

PHYSICAL AND CHEMICAL PROPERTIES OF WATER

A Bibliography: 1957 - 1974

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FOREWORD

Water is basic to terrestrial life, and its distribution has controlled the growth and spread of human civilization. The importance of water to modern industrial processes, urban planning, and agricultural development is hard to overestimate. With these compelling motivations, it is natural that more technical and scientific study should have been devoted to this one substance than to any other.

Research on water and its solutions has exhibited a marked expansion during the last decade. In significant degree, this has resulted from the availability of new experimental tools and techniques, and of dramatic advances in computing science. This combination, in skilled hands, promises eventually to explain the unusual properties of water and aqueous solutions in unequivocal molecular terms. Likewise, one now has reasonable hope that the active role that water plays in biochemical processes will be revealed and explained quantitatively at the molecular level.

Owing to the widespread scholarly interest in aqueous science, it is clear that guides to the overwhelming literature on the subject are valuable. They serve ideally to indicate what is known and what is not, which areas harbor controversies, and what types of research attacks seem most fruitful (in answering more questions than they raise!). Whatever time and resources need to be spent in preparing comprehensive bibliographies should be quickly offset in the total scientific community by the efficiencies generated. These ideas were prominent in the original suggestion that the Bell Laboratories Libraries and Information Systems Center undertake the literature surveys published here.

During the time span covered by this volume, numerous ideas were generated which have subsequently been invalidated. No doubt others cited here will suffer the same fate. These reversals are inevitable in a vigorous, growing discipline, and indicate vitality and progress. This bibliography would supply a historian of science with valuable documentation for a study of the intellectual and social dynamics of one special area of research.

It is my own feeling that eventually the production rate of books and papers on water will plummet, because we will have "done it all." At least, the major viable ideas will have been offered and tested against appropriate accurate data. That point of decline will be an occasion for rejoicing. However, we are not yet there.

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