembly and attracted some 230 participants. Among the papers presented were surveys of the work of the Commissions of the IIW with special reference to that of Provisional Commission VII.

The two opening days of the Assembly proper were devoted to a further international conference on the welding of tubular structures, the proceedings of which were published by Pergamon Press, thus following the model of the conference on underwater welding the previous year.

Although financial considerations were one of the motives for the introduction of the international conferences, it was apparent at Boston that they did not provide a panacea, for another crisis was seen to be looming. There was a small deficit in 1983, the income from enrolment fees in 1984 was less than predicted and increasingly large sums of money were owing in respect of the subscriptions of some member countries. In the circumstances, the Governing Council agreed that the Executive Council should be authorised, if necessary, to call for a supplementary subscription in 1985 equivalent to 20% of the normal subscription, itself incorporating an increased charge to compensate for the worldwide decline in steel consumption. Concern was expressed that subscriptions were linked to a declining index and the Executive Council was asked to examine the possibility of using another factor or factors to evaluate subscriptions.

Financial worries did not however preclude more positive developments. The experience gained by the Provisional Commission VII led it to propose its conversion into a Study Group while an *ad hoc* group recommended the establishment of a Select Committee on Microjoining. Arising out of an initiative of an Indian Vice-President, Mr Arumugham, in 1981, it was reported that the Executive Council had formed a Working Group 'Liaisons with developing countries and non-member countries' and that, via the Union of International Technical Associations (UITA), contact had been established with UNIDO (United Nations Industrial Development Organisation), the intention being to assist this body with its programmes, in particular for the training of engineers and the exchange of information. These

contacts had been facilitated by the election of Mr Granjon as interim President of the UITA for the year 1983/84 and his membership of its Executive Council for a further two years.

These initiatives were to develop rapidly during 1984/85 when the IIW made another change of direction. Arising out of discussions in the Working Group 'Liaisons with developing countries and non-member countries', the Executive Council proposed the creation of a class of 'associate-member' to make possible the participation of bodies ineligible for full membership in non-member countries. Since such countries were mostly situated in S E Asia, Africa and S America, it was further proposed to set up regional structures which would enable neighbouring countries to collaborate and to have joint representation on IIW working units. Such regional structures would also facilitate the holding of periodic regional conferences, the first of which the Australian delegation proposed should be held in Australia in 1988. The Governing Council was also informed at the 1985 Assembly in Strasbourg that conversations with UNIDO had developed to a point where the possibility of its participation in the organisation of such a conference was envisaged. All these proposals were accepted in principle, thus enabling work to proceed on the necessary amendments to the Constitution and the organisation of the regional conference.

During the year the financial position improved sufficiently to render unnecessary the collection of the 20% supplement approved in 1984 while, for the evaluation of subscriptions, it was agreed that, for the next three years, each member country would pay the same percentage of the total income required as it had paid in 1985; it was hoped that before 1988 a revised assessment using factors other than steel consumption could be proposed.

Two other matters of far-reaching technical importance were discussed in Strasbourg. Firstly, it was reported that the ISO had adopted a resolution which would make possible the adoption as ISO standards of documents produced by international bodies with standardising activities and the IIW had applied to be accepted as such a body. Secondly, resolutions were passed after a joint meeting of Commissions V, X, XIII and XV announcing a collaborative programme for the preparation of a provisional standard on the application of the fitness for purpose concept to the significance of weld imperfections.

A technical innovation also distinguished the 1985 Assembly – a stand organised by the Study Group Scientific and Technical

Information and demonstrating the welding databases developed by members of the Group.

Although only a diminishing band can have remembered them, the Governing Council learned with regret at Strasbourg of the deaths of Professor Jaeger (President 1951–1954) and Mr Parsloe (Secretary-General 1948–1966); they were the last surviving members of the Provisional Committee which had drawn up the Constitution of the IIW nearly 40 years earlier and their deaths broke the last direct link with the foundation of the Institute.

The 1985 Assembly was also the occasion of the presentation of the Edström medal to Professor Kobayashi who had been for many years one of the leaders of the Japanese delegation and thus one of the promoters of its most important technical contribution to the IIW.

Professor Kobayashi had also been instrumental in arranging that the 1986 Assembly should take place in Tokyo where appropriately the Republic of Korea was elected to membership.

The principal business discussed by the Governing Council was the proposed revision of the Constitution to cover the changes agreed in principle in 1985 – namely the definition, qualifications and privileges of associate-membership and the creation of a regional structure. This revision, which represented an important addition to the terms of reference of the IIW, was adopted on the understanding that the text of the consequential changes in the Bye-laws would be communicated to the Governing Council at a later date.

In this connection there was an optimistic report on contacts with UNIDO which appeared likely to co-operate in matters of mutual interest (training, provision of experts, contacts with developing countries, etc) as well as in the organisation of the first Regional Congress which was to be held in Hobart in 1988. It was also indicated that exploratory discussions were taking place concerning the possibility of establishing certain regional Commissions in S America.

A further important proposal submitted to the Governing Council at Tokyo concerned approval in principle for the establishment of an IIW databank. This proposal originally emanated from the Publications Working Group, additional advice being provided by the Study Group Scientific and Technical Information. It was agreed that the proposal should be investigated in detail after which a final decision would be taken.

Another decision of principle taken by the Governing Council at the request of Commission I was to set up a Select Committee on

thermal spraying and surfacing, thus meeting the wishes of the Sub-Commission IC which had previously been responsible for these subjects.

Since Dr Wallner's term of office as President would expire in 1987, the Governing Council was required to elect his successor at Tokyo. The candidate proposed by the Executive Council was Mr R V Salkin whose career had, as it happened, certain similarities with that of Dr Wallner. He too was a metallurgist who had gained his experience in industry. He also had been a member of Commission IX over which he had successfully presided during the previous nine years. As a member of the Belgian delegation, his election conferred upon his country the unique distinction of providing three of the 14 Presidents elected up to that time.

The position of Chairman of Commission IX as a stepping stone to the Executive Council was further emphasised at Tokyo with the retirement of Mr Granjon from the post of Scientific and Technical Secretary which he had occupied since resigning the chairmanship of Commission IX in 1974. During his 12 years at the Secretariat, the IIW had encountered many problems, not least those associated with the oil crisis, worldwide inflation and recession. Mr Granjon's imagination and open-mindedness had enabled him to give an outstanding lead in ensuring that the IIW adapted itself as smoothly as possible to circumstances which often appeared to be changing for the worse. This leadership was not confined to trying to make the structure and programmes of the working units more responsive to the current environment; it also extended to the concept of a regional structure and all that such a concept implied. His departure was universally lamented, as was that of his wife who had served as French delegate on Commission VIII since its creation. The IIW was fortunate to be able to elect as successor to Mr Granjon his close colleague and assistant, Mr M Bramat, the present holder of the office of Scientific and Technical Secretary, who has brought to his position a wealth of experience of the IIW and the manifold personal qualities which justified his election.

One of the subjects which had been of particular interest to him had been the eventual creation, approved in principle at Tokyo, of an IIW databank. It was therefore appropriate that he had the task of presenting to the Governing Council at the following Assembly in Sofia in 1987 detailed proposals in this connection. These proposals, prepared in conjunction with the Study Group Scientific and Technical Information, were approved and included:

- (i) The production of an annual supplementary number of *Welding in the World* containing abstracts of the previous year's Commission documents;
- (ii) The creation of a database containing entries for some 400 Commission documents still considered to be of interest;
- (iii) The sale of software containing the database, together with annual supplements, to member societies and others.

Another item reported to the Governing Council at Sofia of primary concern to the Scientific and Technical Secretary was the decision of the International Organisation for Standardisation to recognise officially the IIW as a standardising body. This decision necessitated the adoption of new procedures within the IIW for drafting and approving documents intended for immediate recognition as draft standards.

In the interval between the 1987 and 1988 Assemblies, the regional policies approved in 1986 began to be put into practice. The first example took the form of intermediary meetings in Brazil of three Commissions – II Arc Welding, IX Behaviour of Metals Subjected to Welding, XII Flux and Gas Shielded Electrical Welding Processes. These meetings served to bring a number of South American experts into direct contact with the IIW for the first time and resulted in the formation of two regional Commissions (II and IX).

A further result was an application for Associate-Membership from Uruguay which had previously been in membership. This was duly approved by the Governing Council at the 1988 Assembly in Vienna, together with similar applications from Chile and Greece, thus demonstrating the wisdom of introducing this type of membership.

Additional evidence of the enthusiasm of the Brazilian delegation for a stronger IIW presence in South America was provided by its invitation to hold the second Regional Congress in Rio de Janeiro in 1992, an invitation which the Governing Council accepted four months before the first such Congress was held in Tasmania.

There was general welcome for the evidence of growth derived from the new regional policies but in 1988 the Governing Council had a more contentious issue to tackle – the method of assessment of national subscriptions which had been calculated according to an out-of-date formula for the past three years while efforts were made to find a permanent solution to this problem. A detailed report from the Treasurer indicated that no more satisfactory index of the importance of welding in each country could be found than the level of

national steel consumption; it was therefore proposed that the total steel consumption of IIW member countries should be calculated and that part of the subscription of each country should have the same relationship to the proposed total expenditure as that of its national steel consumption to the total consumption of member countries, the remainder of the subscription being a standard fixed levy. Although reservations were expressed, this method of assessment was adopted, it being recognized that no ideal solution would be found.

A popular innovation at the 1988 Assembly was the provision for member societies to take part in demonstrations of welding software for microcomputers and for delegates to conduct bibliographical searches on on-line databases, including that of the IIW which attracted much interest.

Such a demonstration would certainly have amazed the founders of the IIW which celebrated in 1988 the 40th anniversary of its creation. For the occasion, a special issue was produced of *Welding in the World* which contained much information on the development of the Institute, including an historical article by the former Scientific and Technical Secretary, Mr H Granjon, which he presented verbally at the Opening Ceremony of the Assembly. At the same time the Edström medal was awarded to Mr M Evrard and Dr A A Wells. Both had firmly supported IIW activities for many years and had been long-serving Chairmen of Commissions I and X respectively; each was the Director of one of the two institutions which had provided the IIW with offices and secretarial staff since the foundation of the Secretariats.

Some four months after the Assembly, the first Regional Congress was held in Hobart, Tasmania in November 1988. It was attended by 300 participants from 34 countries, eight of which were non-member developing countries in the Asian-Pacific region whose delegates were sponsored by either UNIDO or the Australian Government. The emphasis of the Congress was largely on education and training and the conclusions were that a regional Committee should be formed and a regional Commission XIV (and possibly others) set up.

These proposals were reported to the Governing Council when it met in Helsinki in September 1989; that concerning the creation of the regional Committee was duly ratified while Commission XIV agreed to set up a regional Commission to advise on training and education in welding in the Asian-Pacific area.

In 1989 both the President and the present writer were within a year of the conclusion of their terms of office and their successors

were elected by the Governing Council in Helsinki. The President-Elect was Dr N Eaton; he had been a prominent member of the Canadian delegation for 15 years and had served the IIW in various capacities, notably as Treasurer for two terms and as Vice-Chairman of the Study Group Welding Research Strategy and Collaboration. Unlike his predecessors at the General Secretariat, Mr J Hicks, the Secretary-General Elect, had had a distinguished career as an engineer in research and consultancy which he combined with a long experience of the IIW, primarily as British delegate on Commission XV, of which he was Vice-Chairman, but also latterly assisting in the work of the General Secretariat.

The Opening Ceremony of the Helsinki Assembly included the presentation of the Edström medal to Dr Paul Stular. Dr Stular became Chairman of Commission VI Terminology in 1976 and since then had not only directed the exacting work of his Commission with dedication and skill but had also, as we have seen, taken on the tasks, previously performed by others, of editor and publisher of the sections of the *Multilingual Collection of Terms* produced under his chairmanship.

Dr Stular's activities exemplified one innovation in respect of the preparation and publication of IIW work. Another was envisaged at the 1989 Assembly where the proposed publication of the work produced jointly by Commissions V, X, XIII and XV was considered and approved. This was the basis of an international standard, to be issued for comment, entitled 'Assessment of the fitness for purpose of welded structures'; it was agreed that it should be published by the IIW itself rather than under a contractual arrangement with a member society.

At the following Assembly in Montreal in 1990, it was reported that this document was at press and would be published later in the year, thus achieving an objective which had been under discussion since 1984 and had since then been judged of exceptional importance for industry and thus for the future support of the IIW.

Altogether, the matters coming before the Governing Council at Montreal emphasized the Institute's concern to adapt itself to the changing circumstances of the coming years. One change already taking place was the political evolution in Eastern Europe which enabled Rumania, which had been an active member 30 years previously, to resume its membership after a break of several years; there was naturally a correspondingly warm welcome for the Romanian delegate present in Montreal.

A further indication of the validity of recent changes in policy was

the decision of the New Zealand delegation to invite the IIW to hold its third Regional Congress in that country in 1996, thus confirming the establishment of a four-yearly cycle for these Congresses, of which the second was to be held in Brazil in 1992.

At a more fundamental level, the Governing Council had given consideration the previous year to ways and means of encouraging young people to interest themselves in the work of the Institute. Two separate proposals with this aim were adopted in Montreal. The first concerned the amendment of the Bye-Laws to facilitate the attendance of students at Annual Assemblies in general and at meetings of the working units in particular. The second contained the draft rules for a competition among student authors of papers devoted to research into welding technology or a related subject. This competition was named the Granjon Medal Competition to record and honour the name of the previous Scientific and Technical Secretary who had devoted so much of his career to the teaching of welding and the furtherance of the IIW.

Thus, at the end of the Montreal Assembly, the IIW, with a new President and Secretary-General, faced a new decade with a grateful thought for a past contributor but with eyes firmly fixed on future opportunities to serve welding technologists and their industries in member countries and beyond.

## NINE

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### PUBLICATIONS AND STANDARDIZATION

ONE of the most vexed problems which the IIW has had to confront throughout the whole course of its existence is that of making its work known.

In fact, the problem is not one but several, embracing as it does working capital or the lack of it, international marketing, language and translation and the disparate nature of the material to be published. Some examples of these different types of material and the various means adopted by the IIW to make its work available to the welding public are illustrated in the following pages.

#### DOCUMENTS

The largest category of material produced by the IIW consists of documents prepared by the Commissions or their Chairmen. These fall into three categories.

#### *Annual reports of Chairmen of Commissions*

As we have seen, great emphasis was initially placed on the verbal presentation of these reports but by 1952 this ineffectual practice had been dropped; instead, each Chairman was required to submit to the Secretariats, after each Assembly, a detailed report on the work of his Commission. These reports were then edited and translated and initially issued to the member societies for publication in their journals. Later, they were regularly published in *Welding in the World* but, because of pressure on space, this practice had to be discontinued and eventually the obligation on Chairmen to prepare an annual report for publication was dropped.

*Co-operative documents of the Commissions*

By 1952 a number of the Commissions had recommended the publication of documents resulting from their co-operative activities, thus necessitating a mechanism for ensuring the publication in a satisfactory form of appropriately authorised documents. The upshot was a fairly strict procedure for the approval of such documents and for their subsequent editing and translation before the dispatch of the texts to the member societies for publication in their journals. The same procedure was followed after the foundation of *Welding in the World*; its first priority was to publish documents of this type, the member societies being also authorised to reproduce them in their journals.

*Authors' documents recommended for publication by the Commissions*

From the earliest years of the IIW, the Commissions have recommended for publication individual contributions submitted to them for discussion. After the rules concerning publication were more precisely defined in 1958 the authors of such documents were required to surrender their copyright to the IIW which then informed member societies each year of the documents in this category available for publication by them.

The first two categories of document mentioned above have over the years constituted perhaps the principal means of making known the work of the Commissions – in theory via the journals of the member societies as well as that of the Institute. However, it has to be admitted that, with a few outstanding exceptions, the former have been unable to devote much space to IIW material; this has meant that, throughout its existence, the Institute has been relatively little known by the mass of people responsible for welding in the member countries.

## BIBLIOGRAPHICAL WORK

The IIW had no sooner come into existence than it accepted responsibility for a periodical publication. This was the quarterly *Bibliographical Bulletin for Welding and Allied Processes* which had previously been published by the French welding organisations. By its nature, it

was a particularly suitable subject for international co-operation and the IIW welcomed it as a symbol of potential achievement.

In the present state of information science, it is difficult to realise that such a bulletin was considered to be a valuable tool less than 40 years ago and surprising that it survived until 1971, by which time the use of computers had made it obsolete.

Originally published in French, when responsibility for the management of the *Bulletin* was transferred to Commission IV in 1949, it was decided to issue it in English and French. Each issue contained about 500 abstracts which could be cut out and card-indexed. In principle, each member country contributed the abstracts of its own publications, these abstracts being prepared and classified in accordance with strict rules. In principle, also, the national delegations carried out propaganda for the *Bulletin* in their own countries.

It has to be admitted that the majority of the member countries never gave their whole-hearted support to the *Bulletin*, no doubt because in most of them there was insufficient interest in the welding literature published in other countries. At any rate the Annual Reports through the 1950s and 1960s are filled with lamentations over the unsatisfactory degree of collaboration received, the failure to achieve any growth in subscriptions (about 650), the uncertainty of the subvention from Unesco via the Union of International Technical Associations (ranging from US \$2500 to US \$1100), and the size of the deficit which was borne by the French welding organisations and tended to be of the order of £2000 a year. Finally, the subvention ceased in 1965, subscriptions declined and the deficit amounted to £4000 in 1966. Nevertheless, the *Bulletin* was maintained for several years more and finally discontinued in 1971 by which time the concept of documentation which it represented was completely obsolete.

The IIW's subsequent endeavours in this area, culminating in the foundation of a databank, are described in the chronological survey of the Institute's activities.

## BOOKS

The Terminology Commission had been set up in 1948 with the express mandate to compile a multilingual dictionary so it is not surprising that the first book to be completed by a Commission of the IIW was the gas welding section of the *Multilingual Collection of Terms* in 1952. The Swiss delegation offered to publish it on behalf of the IIW, partly because of the enthusiasm of the late Dr O Matthey,

Swiss delegate on Commission VI, who undertook the considerable task of seeing this nine-language work (and several subsequent sections) through the press, partly because the Swiss believed that, as a trilingual country, there would be a good home market for such a publication. In the event, and with the advantage of the Unesco subventions which continued until 1965, seven sections of the *Multilingual Collection of Terms* were published in Switzerland under contract with the IIW. It was not until 1979 that, by mutual agreement, publication was transferred to the Slovenian member society where it has remained under the supervision of Dr P Stular, the present Chairman of Commission VI.

This pattern of publication by member societies, which required no capital expenditure by the IIW but which in most cases contributed royalties to the Institute, was to become the norm for the publication of books compiled by the Commissions. Examples of such books are too numerous to mention individually, but it is of interest to note that several of them were produced in different editions and different languages by various member societies. However, one important exception to publication under this procedure was *The Physics of Welding* which was originally issued in English by the commercial publisher Pergamon Press and subsequently in a Japanese edition. Another recent exception was the draft standard on fitness for purpose which was issued by the IIW itself, taking advantage of modern desk-top publishing techniques which may make possible a greater diversity of procedures in the future.

#### RADIOGRAPHS

Another early publishing venture of the IIW was the issue by Commission V of the *Collection of Reference Radiographs of Welds*. This was first proposed in 1952 and came on the market in 1953, having been published under contract with the IIW by a consortium of organisations in Scandinavia and the Netherlands. The radiographs showed defects in welds classified in five degrees of severity. Although the IIW expressly disclaimed the Collection's status as a standard, it was widely regarded as such, and in consequence made a considerable range of industrial users aware of the IIW.

Two further *Collections* and a booklet were subsequently compiled, the object of all being to serve as a guide for the interpretation of radiographs and as a teaching aid in the training of radiographic inspectors.

#### PROCEEDINGS

As we have seen, from its inception the IIW has organised sessions for the presentation and discussion of papers. These have been of two kinds – public sessions on specific themes, organised as part of the programme of an Annual Assembly, and colloquia organised by a Commission or Commissions on a subject lying within their terms of reference. The papers presented at colloquia have normally formed part of the archives of the relevant Commissions and have not been published as such.

In the early days, the papers presented at public sessions were only available, if at all, as preprints. However, details of the six public sessions organised between 1951 and 1957 are recorded in *IIS-IIW 1948–1958*. The discussion which took place at the 1958 public session was published by the host delegation while the commercial publisher Elsevier issued in 1961 the entire proceedings of the 1959 session on welding in maintenance and repair. No regular pattern of publication was followed for subsequent public sessions but in general the papers were made available in book form either by the host delegation or by the IIW itself.

Since the introduction of the annual international conferences in 1983, the papers presented have been regularly published and marketed by Pergamon Press.

#### WELDING IN THE WORLD

From the moment when the Publications Committee was set up in 1956, the possibility of publishing an IIW journal was constantly under consideration. Initially, the idea was turned down, partly on grounds of expense and partly because a bilingual journal would be in competition with those of English and French speaking member societies. An alternative idea was to publish a bulletin of details of those working documents of the Commissions not recommended for publication, but this was also found to be impracticable and it was decided instead to include the abstracts of more of these documents in the *Bibliographical Bulletin* – a solution which was a forerunner of the current practice of publishing details of the working documents of the Commissions in *Welding in the World*.

The Governing Council's call in 1961, in the light of the unsatisfactory financial position, for a fundamental review of policy resulted, among other things, in the submission to the Council in 1962 of detailed proposals for the publication of an IIW quarterly journal

which was duly launched in 1963. In principle, each issue was to contain 48 pages of editorial text as well as advertisements. National delegations agreed to act as agents and to distribute the journal in their countries as well as to assist the advertising agent in obtaining advertisements. The discount and retail subscription rates were the equivalent of £2.50 and £3.75 respectively per year. The contents were mainly the most important documents recommended for publication by the Commissions.

By 1965 the number of subscribers had reached about 850, the number of pages per issue was about 60 instead of 48 and the journal was breaking even financially. The main disappointment was the almost complete lack of advertising except from the UK, the country of publication.

Five years later, the relative success of the IIW's publishing activities and the quantity of material available led to a decision to publish six issues a year instead of four and this was maintained until the end of the '80s when a supplementary number containing the references of IIW working documents was introduced as part of the databank programme.

In the meantime, the publication of the journal had been transferred to Pergamon Press, it being assumed that a worldwide international publisher would have marketing capabilities vastly superior to those of the IIW and its member societies. This assumption did not turn out to be well justified perhaps primarily because, in the present state of information technology, the prevailing climate is not propitious for specialist journals. In this, as in every other sphere, the IIW has to be ready to adapt itself to current circumstances as it has done with some measure of success over the past 45 years.

#### STANDARDIZATION

If one of the 'products' of the activity of the Commissions has been material for publication, another has been drafts for international standards.

As we have seen, one of the objectives which the IIW set itself in its constitution was to 'assist in the formulation of international standards in collaboration with the International Organization for Standardization'. To this end Commission VII Standardization was set up at the outset, not with the task of preparing draft standards but with that of maintaining liaison between the other Commissions of the IIW and the ISO, and in particular ISO/TC 44 (Welding). That

the first Chairman of both Commission VII and ISO/TC 44 was Mr A Leroy was a guarantee that liaison would be effective and so it has remained, Mr M Evrard occupying the corresponding positions at the time of writing. At different periods Commission VII and the subsequent Select Committee have also collaborated with other standardizing bodies, notably ISO/TC 11 (Unification of Boiler Codes) and the International Electro-Technical Commission on subjects of mutual concern.

Following an early agreement between IIW and ISO, ISO/TC 44 has been represented by an observer at meetings of Commission VII and the Select Committee on Standardization, while the latter have appointed IIW observers on relevant ISO Committees and Sub-Committees, thus ensuring a full understanding by both bodies of the motivation and activities of each of them.

Commission VII was originally responsible for creating the basis of collaboration between IIW and ISO and subsequently it and the Select Committee have been the channels of communication between the two bodies. The 'assistance in the formulation of international standards' has been provided by a number of the Commissions working in areas where industry requires the existence of international standards. The fact that, in 1988, some 35 current ISO standards were based on drafts prepared by the Commissions of the IIW provides a measure of the extent of this assistance. It is not surprising that, with such a record of collaboration over a long period of time, the ISO should have endorsed the IIW as a body equipped to prepare draft standards, thus indirectly recognizing the quality of the work of the Commissions whose activity is the main justification for the Institute's existence.

## APPENDIX I

### FOUNDER MEMBER SOCIETIES

AUSTRIA	Oesterreichische Gesellschaft für Schweisstechnik ✓ Schweisstechnische Zentralanstalt
BELGIUM	✓ Institut Belge de la Soudure
DENMARK	Dansk Svejseteknisk Landsforening
FRANCE	✓ Institut de Soudure ✓ Société des Ingénieurs Soudeurs
ITALY	✓ Istituto Italiano della Saldatura Registro Italiano Navale Direzione Generale Ferrovie dello Stato
NETHERLANDS	✓ Nederlandse Vereniging voor Lastetechniek
NORWAY	✓ Norsk Sveiseteknisk Forening
SOUTH AFRICA	✓ South African Institution of Welding
SPAIN	Instituto de la Soldadura
SWEDEN	✓ Svetskommissionen
SWITZERLAND	Société Suisse de l'Acétylène Schweizer Verband für die Materialprüfungen der Technik
UNITED KINGDOM	Institute of Welding ✓ British Welding Research Association British Electrical and Allied Manufacturers' Association Institute of Sheet Metal Engineering
UNITED STATES	✓ American Welding Society

## APPENDIX II

### THE WORKING UNITS AND THEIR CHAIRMEN, 1948-1990

<i>Commission I</i>	
1948 Gas welding and allied processes	1948 C G Keel (CH) 1966 G M A Blanc (CH) 1967 M Evrard (F)
1978 Joining, cutting and surfacing by thermal processes	"
1986 Brazing, soldering, thermal cutting and flame processes	1988 C Messenger (F)
<i>Commission II</i>	
1948 Arc welding	1948 H E Jaeger (NL) 1967 A Mudde (NL) 1977 F R Coe (UK)
<i>Commission III</i>	
1948 Resistance welding	1948 US Delegation 1952 R W Ayers (UK) 1955 H G Taylor (UK) 1968 E V Beatson (UK) 1974 G Landragin (F) 1977 N T Williams (UK)
<i>Commission IV</i>	
1948 Documentation	1948 A Leroy (F) 1950 L Blosset (F) 1962 A Brizard (F)
1967 Amalgamated with Commission VII	
1968 Special welding processes	1968 F Eichhorn (D)
1985 High energy density welding	1988 G Sayegh (F)
<i>Commission V</i>	
1948 Testing, measurement and control of welds	1948 P Goldshmidt (B) 1951 G-A Homès (B) 1963 H Carson (UK) 1983 R Sharpe (UK)

*Commission VI*

1948 Terminology	1948 F M L van Horenbeeck (B)
	1965 G Herpol (B)
	1976 P Stular (YU)

*Commission VII*

1948 Standardization	1948 A Leroy (F)
1967 Documentation and standardization	1968 E Bylin (S)
1976 Commission disbanded	
1981 Provisional Commission – Welding research strategy and collaboration	1981 Y Arata (J)

*Commission VIII*

1948 Health and safety	1948 S Forsman (S)
	1955 L André (S)
	1964 G Gerhardsson (S)
	1989 I Grothe (D)

*Commission IX*

1948 Weldability	1948 H G Geerlings (NL)
1954 Behaviour of metals subjected to welding	1954 E Houdremont (D)
	1959 K Rühl (D)
	1967 H Granjon (F)
	1974 J H van der Veen (NL)
	1977 R Salkin (B)
	1988 I Hrivnak (CZ)

*Commission X*

1948 Residual stresses	1948 R Weck (UK)
1950 Residual stresses and stress relieving	1950 R Weck (UK)
	1967 H Kihara (J)
1965 Residual stresses and stress relieving. Brittle fracture	1975 R W Nichols (UK)
	1979 A A Wells (UK)

*Commission XI*

1948 Stress relieving	1948 W Soete (B)
1950 Amalgamated with Commission X	

1954 Pressure vessels, boilers and pipelines	1954 W P Kerkhof (NL)
	1959 J J P Cattel (NL)
	1962 J A H Sluis (NL)
	1975 M J Bottema (NL)
	1982 G E Stahl (D)

*Commission XII*

1948 Brittle fractures	1950 F Jonassen (USA)
	1953 E Houdremont (D)
1954 Amalgamated with Commission IX	
1955 Special arc welding processes	1955 M Komers (D)
	1967 P L J Leder (UK)
1968 Flux and gas-shielded electrical welding processes	1972 A de Sancy (F)
	1980 A A Smith (UK)
	1986 P Drews (D)

*Commission XIII*

1949 Fatigue testing	1949 Professor Ros (CH)
1951 Sub-commission of Commission V	1951 R Weck (UK)
1952 Fatigue testing	1952 H de Leiris (F)
	1973 J D Harrison (UK)
	1988 S Maddox (UK)

*Commission XIV*

1950 Welding instruction	1950 A Portevin (F)
	1951 S P Andersen (N)
	1959 A Almar-Naess (N)
	1964 R McCauley (USA)
	1981 M Jacobi (D)

*Commission XV*

1951 Fundamentals of design and fabrication for welding	1951 U Guerrero (I)
	1968 A Amerikian (USA)
	1976 D Feder (D)
	1986 G Costa (I)

*Commission XVI*

1962 Welding of plastics

1962 G-A Homès (B)  
 1972 C H Voelker (D)  
 1973 J de Koning (NL)  
 1979 H Potente (D)

*Study Groups*

212

1962 Arc physics

1962 L F Defize (NL)  
 1965 J F Lancaster  
 (UK)

1978 Physics of welding

1976 Thesaurus and exchange of abstracts

1980 Scientific and technical information

1976 C Poisson (F)  
 1980 C Poisson (F)  
 1982 R Bryant (UK)

1984 Welding research strategy and  
 collaboration

1984 Y Arata (J)  
 1986 G Oylar (USA)  
 1989 R Dolby (UK)

*Select Committees*

1976 Standardization

1976 H Granjon (F)  
 1986 M Evrard (F)

1977 Aluminium and aluminium alloys

1977 H Granjon (F)  
 1985 M Bramat (F)

1977 Underwater welding

1977 H Granjon (F)  
 1984 H Hoffmeister  
 (D)

1984 Microjoining

1986 Surfacing and thermal spraying

1984 K Johnson (UK)  
 1986 M Malik (D)

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PUBLIC SESSIONS, COLLOQUIA,  
 INTERNATIONAL CONFERENCES AND  
 CONGRESSES

**Public Sessions**

- 1951 The welding of wrought and light alloys  
 Welding in bridges and structures  
 Recent developments in welding in Great Britain
- 1952 Welding in shipbuilding
- 1954 Welding in rail and road transport
- 1955 Welding in the construction of dams, sluice gates, penstocks, water and steam turbines and electrical equipment for power stations
- 1956 Productivity by welding
- 1957 Metallurgy of welding
- 1958 Welding in the chemical industry
- 1959 Welding and allied processes in maintenance and repair work
- 1962 High pressure pipelines and penstocks
- 1964 Welding of equipment for power plants
- 1968 Welding in the construction and maintenance of equipment for the chemical industry
- 1969 Use of high strength materials in welded construction
- 1970 Quality requirements in welded construction
- 1971 Welding in shipbuilding
- 1972 Acceptable levels of defects in welding of bridges and pressure vessels
- 1974 The welding of storage tanks for the oil and gas industries
- 1975 The influence of welding and welds on the corrosion behaviour of structures
- 1976 The design, materials selection, fabrication and welding of large structures
- 1978 Welding in the fabrication of process plant for the food and drink industry
- 1979 Welding processes and workshop automation
- 1980 Quality assurance in welded constructions
- 1981 Welding in small and medium enterprises
- 1982 Welding and allied processes, energy and economy

**International Conferences**

- 1983 Underwater welding
- 1984 Welding of tubular structures
- 1985 Automation and robotisation in welding and allied processes
- 1986 Electron and laser beam welding
- 1987 Stress relieving heat treatments of welded steel constructions
- 1988 Improved weldment quality with special reference to computer technology
- 1989 Welding under extreme conditions
- 1990 Advances in joining newer structural materials

**International Congresses**

- 1984 Welding research in the world and the challenges for the '80s
- 1990 Joining research

**Colloquia**

- 1960 Metal spraying (Commission I)  
Inspection and testing of resinous materials (plastics) (Commission V)  
Influence of residual stresses on stability of welded structures and structural members (Commission X)
- 1963 Brazing (Commission I)
- 1965 Thermal cutting (Commission I)
- 1966 Testing, measurement and control of welds in heavy steel sections (Commission V)
- 1967 Instruction in welding (Commission XIV)
- 1968 Welding by thermo-chemical or mechanical energy (Commission I)
- 1969 The properties and testing of weld metal in relation to structural failure from brittle fracture (Commission X)
- 1970 Physics of the welding arc (Study Group 212)
- 1971 Welding and weldability of quenched and tempered steel (Commission IX)
- 1972 Creep behaviour of welds in boilers, pressure vessels and piping (Commission XI)
- 1973 Present state of the applications of electron beam and friction welding (Commission IV)
- 1975 Acoustic emission (Commissions V, IX, X, XI)
- 1977 High temperature brazing (Commission I)  
Non-destructive determination of type, position, orientation and size of weld defects (Commission V)

- 1978 Application of numerical techniques in welding (Commission X)
- 1979 Practical applications of fracture mechanics to the prevention of failures of welded structures (Commissions IX and X)
- 1980 Welding and health (Commission VIII)
- 1981 Aluminium and aluminium alloys in welded construction (Select Committee Aluminium and aluminium alloys)
- 1982 Thermal cutting the flame processes (Commission I)
- 1990 Welding education and training (Commission XIV)

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*Commission VI*

1948	Terminology	1948	F M L van Horenbeeck (B)
		1965	G Herpol (B)
		1976	P Stular (YU)

*Commission VII*

1948	Standardization	1948	A Leroy (F)
1967	Documentation and standardization	1968	E Bylin (S)
1976	Commission disbanded		
1981	Provisional Commission – Welding research strategy and collaboration	1981	Y Arata (J)

*Commission VIII*

1948	Health and safety	1948	S Forsman (S)
		1955	L André (S)
		1964	G Gerhardsson (S)
		1989	I Grothe (D)

*Commission IX*

1948	Weldability	1948	H G Geerlings (NL)
1954	Behaviour of metals subjected to welding	1954	E Houdremont (D)
		1959	K Rühl (D)
		1967	H Granjon (F)
		1974	J H van der Veen (NL)
		1977	R Salkin (B)
		1988	I Hrivnak (CZ)

*Commission X*

1948	Residual stresses	1948	R Weck (UK)
1950	Residual stresses and stress relieving	1950	R Weck (UK)
		1967	H Kihara (J)
1965	Residual stresses and stress relieving. Brittle fracture	1975	R W Nichols (UK)
		1979	A A Wells (UK)

*Commission XI*

1943	Stress relieving	1948	W Soete (B)
1950	Amalgamated with Commission X		

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## THE WORKING UNITS AND THEIR CHAIRMEN, 1948–1990

*Commission I*

1948	Gas welding and allied processes	1948	C G Keel (CH)
		1966	G M A Blanc (CH)
		1967	M Evrard (F)
1978	Joining, cutting and surfacing by thermal processes		"
1986	Brazing, soldering, thermal cutting and flame processes	1988	C Messenger (F)

*Commission II*

1948	Arc welding	1948	H E Jaeger (NL)
		1967	A Mudde (NL)
		1977	F R Coe (UK)

*Commission III*

1948	Resistance welding	1948	US Delegation
		1952	R W Ayers (UK)
		1955	H G Taylor (UK)
		1968	E V Beatson (UK)
		1974	G Landragin (F)
		1977	N T Williams (UK)

*Commission IV*

1948	Documentation	1948	A Leroy (F)
		1950	L Blosset (F)
		1962	A Brizard (F)
1967	Amalgamated with Commission VII		
1968	Special welding processes	1968	F Eichhorn (D)
1985	High energy density welding	1988	G Sayegh (F)

*Commission V*

1948	Testing, measurement and control of welds	1948	P Goldshmidt (B)
		1951	G-A Homès (B)
		1963	H Carson (UK)
		1983	R Sharpe (UK)

Philip Boyd was educated at St Columba's College, Dublin and Keble College, Oxford where he gained an MA.

He was Assistant to the Secretary General of the IIW from 1948 to 1966 and Secretary General from 1966 to 1990. He was, additionally, Assistant Secretary of the Institute of Welding from 1950 to 1967 and subsequently Secretary for Professional Affairs, 1967-77 and Director, Professional Affairs, 1977-1988 at The Welding Institute.

## About the IIW

IIW is an association of the welding institutes and societies of 40 countries. It offers researchers and manufacturers the opportunity of learning from each other through attendance at meetings or correspondence with members of fifteen technical commissions covering materials and welding and joining, including non-metallics.

IIW has regional activities particularly in the field of education and training. These activities are at present in Latin America and the Asian Pacific Region and plans are in hand to develop a Southern African regional activity.

IIW holds consultative status with UNIDO, the United Nations Industrial Development Organisation, and is recognised by the International Organisation for Standardisation (ISO) as an international standardising body with the authority to prepare ISO standards. This gives members of the commissions the opportunity of drafting international standards.

Further information may be obtained from:

The Secretary General, International Institute of Welding,  
Abington Hall, Abington, Cambridge CB1 6AL, England

# JOINING NATIONS

A History of the International Institute of Welding  
1947-1990



P. D. BOYD

'Joining Nations' charts the background, foundation and evolution of the International Institute of Welding and looks at the people and events that have influenced its development since its creation in 1948.

There were initially 13 member countries who had as their objectives:

- to promote and encourage the development of welding and provide for the exchange of scientific and technical information relating to welding research and education;
- to assist in the formulation of international standards for welding in collaboration with the ISO;
- to organise periodical congresses.

These are still the IIW's objectives but its membership is now a great deal more representative of global industry than it was 45 years ago.

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