

Approvals and Disapprovals

The Confidence Gap. Business, Labor, and Government in the Public Mind. SEYMOUR MARTIN LIPSET and WILLIAM SCHNEIDER. Free Press (Macmillan), New York, and Collier Macmillan, London, 1983. xxii, 436 pp., illus. \$19.95. Studies of the Modern Corporation.

Lipset and Schneider document and analyze the decline in public confidence in American institutions that has been widely noted by academic and journalistic observers and by the leaders of those institutions. Their book is a study of "the basic attitudes" of the American public toward government, business, and labor, grounded in a secondary analysis of hundreds of surveys done for a variety of purposes by a variety of commercial and nonprofit organizations over several decades. It is an extensive study of thousands of measurements of opinion rather than an intensive analysis of a more narrowly focused set of surveys. Nonetheless, because of the range of questions asked and the authors' skills at synthesis, the product is a remarkably coherent picture.

A marked decline in confidence did occur, largely between the mid-1960's and mid-1970's, and, though the decline seems to have stopped, there have been only intermittent resurgences and no sustained reversal. The decline is associated with developments like inflation, unemployment, the Vietnam war, and the Watergate affair, and it is reflected in levels of confidence in business and labor as well as government.

In some settings, such as Weimar Germany or Fourth Republic France, such a decline in confidence would be a threat to the regime, reflecting vulnerability to a coup or a revolution. But a central theme of this book is a distinction the American public maintains between institutions and their incumbents. The confidence gap exists with respect to the leaders and incumbents of the political and economic institutions and not to the institutions themselves. Rather than being threatened by the decline in confidence, the institutions are seen as a major antidote to the dissatisfaction with leaders. The public is presented as thinking that we need new leaders rather than new institutions.

Indeed, one of the main reasons the institutions are approved is that they limit the damage that can be done by unsatisfactory leaders. There is a very Madisonian flavor to the public's views of institutions and human behavior as reported here. The public sees people as

Prices of Books

Average per-volume prices of books reviewed in *Science* 1978-1983. Data are for hard-cover books except where books were available only in paperback; books priced only in foreign currencies were excluded from the calculations. The average prices per page of the technical books in the natural sciences for the years covered were 7.8¢, 8.6¢, 9.0¢, 11.3¢, 11.1¢, and 11.1¢.

Category	Price (dollars)					
	1978	1979	1980	1981	1982	1983
All books	29.65	30.33	35.52	42.22	44.05	41.93
Technical books in natural sciences	36.04	39.18	42.61	52.76	51.70	51.18

motivated by varying mixes of selfishness and altruism. Self-interest is viewed ambivalently, for example as a source of both desirable and undesirable features of business behavior.

But American institutions are seen by the public as a way to control and channel self-interest, less as an invisible hand guiding selfishness into public good than as a system of countervailing power limiting the damage selfishness can do. Not only does the public approve of the separation of powers among national governmental institutions, it approves of similar checks and balances among business, labor, and government. In fact, the public even approves of divided party control of the presidency and Congress, showing no support for proponents of responsible party government as a quasi-parliamentary means of overcoming the separation of powers.

Competition is approved, whether among individuals and firms in the marketplace, among political parties or branches of the government, or among the sectors of business, labor, and government. The public seems to believe with Thomas Jefferson that "free government is founded in jealousy and not in confidence."

Leaders and students of each of the sectors can find rich information about public views of issues regarding each. Business is approved for such things as developing new products but not given credit for much concern with conditions for workers. Some anti-business sentiment is traced to overestimation of the level of profits, which is also analyzed. Labor unions are seen on the one hand as necessary and as serving the interests of their constituency, but on the other as being too powerful and having corrupt leaders. Government regulation of industry has become widely accepted, but its performance is seen as sufficiently mixed that some deregulation is also approved.

Support of free enterprise and competition accounts for most of the differences in contexts in which regulation is approved or disapproved. Attitudes toward divestiture, nationalization, and socialism are traced, and variations in attitudes toward business, labor, and government are related to political attitudes and socioeconomic status.

The book's effort to explain the causes and consequences of the decline in confidence is perhaps inevitably less successful than the description of American belief systems, which is the major achievement of Lipset and Schneider's work. There is little reason to doubt the authors' attribution of the decline to the policy failures and corruption of the 1960's and 1970's, but the discussion of the consequences does not yield clear answers and it suffers from the lack of theory in this area.

Still, there is considerable good sense in the concluding, speculative observations. The authors recognize that disappearance or resolution of policy failures will not necessarily return us to higher levels of confidence, but they find reasons for optimism about the continued legitimacy of American institutions. The distinction between institutions and their leaders insulates the former from the behavior of the latter, and there remains the possibility of changing the leaders without changing the institutions. Also, people continue to be optimistic about their own situations and to distinguish largely positive personal experiences with the economy and with government from more negative assessments of the overall performance of the system, a pattern of distinctions that has been identified in other studies as well.

The authors suggest that television news reporting may be partly responsible for the negative tone of the overall picture, but they acknowledge that much of the news of the last two decades was

bad enough that no honest reporting could have disguised it. The public does recognize that some problems are difficult to solve and perhaps beyond the capacity even of the best leaders. And, though the reservoir of confidence in institutions remains high, it is more vulnerable to major crisis than ever before in this century.

Any book containing the range of material to be found here would be worthy of some note. This volume, however, integrates the material with imagination and insight. It is a richly drawn general portrait of American attitudes, and it contains much information of practical interest to the leaders of American institutions as well as of general interest to the public.

WILLIAM R. KEECH

*Department of Political Science,
University of North Carolina,
Chapel Hill 27514*

Acidic Deposition in Forests

Effects of Accumulation of Air Pollutants in Forest Ecosystems. B. ULRICH and J. PANKRATH, Eds. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). xviii, 389 pp., illus. \$58.50. From a workshop, Göttingen, Germany, May 1982.

On the basis of available evidence concerning known and potential effects of air pollutants, ozone and heavy metals are judged to be the most important wide-area pollutants deposited in forests in the temperate latitudes. In nature, forest ecosystems may be exposed to more than one contaminant concurrently or sequentially. Interactive influences of multiple pollutants may be extremely important.

Acidic and acidifying materials resulting from a variety of human activities, particularly combustion of fossil fuels, are regional contaminants similar to ozone and heavy metals. Our history of research with acidic deposition is much shorter than that with the latter pollutants, however, and our understanding of its effects on forest ecosystems is much less complete.

This volume is useful, for it presents the perspectives of European scientists on the effects of deposition of acidic materials and, to a much lesser extent, heavy metals, on forest ecosystems. The book consists of 30 papers presented at a workshop, 28 of which are authored by Europeans (two are by Canadians). Twenty papers are by West Germans, nine of them by authors from the Univer-

sity of Göttingen. Bernhard Ulrich is the author or coauthor of four of the papers.

In an introductory paper, Ulrich presents a thorough discussion of his hypothesis that the wet and dry deposition and accumulation of anthropogenically produced acidic and acidifying substances from the atmosphere in forest ecosystems ultimately result in soil acidification, increased soil leaching, and aluminum or trace metal toxicity to tree roots or other elements of the soil biota. Ulrich proposes that soil is acidified beyond natural tendencies owing to disruption by air contaminants of decomposition processes and ion cycles within forest ecosystems. He proposes that cation leaching is increased owing to excess nitrate and sulfate ions in the soil as a result of atmospheric input. He proposes that the potential for aluminum-induced root or mycorrhizal toxicity is high when the ratio of calcium to aluminum in the soil drops below 1 in soils with a pH of less than 4.

The volume is divided into five sections, on the deposition and storage of atmospheric inputs, hydrogen ion dynamics and nutrient cycling, and the effects of atmospheric inputs on soil chemistry, soil biota, and forest trees. In large measure, most papers provide additional perspective or evidence bearing on the Ulrich hypothesis. The papers in section 1 provide quantitative data on the deposition of acidic materials and heavy metals to selected German forests (four papers) and a Swedish forest (one paper). In section 2, a paper by Nilsson concludes that evidence of acidification of Swedish forest soils by atmospheric deposition is not available. In section 3, a paper by Matzner provides elemental flux rates for four German forest ecosystems. A paper by Morrison provides important lysimeter evidence of leaching of nutrient cations and trace metals. Papers by Abrahamson and Skeffington do not support the hypothesis concerning aluminum toxicity. In section 5, several authors (Keller, Wentzel, Flühler, Athari and Kramer, Rehfuess *et al.*, Bauch) correctly stress the importance of the asymptomatic response of forest trees to air pollution stress and emphasize the importance of examining air quality impacts on tree growth rates. Tomlinson attempts to relate North American red spruce morbidity and mortality to Ulrich's hypothesis.

In summary, the view that acid deposition may enhance soil leaching in certain forest ecosystems has been strengthened by this volume, as has the view that there is not sufficient evidence to support the hypothesis that widespread soil

acidification and aluminum toxicity in forest ecosystems result from atmospheric deposition. The book provides valuable clarification of and perspective on the Ulrich hypothesis.

The book suffers from lack of editorial consistency. The papers, literature citations, and reference lists are very variable in format. The printing is of only moderate quality, and there are numerous typographical errors. The book will be of interest to air pollution specialists and research scientists.

WILLIAM H. SMITH

*School of Forestry and Environmental
Studies, Yale University,
New Haven, Connecticut 06511*

Thermometry

Temperature. T. J. QUINN. Academic Press, New York, 1983. x, 416 pp., illus. \$58. Monographs in Physical Measurement.

T. J. Quinn is eminently qualified to write a book intended "to give a comprehensive account of the principles of thermometry over the range 0.5 K to about 3000 K." In the opinion of this reader, Quinn has succeeded rather well in this endeavor.

The book contains chapters on the definition of temperature, temperature scales, primary and secondary thermometry, fixed points, resistance thermometry, thermocouple thermometers, radiation thermometry, and liquid-in-glass thermometers. Many chapters contain brief historical summaries that provide a useful perspective without being distracting. The physical principles used for thermometry are discussed in considerable detail, and the reader is carefully directed to the literature for the remainder. Significant advances in the past 20 years in the application of these principles are fully described. An appendix includes the text of the present international temperature scale, skeleton tables for thermocouples, and interpolation equations for industrial platinum resistors and thermocouples. A useful index completes the book.

The book offers a modern perspective on the degree of accuracy of temperature scales and the physical principles used to obtain the scales. Temperature scales are in a continuous process of evaluation and evolve gradually to greater accuracy. The reader of this book will have a firm understanding of the basis for the next temperature scale, contemplated for the late 1980's. Since the book emphasizes the physical basis of thermome-