

## Editor's Note

The first seven manuscripts of this issue represent a departure from the traditional format of this Journal. The manuscripts are a record of invited papers presented at the Solar Energy Symposium of the Pacific Conference on Chemistry and Spectroscopy. Because of the widespread belief that solid state chemistry can contribute to resolution of the energy-crisis problem, these papers are given here as a stimulus to further work in this area.

M. J. SIENKO

## Preface to the Symposium

It is somewhat paradoxical that Americans should be concerned about their supply of energy, since the United States is receiving energy from the sun at about 500 times the rate at which energy is used for all purposes. However, man has only just begun to direct his scientific and technological ingenuity to the task of converting his most abundant and reliable energy source, sunlight, into other convenient and adaptable forms of energy. When the sun is high in a clear sky, it radiates energy to the earth's surface at a rate of about one kilowatt per square meter. This is a substantial amount of energy: energy equivalent to a gallon of gasoline strikes an area the size of a tennis court about every 10 minutes, and an area of only about 80 square meters in the most cloudy parts of the 48 contiguous states receives over a period of one year enough energy to supply the needs of an average American family. In addition, the sun is a reliable energy source in the sense that a given place will receive about the same amount of solar energy every year. However, it is an unreliable resource in the sense that sunlight is not available at night or in bad weather, i.e., it is intermittent. Before solar energy can be

utilized on a large scale, there are three problems that must be solved. First, there is the problem of converting solar energy into other useful forms of energy. Second, the converted solar energy must be readily available whenever and wherever it is needed, which generates the problems of energy storage and transport. Finally, both of the above objectives must be achieved at costs that are competitive with those of other sources of energy, such as coal.

On 9 November 1976 a Symposium on Solar Energy, which was part of the 1976 Pacific Conference on Chemistry and Spectroscopy, was held at the Townehouse in Phoenix, Arizona. The purpose of the Symposium was to congregate some of the leading solar-energy experts to discuss their work and identify important areas for future development. That this goal was accomplished so successfully is due entirely to the efforts of the speakers. Seven invited and three contributed talks were presented, and the papers contained in this issue represent the written versions of these talks.

I would like to express my appreciation to the American Chemical Society for making the Symposium possible.

W. S. GLAUNSINGER  
*Symposium Chairman*