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SCIENCE

Food and Nutrition

When food is abundant, it is wasted or treated as a commodity. But when food is scarce, it is regarded as the staff of life and its distribution becomes a highly emotional issue. Food production worldwide is increasing faster than population, but distribution is uneven, reserves are limited, and bad weather conditions could lead to widespread famines. Prospects of poor crops universally are not great but variations in harvests good and bad will continue to place us on an emotional roller coaster. The United States and much of the rest of the world seems to be entering a phase in which supplies of food will be adequate. It is a good moment for stocktaking.

The initial group of articles in this issue provides perspective on the world food situation. The circumstances surrounding world production and distribution of food involve complex interactions of politics, economics, weather, and other factors. When we speak of the developing countries and lump together their statistics, we create a composite that hides more than it reveals. Some are wealthy, some are poor, some are food exporters, some are highly vulnerable to vagaries of weather. Two articles, one on India and the other on China, point up differences in food production and distribution in these two nations, whose combined population is about half that of the developing countries. The report on China describes how a nation possessing considerably less agricultural land than the United States feeds a population about four times as great. Key factors are irrigation and transplanting techniques that permit as many as 12 crops of vegetables to be grown annually on some plots of land.

An extremely important aspect of food is nutrition. This is especially true for vulnerable groups such as infants and young children. In one of a group of four articles on nutrition, we are reminded of the enduring values of human milk. In a companion article, we are reminded that bad weather and other adverse conditions have often caused famines. Prudence dictates that we determine how best to meet such contingencies in the future.

Ultimately, exponential growth of population must diminish and cease. Cessation of growth may come through calamities such as pestilence or nuclear war, it may come through starvation, or it may come through a gradual change in attitudes. If the latter road is to be followed time is required, for customs usually evolve slowly. A substantial number of articles are devoted to increasing food production and availability. Much could be accomplished by more effective use of what is already known. Crop yields in some countries are smaller than in corresponding regions where better practice prevails. Losses due to pests before and after harvest are substantial and some of these are avoidable. Large areas of the tropics are not being cropped because their soils are not now suitable. Better understanding of how to deal with such problems is on its way. One means of increasing yields as well as assuring crops is irrigation. A new system involving underground application of water has substantial potential.

Currently only about 1 percent of the solar energy falling on an area is fixed by photosynthesis. Basic biological research may lead to better efficiencies. This may come about through genetics. One path is the creation of new species of plants by transfer of DNA. In a time of shortages of energy, improvement of nitrogen fixation by plants is also desirable. Indeed, the effort to make more effective use of solar energy has relevance that goes beyond food, for ultimately the world must come to depend largely on renewable resources to fill its many needs.

—PHILIP H. ABELSON