nature of demography" through "Rates and ratios," measurement of birth and death rates, measurement of the growth of population and migration, and, finally, measurement of "Manpower and working activities." Illustrative materials are drawn from the population censuses and vital statistics of countries throughout the world.

Considering the purpose for which this volume was prepared, the author has done an excellent job. Only the chapter on "Manpower and working activities" is weak; it fails to get at the heart of the definition of working force and of the methodologies available for studying this subject. This topic is by far the most difficult in all population analyses and very probably cannot be treated in as simplified a fashion as some of the other topics.

Various other volumes have been written on demographic techniques, some by actuaries, some by United Nations personnel, and some by university people and other demographers. Without exception every other such volume which I have seen was written for readers who had some statistical or mathematical training and some familiarity with censuses and vital statistics. When writing for these "more learned" audiences, obviously, it is possible to include more sophisticated techniques and to examine all the procedures much more carefully than Barclay was able to do when writing for a relatively unsophisticated reader.

This book can probably be used as a text in high schools, and certainly in the first or second year of college. For more advanced American college students it will be useful as supplementary reading.

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Landmarks of Tomorrow. Peter F. Drucker. Harper, New York. 1959. xii + 270 pp. $4.50.

Anyone with a clear memory of the world of 25 years ago knows how fantastically different that world was from this one—different not only in the level of production and income but different also in national policies and international relations, in the problems that concern individuals and governments, in man's expectations and aspirations for the future. Yet the world of 25 years ago was the modern world of big business, high-speed transportation and communication, Freud, revolutionary scientific theory, new invention, and social change.

What then is this world? Drucker calls it the "post-modern" world and describes one of its fundamental features as a changed attitude toward change itself. In the past, change was sometimes thought of as fate, and sometimes as inevitable progress. Change now—and this is the starting point of Drucker's analysis—is deliberately planned. Man has learned enough of science and of management to be able to invent, on demand and to specification, new goods and new social, industrial, and political devices to suit his needs; witness polyethylene, voluntary medical insurance, the Marshall Plan. The basic method is what Drucker calls the organization of ignorance—the systematic review of what must be learned, developed, and constructed to make the desired invention work. This is not new; in this sense Mendeleev "invented" the periodic table, and the Federal Government "invented" TVA. What is new is that innovation is now the norm; man knows how to organize his ignorance; he is prepared to take the risks involved, and to expect enough successes to overbalance the failures. Change is no longer fate or inevitable progress but man's own doing, and thus man must accept responsibility for the future.

Against this background the author sweeps over a wide range of problems: the fate of Communism, the upward struggle of underdeveloped nations, the problems of government, the relations of various centers of power in an industrialized economy, the role of research, and, most emphatically, the need for a philosophy, a theory, a discipline—"a strict discipline of qualitative and irrevocable changes such as development, growth, or decay. We need rigorous methods for anticipation of such changes. We need a discipline that explains events and phenomena in terms of their direction and future state rather than in terms of cause—a calculus of potential, you might say, rather than one of probability. We need a philosophy of purpose, a logic of quality and ways to measure qualitative change."

Drucker does not try to develop this philosophy or discipline. All he does is to ask a lot of hard, thoughtful questions, here and there to show why yesterday's methods cannot possibly solve today's problems, and to organize a wide range of information to show how fundamental and pervasive the change has been. Many of the things he says have been said by others; indeed one of his points is "how obvious the unfamiliar new already is." Sometimes I read with disagreement, sometimes with shock, and sometimes with gratitude for a stimulating synthesis. The whole is provocative reading indeed, for the social scientist or social philosopher, for anyone responsible for management, and for anyone interested in education or the social aspects of science.

Any such book must be partly sermon. The theme of this sermon is responsibility: educated man must accept responsibility for determining the "Landmarks of Tomorrow"; the responsibility lies heaviest on those nations which have acquired the greatest experience and skill in innovation.

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Investment in Innovation. C. F. Carter and B. R. Williams. On behalf of the Science and Industry Committee [British Association for the Advancement of Science]. Oxford University Press, New York, 1958. ix + 167 pp. $2.40.

Beginning more than a decade ago, arguments raged in the United Kingdom about the inadequacy of the research and development effort, both in quantity and in effectiveness of organization, and the slowness of industry to invest in innovation. Many conflicting suggestions were advanced. The authors, who are British university economists, have spent most of the intervening period collecting concrete information on these and closely related subjects.

This book is only the filling in a sandwich. A predecessor, *Industry and Technical Progress* (1957), dealt in a particularly thorough manner with the supply of technical personnel. The follow-up study is to be called *Studies in Company Finance.*

After a rather prosaic discussion of the origins of innovation, and an increasingly interesting evaluation of the bases for deciding when and if investment should be made, the authors very sanely conclude that no generally applicable set of rules exist. Before reaching this position they introduce the questions of opportunity (as provided by research and invention), uncertainty (usually greatest in marketing aspects), motivation (profit is seldom the dominant conscious aim in the choice), institutional environment (40 percent of the decisions were forced by external circumstances), capital supply (only a small volume of useful industrial innovation seems to be inhibited by credit restrictions), and the influence of changes in interest rate (which are small as long as the rate moves in the 2 to 7 percent per annum range). Typical resolutions of these questions within individual firms are illustrated in six brief case studies.

The writing seems to be directed to civil servants, directors, managers, and educated policy makers. In a valuable appendix the relevant economic theory is reviewed, and it is demonstrated to colleagues in the economics profession that the present state of Keynesian theory is not very helpful, and that alternative formulations are not at all ex-