

Activities For The Glorious Past Twenty five Years

By Mr. A.K. Basu, *President - IIW*

The members of the erstwhile Indian Chapter of The Welding Institute, London took initiative to form The Indian Institute of Welding, which was incorporated on the 22nd April 1966 at Calcutta. Today, we are celebrating the grand finals of the year-long Silver Jubilee Functions of the Institute.

OBJECTIVES

The major objectives of this National Professional body, which is affiliated with The International Institute of Welding are :

- i) to promote the advancement of Science & Technology of Welding & its allied subjects by organising seminars, workshops, conferences, refresher courses etc. on these subjects at different places,
- ii) to provide technical guidance and consultations to the Industries and Educational Institutions etc.
- iii) to provide technical informations on Welding research & education,
- iv) to conduct Associate Membership Examinations equivalent to a Degree Examination to offer an educational programme and certifications for Human Resource Development and career opportunities besides, incentives for personnel's in profession
- v) to publish, issue and circulate technical journals, periodicals, booklets etc., on the subjects and to establish and maintain a library service for the Welding personnels,
- vi) to co-ordinate and liaise with other technical organisations.

ACTIVITIES

The Institute had set up the Technical Commissions and Study Groups on the lines of International Commissions to study collectively the scientific phenomenon associated with welding and allied, subjects, their more efficient industrial application and the means of communicating informations about them.

Some 20 groups of experts from the country are working in different commissions to stimulate and co-ordinate the technical informations received from the International Institute of Welding on the Welding processes, their application in terms of materials, consumables, design, inspection and their associated subjects such as health and safety, terminology and documentation.

About 5 to 6 technical papers are emanating from our technical commissions every year which are indexed for publication as an International document.

Members of the Institute are also associated with the Bureau of Indian Standard, New Delhi for the formations of National Standards on Welding Technology. A technical Data Bank on various aspects of Welding technology has been established at the Welding Research Institute at Tiruchirapalli, which is available to all of our members.

Members of the Indian Institute of Welding are also actively associated with the C.E.I. in formulating and forecasting National need for cutting and welding of various metals and stressing the line of actions for industries as well as Govt. Our members also ventilate various imbalances resulting hindrances in growth and performances in fabrication and welding industries.

The Indian Welding Journal, the official technical journal of the Institute is published quarterly. Articles of interest and of high standards are published in the journal, which is distributed free to all grades of members. Some of the branches also publish their monthly/bi-monthly news letters.

The Associate Membership Examination was started from January 1988 and are regularly held twice in a year - January & July at different Centres. The Ministry of Education, Govt. of India have been approached for its recognition. Communications has just been received that the Experts Committee of the Ministry is meeting at New Delhi on 23rd. April 1991 to hear our view on the subject.

The Institute organises National Welding Seminars every year at different places on invitations from one of the branches. One leading expert from the Welding Industry of the country is invited by the Institute to deliver the Memorial lecture during each National Welding Seminar.

The technical papers, presented during the National welding Seminars are evaluated by the experts for the following different awards :

A. Research Papers

- i) I. T. Mirchandani Memorial Award
- ii) H. D. Govindraj Memorial Award

B. Papers on Fabrication Technology :

K. C. P. Award

C. Papers on Development and Application of the Welding Process

MODI Award

D. Papers on Welding of Non-ferrous Metals & their Alloys

PANTHAKI Award

The Afro-Asian Conference on Welding and Metal Technology was arranged at the Vigyan Bhavan, New Delhi from 8th to 10th February 1978 which was attended by about 350 delegates from the country and abroad. Over, 50 technical papers were presented during the Conference. The International Welding Conference was organised by the Tiruchirapalli Branch jointly with the Welding Research Institute and Bharat Heavy Electricals Ltd., Tiruchirapalli at New Delhi during January 1987. It was a remarkable event as about 700 delegates including 110 from overseas had attended it. More than 100 technical papers were presented during the Conference. Welding Research Laboratory, Roorkee along with the Institute had organised another International Welding Conference at the University of Roorkee during October 1988, when 250 delegates had participated. 85 technical papers were presented. The Silver Jubilee Seminar was organised by the Bombay branch during November 1990 at Bombay which was attended by about 320 delegates from India and abroad. 55 technical papers were presented during the seminar.

BRANCHES

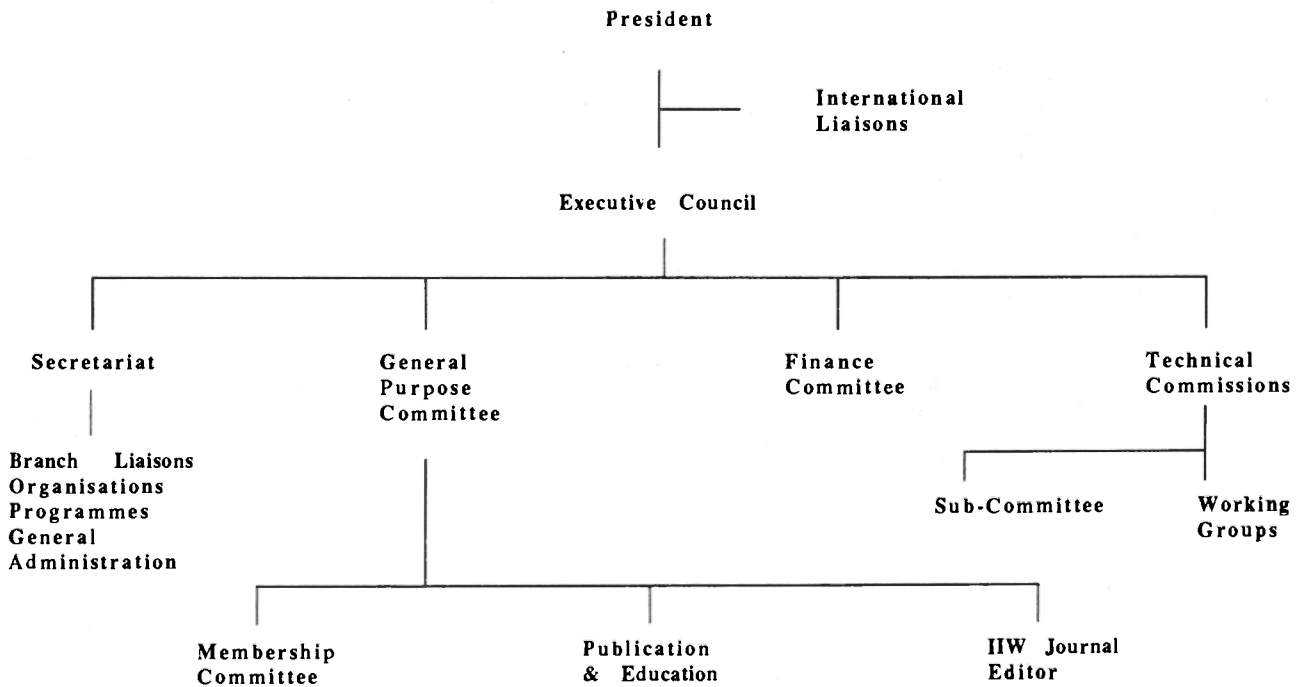
The Institute has been successful in promoting the organisations by forming nine branches at different places thus enabling experts from their respective areas to participate in the Institute activities. The branches organise regular Refresher Course and Workshops on any typical subject of welding technology for the benefit of the local Industries. Monthly technical lectures are also arranged by the branches. Overseas experts are also invited to deliver technical lectures. The year long training Programmes, arranged by the Tiruchirapalli Branch are circulated well in advance for the conveniences of the Industries and the Government organisations. The Branches also organise their Annual Welding Seminars for the benefit of their members and the local industries. Some of the themes of these Seminars, given below were very interesting and well attended:

1. Welding in the Power Industry
2. Welding in the Railways
3. Welding in the Oil & Gas Industry
4. Welding of Pressure Vessels & Pipelines
5. Quality Assurance in Welding of Pipelines
6. Recent developments in consumables for SAW-MIG-MAG Welding
7. Welding Technology Needs of Future
8. Economic in Welded Construction
9. Welding Automation & Custom-built systems
10. Welding and cladding of dissimilar materials.

ORGANISATION

The Institute is governed by an Executive Central Council headed by President, vice Presidents, Hony. Secretary, Hony. Treasurer and member representing various branches and grades of members. There are five categories of grade of members i.g. Industrial Corporate members, Fellow, Member, Associated Member and Associates. Thus gives opportunity to almost all whoever is connected with Welding and Fabrication world.

THE ORGANISATION OF IIW



The advantages of being a member of the Institute are few or many depending upon the attitude of the individual. For those committed to co-operation, there are many opportunities to contribute to work which will be valuable to Industry, to make the acquaintance of fellow experts to gain through personal contacts, technical documents and advanced knowledge of impending developments.

Inaugural Address of Secretary (Steel) at the Seminar Organised by the Indian Institute of Welding, Calcutta on 22nd and 23rd April, 1991.

Mr. Chairman,
Ladies and Gentlemen,

It gives me immense pleasure to be in your midst today and to inaugurate this Seminar on the occasion of the Silver Jubilee Celebration of the Indian Institute of Welding, Calcutta Branch. This Institute has been providing a very useful meeting point for inter-action among experts in the field of welding and other key areas of India's developing industrial economy. I appreciate its role, in particular, as a catalyst in the formulation and evolution of successful methodologies and technologies related to the construction and erection of Steel Plants.

I am glad to note that the Indian Institute of Welding (IIW), a national professional body for the advancement of welding technology in the country established in April, 1966 with the head office at Calcutta has since completed 25 years of its fruitful existence. It is indeed heartening to note that the Institute has been doing good work and has planned several need based Seminars highlighting the problem areas of the industry sector with direct benefit to the manufacturers and users. The present Seminar becomes all the more relevant as it is addressing itself to the problem areas of welding related to Steel Plants. Such problems subsist in relation not only to manufacture of plant and equipment like power and oxygen plants, LD convertor shops, rolling mills, blast furnaces and coke ovens, but also with welding of heavy duty cranes and heavy structural reclamation of rolls etc.

Welding as a means of fabrication and reclamation is essential for the industrial development of the country. Government of India, realising the importance of welding, included the welding as an important industry in its Third Five Year Plan.

Till very recently, steel industry all over the world was passing through a period of recession. This resulted in significant reduction in growth and output and the consumption remained more or less static in the developed countries. Over the last few years, however, there has been a gradual pick up in the production. Presently, the per-capita consumption of steel in India is approximately 18 Kg. Obviously, the scope for growth is immense but the quality of production needs improvement. In pursuance of these two basic objectives, the steel industry both in public as well as in private sectors, has launched massive modernisation and technological upgradation programmes, which have already started giving very encouraging results. Today, we are producing a wide range of special products in addition to the basic constructional grades of steel with improved weldability properties. In the light of today's Seminar, I shall dwell upon some of the key issues of welding and its multifarious applications in our Steel Plants.

The role of welding is considerably vast. Its application ranges from metal joining and cutting to heat treatment, salvaging of machinery and equipments, alloy development and advance materials research. Welding techniques relying on electron beam and laser beam are now being widely used for specific specialised jobs. Undoubtedly, they are cost intensive processes, nevertheless, they prove to be efficient and cost effective for their special applications. The Manual Metal Arc (MMA) welding process continues to be the most versatile one. In India, 85% of the total welding work is being carried out through this technique. In the developed nations, the share of this technique is 35 to 40% and the other welding jobs are done through automatic/semi automatic processes. This wide gap in our technology is due to economic reasons. However, I am confident that with increased industrialisation and emphasis on better technology, we would gradually adopt the automatic and semi-automatic processes for welding. It is important to mention here that the rapid growth in India's welding technology has to be matched with enhanced emphasis on the development of suitable welding consumables wherein the steel industries can play a significant role.

Pending graduation to automatic welding, the industry needs to address itself to some important aspects of widely practiced Manual Metal Arc welding. In this context, appropriate attention to Weld Joint preparation has to be given with a view to ensuring ease of assembly and avoidance of cracking. In this background, the carbon equivalence to gauge the cold cracking susceptibility of steel and value of the maximum hardness of the heat affected zone and hydrogen control alongwith the need to restrict total impurities to a bare minimum assume importance.

It is only by strict supervision that the quality of welding can be maintained at a uniformly high standard. Therefore, it is essential that the welding supervisors are thoroughly conversant with the various manufacturing processes specially welding procedures. The supervisors must be exposed to the practical welding aspects and problems before they assume their role as supervisors. A good supervisor translates a drawing into a finished product having complete integrity of all the welding joints. It is essential that before the fabrication work starts, the welding supervisors should choose the suitable welding procedure with the right matching electrodes. For every high technology job, properly trained welders should be chosen and they must be briefed accordingly so that the customers designs and needs can be fulfilled. For steel plants various fabrication and repair jobs have to be undertaken which require large scale welding. Therefore the contribution of the welders towards running our steel plants is significant. Welding being one of the most important areas of discipline in the construction of steel plants, is equally important in their running and maintenance. I personally feel that this Seminar would be useful in bringing out the basic issues and highlighting the problem areas of welding in steel plants.

The electroslag welding technique, which was indigenously developed during the 4 million tonnes expansion programme for Bhilai Steel Plant, has with success, fabricated the blast furnace shell. Modern steel mills utilise hard facing by welding to the maximum extent, to reclaim worn out equipment and components. The blast furnace wells, hoppers and steel mill rolls require welding skills because of their wear and tear. This saves us extra expenditure towards replacement. Though the hard facing method used for reclaiming equipment has been used with success, yet it suffers from certain limitations like high cost of welding, lack of versatility for use in all product shapes, thereby developing cracks in the deposits. I feel that welding engineers should look into this problem and find some acceptable solutions.

Reclamation work is done in respect of charging boxes, slag cups and ladles. All these jobs done efficiently during welding repair and maintenance for the steel plants may result in large savings.

Welding of oxygen lances by the TIG process has been successfully developed at the Bhilai Steel Plant.

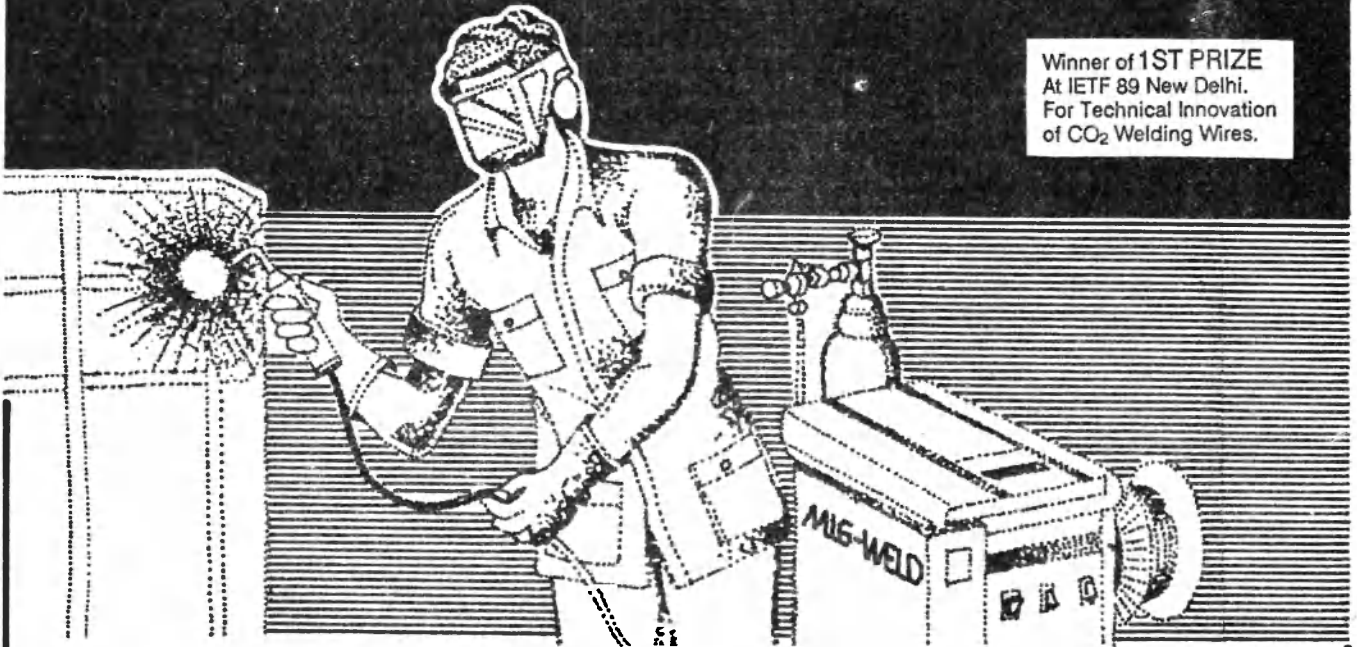
The Bokaro Steel Plant has fabricated Wagon Tipplers, Coke bunkers and the bell-less-top structure for the blast furnace, resulting in large savings of foreign exchange.

The above mentioned fabrication and repair jobs are just a few illustrative ones that I have mentioned. The involvement of the welding industry for in-house structural/repair shops cannot be over emphasised. Their contribution towards running the steel plants is very important and significant. As I mentioned earlier, they have helped in past, in saving valuable foreign exchange for the country. Whilst appreciating their contribution to the steel industry I would like to add that there is considerable scope for improvement, modification and innovations in the welding technology. I am sure that in this two day Seminar, many pertinent issues relating to welding technology in the steel industry, will be discussed and new ideas will be forthcoming from the participants resulting in dissemination of new ideas and initiation of effective steps for improvements and innovations which would go a long way in bringing about benefits to the Indian Industry in general and Steel and Ferro-Alloys Sector in particular.

I wish the Seminar complete success. □

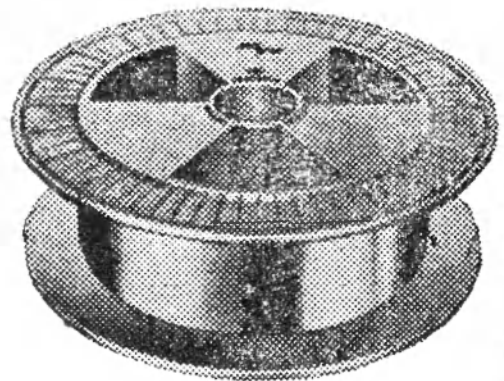
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