

that Raman spectra measured meticulously over a range of temperatures exhibit an isosbestic point and that the hydrogen bond energy evaluated from the temperature dependence of the absorption intensities is in agreement with independent estimates and measurements offers the most compelling recent support for the mixture model.

An important role in the increasing popularity of the view that water is a mixture has also been played by statistical calculations based on molecular models. In their article, Levine and Perram go some way toward redressing any imbalance by criticizing the partition function used by Némethy and Scheraga in their well-known calculations, and by questioning the sufficiency of Frank and Wen's concept of "cooperative hydrogen bonding" as the sole basis for the formation of compact hydrogen-bonded clusters. They suggest that a continuum model, such as Pople's, provides no less adequate grounds for interpreting the properties of water than do the mixture models.

Other papers deal largely with aqueous solutions and solvent mixtures. Bates reviews solvent effects on acid dissociation constants, and Hyne provides a useful introduction to recent measurements of activation parameters for solvolysis reactions in aqueous alcoholic solvents. Franks presents a general account of the effects of added solutes on the properties of water, and Symons and Blandamer offer as a case history the results of a combined application of a variety of spectroscopic and relaxation techniques to the investigation of mixtures of water with tertiary butyl alcohol. But, despite the wealth of evidence that different classes of solute enhance or diminish water "structure," the structural changes involved continue to resist precise definition, even in operational terms. Franks summarizes simple molecular interpretations of interactions between water and hydrophilic solutes, and Glew argues in favor of a clathrate model for hydrophobic structure-making, but the evidence tantalizingly lacks definitiveness.

Not surprisingly, this volume is something of a patchwork, and topics range from the thermodynamics of micelle formation to kinetic studies in H_2O - D_2O mixtures and hydrogen bonding in aqueous colloidal systems. It is in no sense an elementary introduction to its subject, and the breadth of its coverage makes it unlikely that its contents will be of uniform interest to a wide num-

ber of readers. Many, however, will wish to dip into articles here and there, and for those who desire seriously to come to grips with this important field it should prove an excellent source book, well illustrating the range of techniques and viewpoints adopted by chemists in the study of hydrogen bonding in water and its solutions.

The book is most handsomely produced and the inclusion of brief discussion sections adds freshness to its presentation.

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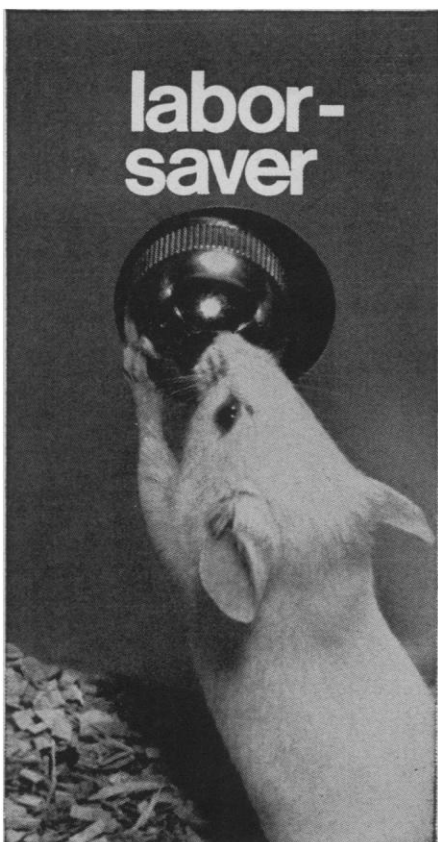
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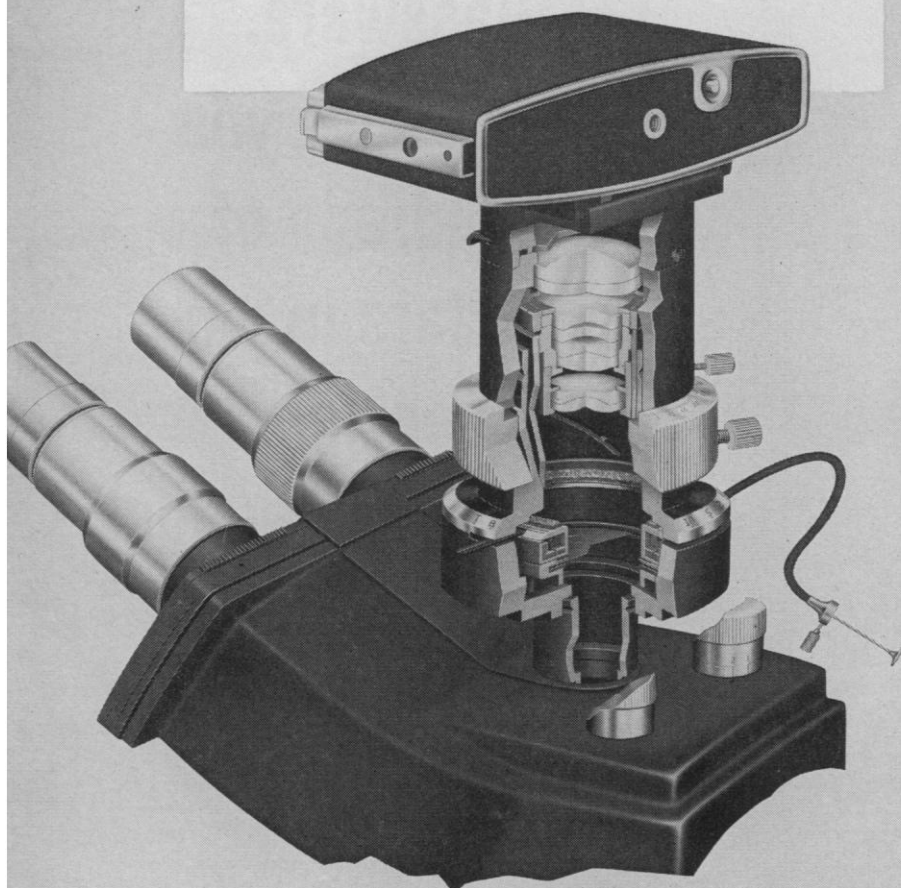


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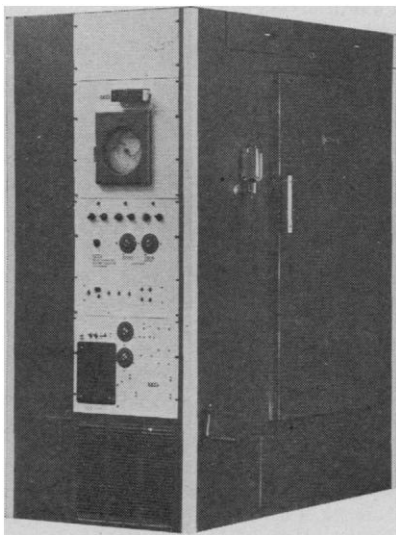
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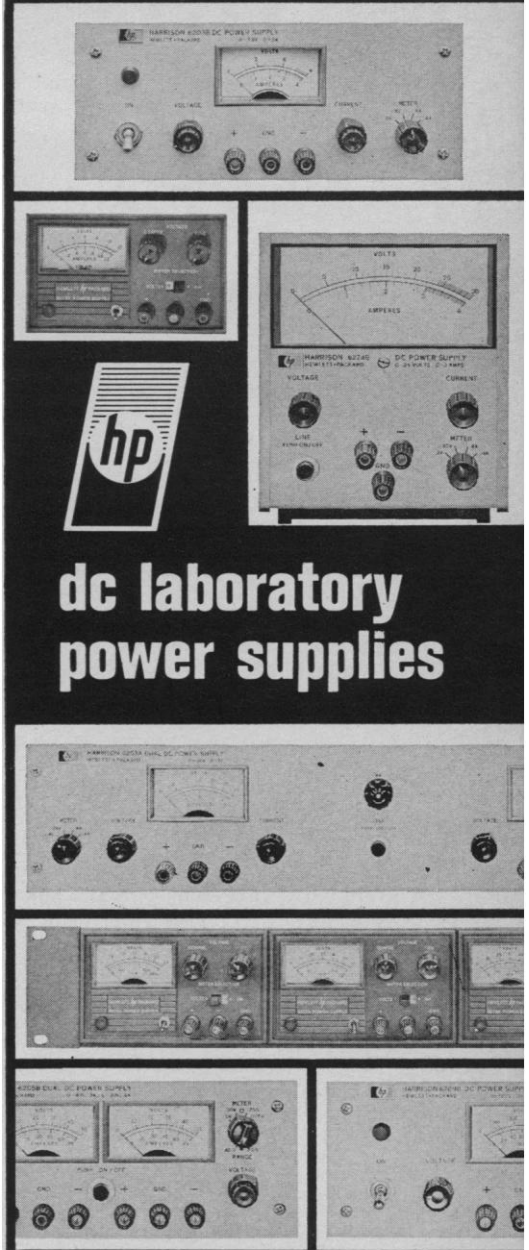
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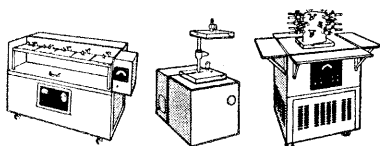
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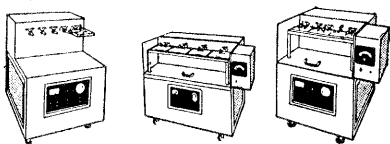
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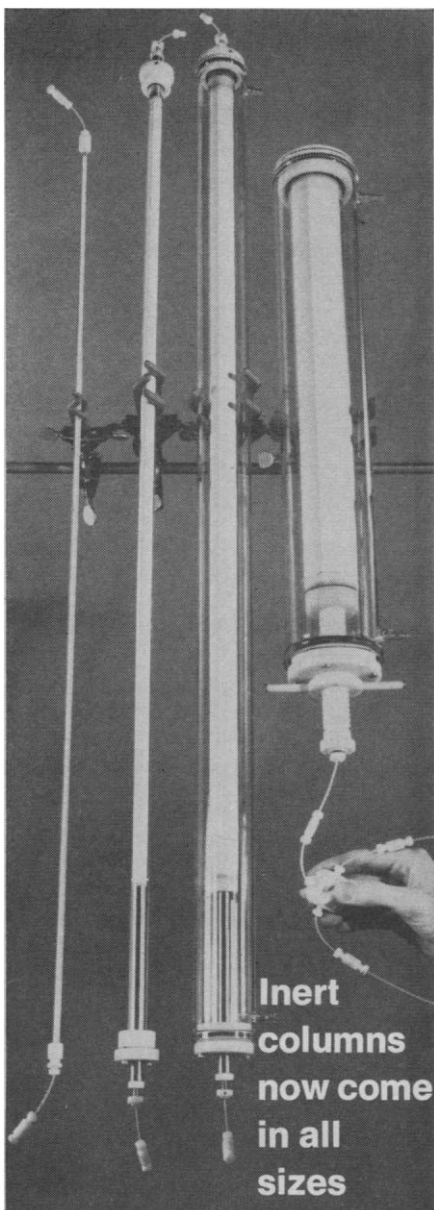
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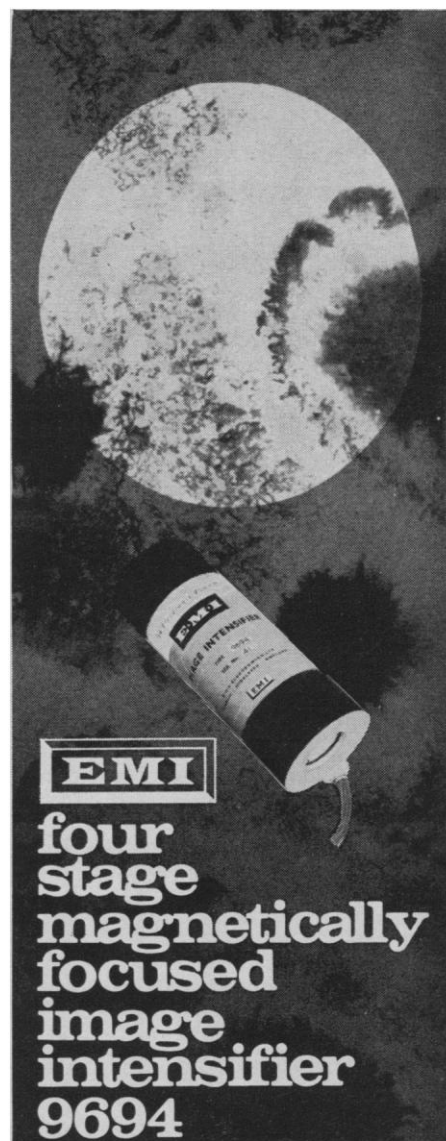
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