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Research Laboratory

NUCLEATION: Such diverse problems as the kinetics of phase transformations, the formation of cracks in solids or of bubbles in liquids, and the formation of reversed domains during demagnetization have been treated in terms of the concepts of nucleation and growth. By nucleation is meant the formation of a new and distinct region separated from its surroundings by a discrete boundary. Nucleation is involved in the formation of a small droplet of water from water vapor, the formation of a small region of body-centered cubic iron within a face-centered cubic matrix, and the formation of a region of ferromagnetic material having one-spin orientation in a matrix in which the orientation of the spins is different.

The problem of nucleation, then, is pertinent to some of the most interesting transformations occurring in nature, and by control of the rate of nucleation the transformations can be controlled. Recently, for example, it has become possible to modify the weather over large geographic regions by simply inducing the nucleation of ice from a cloud of water droplets. Recently also metals have been significantly supercooled by preventing the formation of nuclei over a wide range of temperatures.

American Society of Metals,
Cleveland,
October 15, 1949

K. H. KINGDON
Knolls Atomic Power Laboratory

ATOMIC-ENERGY TRAINING: About 60,000 people are now engaged in the new and potentially large field of atomic-energy work. At present these people are employed directly by the Atomic Energy Commission and its contractors. If the production of power from atomic energy becomes an economic reality, such production will doubtless be participated in by private industry and will demand additional technical people.

Most of the technical people to be used in the atomic-power effort in the future will need training in special fields of current engineering, and in physical, chemical, and metallurgical skills. Perhaps ten percent will need the new fission and neutron knowledge of modern nuclear physics. Some of this they will be able to get in universities, but security restrictions and the probably continued general unavailability of nuclear reactors and other expensive and restricted equipment and materials will mean that much of the specialized technical knowledge will have to be obtained on the job.

A considerably larger group than the ten percent mentioned, and consisting of chemists, chemical engineers, and health physicists, will need practical knowledge of how to handle radioactive materials in bulk. Here, again, this knowledge will probably have to be obtained on the job.

General Electric Review,
February, 1950.

A. D. MARSHALL
Assistant Secretary

COMPULSORY RETIREMENT: It seems to me that a sound pension plan should prepare a man for retirement in several ways, not just provide a depreciation reserve to take care of him when his usefulness is ended.

There must be financial preparation. His employer’s program can be expected to provide him with retirement income bearing some reasonable relationship to his earnings during his working life. He should be encouraged to systematically save to provide for the good things of life after retirement. But financial preparation, even if it is more than adequate judged by our present high standards, is not the only preparation necessary for retirement.

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Industrial Relations Conference,
Detroit, Mich.,
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