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DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

October 24, 1975

Dr. Joshua Lederberg
Professor of Genetics
Stanford University Medical Center
Stanford, California 94305

Dear Dr. Lederberg:

Your letter asking about composting as a method of attacking the problems of basic sanitation throughout the world but with special emphasis on the less developed countries is most exciting to me. Between 1933 and 1942 I directed a study program in China at two experimental stations, Cheeloo University Medical School at Tsinan, Shantung Province; and at Yenching University College of Science, Peiping. We developed the concept of Agricultural Sanitation and thoroughly studied the sanitary aspects of human waste disposal by composting. Indeed biochemically generated heat is a reliable, effective means of destroying pathogens in many combinations of farm, village and city carbonaceous wastes composted with quite high concentrations of human fecal material. The key agricultural problem is to manage the carbon/nitrogen ratio, oxygen supply and moisture content, largely by turning schedules or by other means of aeration to minimize the loss of nitrogen.

Unfortunately, AID is now doing nothing in this field. My own work has gone off in entirely different directions since I returned from China in 1945, but I can cite the China work. It was extensive and definitive enough to make a very solid case for now making a completely new approach to human fecal disposal with the objective of using the soil biochemical processes rather than the water medium ones to deal with this vital problem.

The principal source of information about the work we did 30 years ago is the book, Health and Agriculture in China, A Fundamental Approach to Some of the Problems of World Hunger, by James Cameron Scott, published by Faber and Faber, London, in 1952. You should be able to find it in west coast libraries though it may not be easy to come by. If you have trouble finding it, I will have my copy zeroxed for you. I know that they have it in Geneva because I mentioned it at a meeting there last summer and they found it almost at once in the library of one of the parasitologists. Mr. Scott was the Professor of Soil Science at Cheeloo University and one of the key members of the research team, who after being interned by the Japanese during World War II was able to get a

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complete set of our research data out and to write this book while working at Rothamstead Agricultural Experiment Station in England. Meantime I got into administrative work with the American supported colleges in China and in 1950 joined the U.S. Foreign AID program where I have worked ever since, first in the development of all the means of communication through mass and the audio-visual media and more recently in Population/Family Planning. I also managed to save a set of the original data by getting it hidden in Hong Kong in a Belgian nunnery and have it here. Most of the meat of the work is well presented in Scott's book, though there are some details that were not covered and I have an abundance of detailed data on heat generation, for example. Scott sites the more than 20 papers which were published before the war plowed into us and stopped the work.

As for the more modern work that is going on in the field of composting, in addition to what EPA is doing I would direct your attention to "Composting Science, Journal of Waste Recycling" published by Rodale Press Inc., 33 East Minor Street, Emmaus Pennsylvania 18049.

You live near to the man who probably knows the world literature and current action in the whole composting field best of any one. He is Clarence Golueke, Research Biologist, University of California, Sanitary Engineering Research Laboratory, Richmond Field Station, 1301 South 46th Street, Richmond, California 94804, telephone 415-235-6000. His association with this field goes back thirty years or so and he has long had a project to keep up with all the literature and publish abstracts and summaries in book form as well as in "Compost Science."

Finally, Dr. Lederberg, let me say that I would be most happy to be of any assistance to you that I can in developing a WHO supported and pushed R&D program in the less developed countries in this field. I am still fully engaged in work in the population field as an administrator and will continue to be for another year or so when I shall retire. In the meantime it would be the realization of a vision that I had many years ago if I should be able to assist you in further applying the concepts of Agricultural Sanitation to the human problems of food and sanitation.

Sincerely yours,



Gerald F. Winfield
Chief, Manpower and
Institutions Division
Office of Population

P.S. You may also find the enclosed reprints of interest as well as my 1948 book, China The Land and the People, William Sloane Associates.