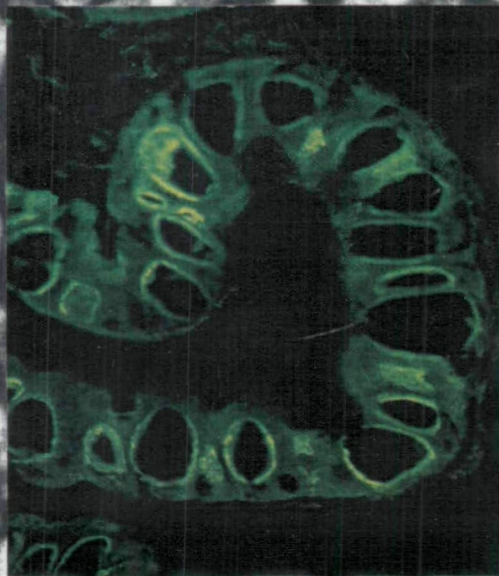
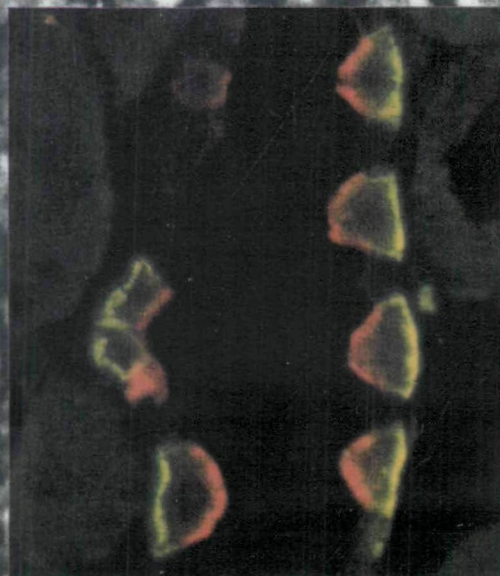
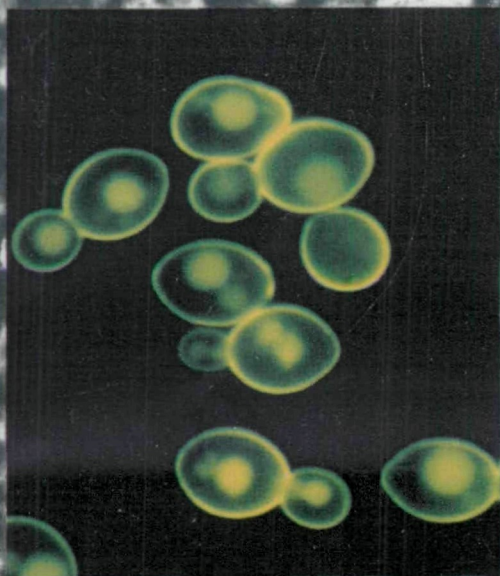


THE JOURNAL OF EXPERIMENTAL BIOLOGY

VOLUME 172

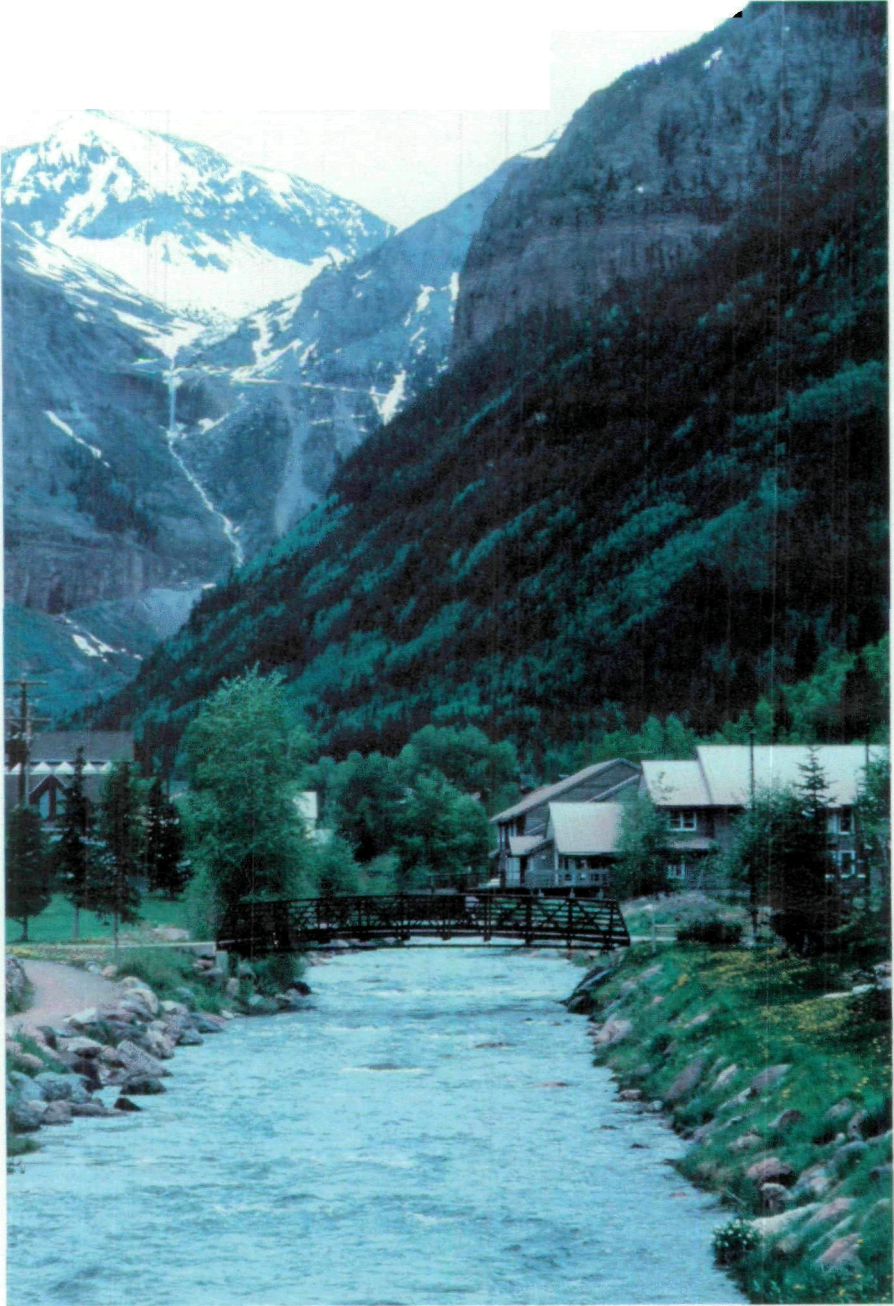
NOVEMBER 1992

V-ATPases



W. R. Harvey and N. Nelson

The Journal of
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Cover photograph

The background is a rapid-freeze deep-etch image of V-ATPase from toad urinary bladder mitochondria-rich cells. Each cytoplasmic domain of the molecule appears as a 'stud' approximately 10 nm in diameter (photographed by Dennis Brown, see Brown *et al.* pp. 231–243). Upper left: fluorescence micrograph of yeast cells with Lucifer Yellow internalized in vacuoles (see Anraku *et al.* pp. 67–81). Upper right: fluorescence micrograph of *Neurospora crassa* mycelia with chloroquine internalized in the vacuoles (see Bowman *et al.* pp. 57–66). Lower left: medullary collecting duct from rat kidney; 1 μm sections stained with antibodies to V-ATPase (orange) and the band 3 $\text{Cl}^-/\text{HCO}_3^-$ exchanger (yellow). Intercalated cells show apical localization of V-ATPase, whereas band 3 is restricted to the basolateral plasma membrane. Adjacent principal cells are poorly stained (photographed by Dennis Brown, see Brown *et al.* pp. 231–243). Lower right: immunofluorescence micrograph of *Manduca sexta* posterior midgut. The apical membranes are labelled with antibody to V-ATPase (see Klein, pp. 345–354).

Published and Printed by The Company of Biologists Limited,
Department of Zoology, University of Cambridge,
Downing Street, Cambridge CB2 3EJ

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**This Publication
is available in Microform**

University Microfilms International

300 North Zeeb Road, Dept P R., Ann Arbor, MI. 48106

ACKNOWLEDGEMENTS

This symposium was sponsored by the Company of Biologists Ltd, with major support from Hoffman-La Roche Inc., Rohm and Haas Co., Ciba-Geigy Ltd, Pfizer Inc. and Miles Inc./Bayer. Generous support was also provided by Monsanto Co., Merck & Co., Inc., Rahway, NJ Research Laboratories, SmithKline Beecham Pharmaceuticals and Hoechst-Roussel Agric-Vet Co. We thank all of the participants for presentations at the meeting, for writing chapters and for editorial assistance. We thank Tom Stevens, Lincoln Taiz, Stephen Gluck, Clifford Slayman, Michael Wolfersberger, Wolfgang Zeiske and Richard McCarty for chairing sessions and editing corresponding manuscripts. We especially thank Clifford Slayman for extensive scientific advice and editorial assistance. We thank Margaret Clements for organizing the travel and accommodation as well as coordinating the handling of manuscripts. We thank Sandra Ray for editing the manuscripts and assembling them for publication. We thank Billy Gaddis for projecting slides and finally we thank Rawlie Busch and his staff as well as the Geronas for the splendid food and accommodation at the Cimarron Lodge.

We are indebted to the American Physiological Society, the American Society of Plant Physiologists, the National Academy of Sciences USA, Springer-Verlag and Taylor & Francis Ltd for granting permission to reproduce text illustrations.

PREFACE

The Telluride symposium on V-ATPases was organized to assemble scientists working on these enzymes and related transport proteins. Recent progress in determining the molecular structure and regulation of V-ATPases was discussed in relation to new understanding on their physiological roles. V-ATPases were considered as electrochemical generators that energize membranes, leading to acidification, alkalization and to other actions such as accumulation of neurotransmitters and biogenic amines.

This volume is organized as a textbook directed to scientists working in this field and related fields, as well as to graduate students and advanced undergraduate students.

We dedicate this volume to the memory of Efraim Racker, who was to have been the keynote speaker at this meeting and whose example has inspired much of the work presented here.



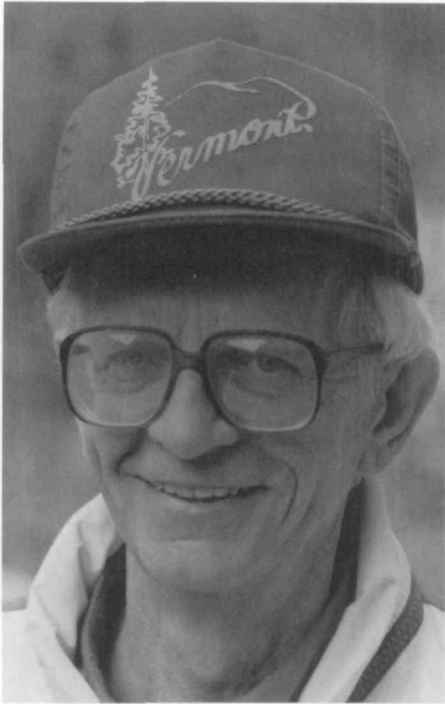
Efraim Racker

28 June 1913 to 9 September 1991

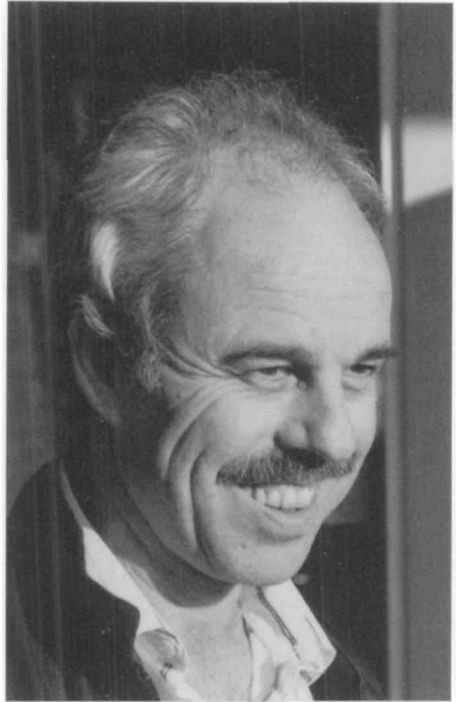
'It doesn't matter if you fall down as long as you pick up something from the floor while you get up.' (Lesson 4)

CHAPTER 1. Introduction to V-ATPases

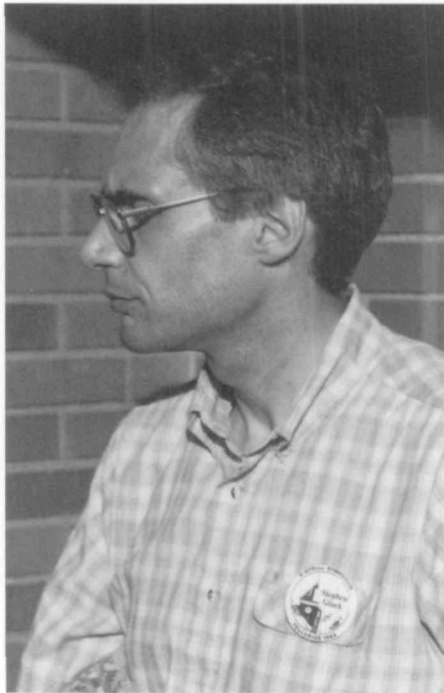
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W. R. Harvey



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