GUEST EDITORIAL

ELECTROCHEMISTRY AND SOLAR ENERGY

Man is a 100 watt thermal engine. Twenty watts of this power go to work a unique system—the Brain. It is because of this system that he has been able to think up and devise and harness new energy sources. The first of these external sources he tamed was half a million years ago and that was fire. Today with the ever-increasing demand for energy he has come a long way from there.

The ninteen thirties and forties were the sensational days of nuclear fission and fusion. These held out the promise of unlimited sources of energy—a promise which till very recently was the hope of many. But the late sixties provoked some very crucial issues—those of nuclear stockpiling, nuclear hazards and pollution due to nuclear waste disposals. The debate over nuclear energy continues but the promise it held will remain unfulfilled, the search for new energy resources is on and this time with greater vigour.

A new fashion has now captured the stage. Solar energy is the topic of the day. It is made out to be a panacea for all ills of mankind. Whether it is refrigeration, airconditioners or heaters—solar energy is said to be the ultimate solution. Research activities have been geared up to yield faster results for harnessing the sun's energy. The fact that we use a very small fraction of this renewable energy source today, has made it a more attractive energy source.

Electrochemistry occupies a unique position in solar energy utilisation. The old art of electroplating and electropolishing are now very much in demand for the preparation of solar reflectors and collectors. With the stringent specifications which solar reflectors and collectors have to meet, the techniques of electroplating and electropolishing have evolved further to meet this challenge. Photovoltaic conversion of sunlight to electricity is another area wherein the electrochemist can look forward to intense and satisfying research. Solar cells have proved very promising so far but further work is required before they become economical enough for use by the turn of this century. Another important area where electrochemistry has a major role to play is in hydrogen energy systems where the sun's energy is used to produce hydrogen, later to be burnt as a fuel to provide energy. Development of inexpensive electrical storage techniques for use with photovoltaic solar cell system is another area where the electrochemist can play a major role.

All these are new areas of research-results are just coming in. Nuclear energy did not live upto its expectations. We hope solar energy will. They differ from other in one important respect, nuclear energy involves the release of energy from an extremely concentrated source; solar energy, on the other hand, involves the collection of energy from a diffused source. Let us watch the spectrum of solar energy research with guarded optimism with the hope that it will not suffer the same fate as nuclear energy.

—Prabhakar Sastri