From the Editor's Desk

In the joining of materials, choice of methods, requirement of energy, time and material all demand the involvement of expert knowledge. In a batch process or in continuous large scale industrial welding process in particular, the output could either wholly justify or negate the assessed cost. Cutting corners, however is not an expert solution, particularly when cost-margin is a prickly issue. Once the joining is over by stages, Non-Destructive Testing (NDT) of the weld joint is carried out. It is not quality on the one hand and cost margin on the other, but rather both coincidentally support the "value base" of the product.

S. S. Ananthan in his paper "Non-Destructive Testing of welds" has in a finite way, brought out the functional parts of different types of NDT in use. It is of interest to many how sub surface flaws of a "critical size" are assessed. It is not only the size but also the shape of discontinuities that effect crack progression mechanics in material. In this regard we have re-printed in this issue a paper "Killer consequences of defective welds – a plan for prevention" (under International News) contributed by four renowned experts in the field, from TWI-Professional & WJS Members' Bulletin, March/April 2002 issue. The authors draw on examples from their experience and knowledge of weld failures, which had led to serious financial losses and even death and injury. They discuss the lessons to be learned and actions to be taken. Not surprisingly, they have concluded that "there must be a wider acceptance of the need for high quality education and training courses....." Some serious thought emerges in regard to the importance of NDT and the training of the personnel involved.

Pursuing the theme of welding and NDT for quality and safety in the paper "Welding codes for infrastructure industries", author R. S. Nagarkar has highlighted the basics of the welding technology in practice today. Welding Processes and Weldability are as defined in the care and the scopes elaborated for the users. Author U. S Kalghati in his paper "Application of welding to Infrastructure Industry (Ship building)" has referred to different aspects of changes that have taken place in shipbuilding in rescent times. An all-welded hull of a ship did not materialise till the 1940's. Since then dramatic developments both in the selection of material and joining technology have ushered in the high-tech age into shipbuilding. Welding codes are all about good welding practices for a good weld product is also cost effective.

Use of stainless steels (SS) in general is increasing globally, particularly in the fabrication industries, for their strength related fabricability and unique resistance to corrosion in a wide range of corrosion potentials. Of the stupendous variety of SS available, Duplex grades are usually earmarked for high temperature and corrosive environment including "tolerable limits of Cl^{-1}. The welded joint in a Duplex steel is also an area of weakness due to its inhomogeniety – complex and varied microstructure with related electro-chemical corrosion potentials varying with different microstructures in the region.

In the paper "Effect of heat input and shielding gas mixture on the microstructure of super duplex stainless steel welds" authors S. Balaji et al have shown effects of different welding beads on the microstructure of SDSS and hardness across the base metal and the weld zone highlighting hardness –microstructure relationship. It would be a quantum jump when the spectrum of other mechanical and electrochemical properties are also discussed.

Young engineers, Go right ahead ! Best wishes.

Dr. P. Majumdar
– Editor