

NEW BOOKS

Resources and the American Dream

SAMUEL H. ORDWAY, JR. 55 pages, 1953, Ronald Press Company, New York. \$2.00. Reviewed by PAUL A. HERBERT, Division of Conservation, Michigan State College, East Lansing, Mich.

This essay poses several questions including: (1) What are the probabilities that ample resources will be available in the future to support an ever higher level of living for more and more people? (2) What are the limits, if any, to economic and industrial growth and (3) What in reality are the spiritual values of our economic progress?

After reviewing available data the author answers the first question by concluding that "...there will be a much lower, not a higher level of eating for Americans in 1975 unless the scientists are able to deliver far more rapidly than they have in the past on their promises of substitutes for food and increased production per acre." He maintains "...we shall not then be self sustaining at the diet level of 15 years ago and yet we are striving to raise living standards not only at home but all over the world."

He points out further that this applies not only to food but also to raw materials needed in business and industry; as our population has increased the demand for minerals, power, fuel have increased much more rapidly. For example, from 1900 to 1950, during which time our population approximately doubled, mineral consumption has gone up eight times, power consumption 11, fuel 13, and paper consumption 14 times.

He concludes that "The American Dream" of constantly raising the standard of living, as measured in material possessions and in greater leisure time, cannot be fulfilled. He believes that eventually "basic resources will come into short supply, that raising costs will make their use in additional production unprofitable, industrial expansion will cease and we shall have reached the limit of growth." However, when this inevitable limit in growth is reached, the author affirms that our civilization need not necessarily become decayant.

Nevertheless, he warns, "If the end of expansion is unexpected and involuntary it would mean the reversal of a major facet of our fate. It would impose a forced revision of our ideology. It would mean mass discouragement and unemployment, and it could mean revolution and dictatorship." So our problem today is to be sure that we

limit consumption to continuing supply. He urges that it should be done on a voluntary basis with leadership by Congress, industry, and education.

The balanced civilization that the author visualizes requires a change in philosophy from that of material growth, "to change our present way of thought, abandon as our goal an ever higher level of living, renounce gadgetry and prepare ourselves and our children to create rather than to use up, to nurture our soil, our forests, our water supplies, our independence and our self dependence." He believes that all the natural resources may have to be rationed soon.

He warns us that, "Industrial action to reduce consumption in a highly competitive business world can only be brought about by a determined public opinion." He insists that it must be self-imposed for continuing prosperity and public welfare. He points out "that if free enterprise fails, the pattern of government restrictions, allocations, zoning of land use that has already begun to appear on the political horizon will take over at a much greater cost in freedom."

There is much food for thought in this essay by Samuel Ordway, who describes himself as a lawyer, not a scientist. Surely most readers will agree, particularly if the population continues to increase, that with the urge of the individual to obtain more and more satisfaction from his environment, we must eventually approach a limit to material progress. It is of interest that the author did not touch on the possibility of the stabilization of human population at a level so that the earth if properly managed may for all time provide ample natural resources. It is also difficult to follow the reasoning that the limit of material growth may be reached unexpectedly and abruptly. Obviously if that were the case, the immediate adjustment probably would lead to revolution. It is much more likely that shortages in the various resources will come one at a time and gradually. As these shortages become critical, leadership will educate the people to be satisfied with those material comforts that the resources can provide.

Silage Fermentation

A. J. G. BARNETT. x + 208 pages. Academic Press Inc., 125 East 23rd Street, New York 10, N. Y. 1954. Reviewed by R. S. ALLEN, Iowa State College, Ames, Iowa.

This book is devoted largely to a review of literature pertinent to the produc-

tion of grass silage and the fermentation reactions which occur during the process. The presentation is organized into nine chapters which allow an orderly discussion of the various areas of the subject.

The first chapter discusses the silage process in general and the importance of silage making as a means of conservation of forage nutrients. The significance of crop pretreatment, temperature control, and the addition of carbohydrates to the ensiled crop also are described.

The next chapter reviews reports on the use of additives such as acids, whey, urea, acidic gases, and inorganic salts in silage making. Advantages and disadvantages of certain of these additives are briefly described.

A part of the book is devoted to a description of various types of field, pilot-scale, and laboratory silos. The value of the use of laboratory apparatus in studies of fundamental processes which occur in silage fermentation is emphasized.

Another chapter discusses losses which occur in the ensilage process. These are conveniently divided into avoidable and unavoidable types; the former include primarily those losses due to poor ensilage technique, whereas the latter include plant respiration, biochemical changes due to microorganism metabolism, and seepage losses.

Acid and Base Formation

A considerable portion of the text is devoted to the formation of lactic acid, lower fatty acids, amino acids, and volatile bases in silage fermentation. Certain mechanisms are proposed by the author to account for the degradation of the more complex carbohydrates and proteins to produce the simple acids and bases.

Older and traditional techniques, as well as the more modern ones, for the estimation of the silage fermentation products are described. This section makes the book particularly valuable to research personnel who are interested in silage fermentation.

The last chapter deals with the nutritive value of silage and the significance of silage in feeding ruminants. Techniques employed in measuring the digestibility of silage are described.

The author has assembled in this book an excellent review on silage fermentation. Each chapter is concluded with a list of references which makes the text a handy reference source.