to be the most important proximate factor in the density-dependent regulation of bird populations. He presents evidence of the direct influence on clutch size of food availability at the time of laying. He also shows that the availability of food during incubation and nestling life affects reproduction success. That starvation outside of the season of reproduction is an important factor is largely inferred rather than confirmed by actual data, but Lack argues strongly for the hypothesis.

Of more than usual interest is his critical approach to findings consistent with his own thesis and his efforts to represent other points of view. A useful 31-page appendix, in three sections, considers theoretical controversies concerning animal populations. The first section gives a chapter-by-chapter summary of his 1954 book and considers four major criticisms of it. He discusses agreements and differences expressed by E. M. Nicholson regarding the application of the density-dependent mechanisms. The second section deals with criticism by H. G. Andrewartha and L. C. Birch of the importance of density-dependent factors in population dynamics. The third section considers in critical detail dispersion and social interaction in population regulation as proposed by V. C. Wynne-Edwards.

I find the book well composed and provocative. It brings together in one place pertinent parts of significant population studies and treats them critically. Although it deals chiefly with birds, the underlying principles must apply widely to other vertebrate and to invertebrate animals.

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Temperature and Order

The Quest for Absolute Zero. The Meaning of Low Temperature Physics. K. MENDELSSOHN. McGraw-Hill, New York, 1966. 256 pp., illus. Paper, $2.45.

Until about 1900, the objective of low-temperature research was simply to liquefy gases with lower and lower boiling points and thereby obtain ever decreasing temperatures. In 1908 when helium was finally liquefied and a temperature of 1 degree absolute had been reached, it seemed neither feasible nor profitable to seek still lower temperatures. However, with the development of the quantum theory and the third law of thermodynamics, the situation changed rapidly and the investigation of the last few fractions of a degree above absolute zero assumed importance. It was known that there exist systems, such as paramagnetic salts, which from a statistical point of view are in a state of complete disorder even at 1 degree absolute, and consequently are still at a very "high" temperature.

In order to learn how such systems ultimately achieved order, it became necessary to study them at lower temperatures. At the same time it was realized that by virtue of their disorder these systems themselves furnish a means of reaching temperatures much below 1 degree absolute. The exciting discoveries of superfluidity in helium and of superconductivity in metals had already provided great incentive for investigating lower regions. Today the study of matter near absolute zero is not only one of the most flourishing branches of pure science but has also given rise to a new technology. In the words of the late Sir Francis Simon, it is a region where "man has considerably surpassed Nature herself."

The Quest for Absolute Zero is a fascinating account of the development of low-temperature physics. Starting from the liquefaction of oxygen by Cailletet in 1877, the author narrates, with many interesting details, the entire story of the liquefaction of gases, ending with the liquefaction of helium by Kamerlingh Onnes. He then discusses the origin of the quantum theory and of the third law of thermodynamics, explaining clearly how these developments influenced the progress of low-temperature research. This is followed by an up-to-date account of the phenomenon of magnetic cooling (which made it possible to obtain temperatures within a few millionths of a degree), superconductivity, and superfluidity in helium. Experimental and theoretical aspects of all these phenomena are discussed with the help of a large number of explanatory diagrams and pictures.

Mendelssohn has succeeded in conveying to the reader the atmosphere of excitement and mystery which accompanied the unexpected and challenging new discoveries near absolute zero. The narrative is enlivened by zestful anecdotes about the rivalries and clashes between personalities who competed with each other in this field. The book is intended both to serve as an introduction for university students and to be of interest to the general reader. It fulfills its dual purpose well.

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Decision Makers in the U.S.S.R.

Managerial Power and Soviet Politics. JEREMY R. AZRAEL. Harvard University Press, Cambridge, Mass., 1966. 258 pp. $4.95.

Azrael lays the foundation for his analysis at the outset with a series of questions: "Is it true that the managers have acquired an increasingly powerful voice in the policy-making process? What truth is there in the view that the managers have served as representatives of the broader ranks of the technical intelligentsia or 'new class' within the political arena? Have the managers utilized their political influence to move the system in the direction anticipated by the liberal-democratic or the administrative-technocratic school?" (p. 5). To each of these provocative questions Azrael voices a cautious no. Important as the managerial elite in the Soviet Union is and has been, he does not find evidence that managers will be playing an innovating role in Soviet politics.

A careful and rewarding analysis of the Soviet managerial elite supports the reservations of the author on the imminence of a Soviet managerial revolution. He traces the Soviet manager through the various periods of development over the 50 years of Soviet power. In successive chapters he deals with the ideological background with which the Bolsheviks approached the managerial problem in the civil war; the "bourgeois specialists" of the New Economic Policy (1921–1927); the emergence of the "Red Directors" with the initiation of the Five-Year Plans in 1928; the managerial elite after the purges of 1937–38; and the new post-war, post-Stalin, developing managerial elite.

In his analysis of the political role of the manager, Azrael uses a definition of the manager similar to that employed by David Granick in *The Red Executive* and Joseph Berliner in *Factory and Manager in the U.S.S.R.*, that is, "those executives who have borne primary responsibility for the