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THE TECHNOLOGICAL INSTITUTE
DEPARTMENT OF MATERIALS SCIENCE

April 27, 1965

Professor J. Lederberg
Executive
Department of Genetics
School of Medicine
Stanford University Medical Center
Palo Alto, California

J.B. COHEN

Dear Dr. Lederberg:

Please excuse the delay in my reply to your letter about our computer methods with metallic alloys; I wanted to take the time to read the paper that you very kindly included.

May I be so bold as to make one suggestion. The field of image algebra or Patterson functions, as it is sometimes called by the experimental diffraction people, might prove very interesting with regard to the schemes you are trying to set up.

NPARL

Unfortunately, Mr. Gehlen has already committed himself to a job at Battelle Memorial Institute. We will be glad to provide you with details of our program. Unfortunately this will not appear in print until July 19th (in Physical Review), but we will be glad if someone from your group would like to visit and go over the actual details of what is going on. I do not at the present time have a preprint. Essentially what we are doing is this. A number of atoms is placed in the computer - up to 16,000 - and the computer chooses an A atom and a B atom at random and interchanges them, if this interchange brings one close to an experimentally measured probability. This probability is the average over all atoms of the occupation at a vector distance from the A atom and the information is available for a variety of vector distances. Thus the computer arranges the atoms to satisfy this average and we can look and see just how many different structures can arise with a given average and the actual structures that are involved.

Sincerely yours,

J B Cohen

JBC:cn

J. B. Cohen
Associate Professor