

90 Years Journal of Comparative Physiology

Gerhard Heldmaier · Hannah V. Carey ·
Ian D. Hume

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The Journal of Comparative Physiology B celebrates its 90th Anniversary this year. The Journal was founded in 1924 as “Zeitschrift für vergleichende Physiologie” by Karl von Frisch together with Alfred Kühn. Research on the diversity of animal life was growing rapidly at the beginning of the last century, and this opened up new perspectives in physiology; the new journal met the demand for publication of the growing knowledge in comparative physiology. The topics of articles ranged from circulation and ventilation of snails through the amazing sensory performance of insects and birds. Importantly, the Journal published a number of pioneering discoveries from Karl von Frisch himself on color vision in fish, chemical senses of insects and fish, and the dancing language of bees. He served the Journal as an editor for 58 years until his death in 1982.

The Second World War forced publication of the Journal to be discontinued from 1942 (Volume 30) but it was re-established in 1949 (Volume 31) and new editors joined the editorial board, Erich von Holst, Hans Hermann Weber, and Hansjochen Autrum. Autrum continued the Journals’ tradition of long-term editorship and served as an editor for

53 years until 2002. Research in comparative physiology expanded worldwide, the number of published papers increased rapidly, and the editorial board was extended by leading international experts in comparative physiology, G. A. Horridge (St Andrews, Canberra), Donald Kennedy (Stanford), C. Ladd Prosser (Urbana), and A. W. Martin (Seattle). At the same time, the number of articles published in English was growing steadily and in 1977 (Volume 77) the Journal adopted this lingua franca of science and changed its title to the Journal of Comparative Physiology. An advisory board was established with experts from different disciplines in order to ensure competence across the growing diversification of comparative physiology.

These measures made the Journal even more attractive for authors from all over the world. Only a few years later, in 1984, the Journal reached Volume 154 and was separated into two parts, Part A for the publication of articles in neural and sensory physiology, and Part B for the rapidly growing interest in biochemical and metabolic physiology. Therefore this year we celebrate an additional anniversary, the 30th big birthday of the Journal of Comparative Physiology Part B (JCPB).

The first editors of JCPB were Kjell Johansen (Aarhus, Volume 154–156), Bernt Linzen (Munich, Volume 154–158), WTW Potts (Lancaster, Volume 154–163) and RB Reeves (Buffalo NY, 154–163). Kjell Johansen, viking and physiologist, and Bernt Linzen, biochemist, were driving forces for the establishment of this new part of the Journal. Unfortunately, both died unexpectedly (in 1987 and 1988). The new editors were Helmut Langer (Bochum, Volume 159–165), Henry Huddart (Lancaster, Volume 164–165) and Larry Wang (Edmonton, Volume 164–174). A new editorial team started in 1996 with Gerhard Heldmaier (Marburg), Ian Hume (Sydney) and, from 2005, Hannah Carey (Madison, WI, USA).

G. Heldmaier (✉)
Philipps University of Marburg, Marburg, Germany
e-mail: heldmaier@staff.uni-marburg.de

H. V. Carey
Department of Comparative Biosciences, School of Veterinary
Medicine, University of Wisconsin, 2015 Linden Drive,
Madison, WI 53706, USA
e-mail: careyh@vetmed.wisc.edu

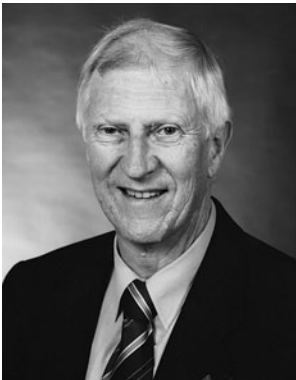
I. D. Hume
University of Sydney, 60 Prince Street, Mosman, NSW 2088,
Australia
e-mail: ian.hume@sydney.edu.au



Gerhard Heldmaier Professor of Animal Physiology, Marburg University, Germany, Research area: Bioenergetics, metabolism, thermoregulation, hibernation



Hannah V. Carey Professor of Comparative Biosciences, School of Veterinary Medicine, Director, UW-Biotron, University of Wisconsin, Madison WI, USA, Research area: Hibernation, gastrointestinal physiology, gut microbiome in animal physiology



Ian D. Hume Emeritus Professor of Biology, University of Sydney, Australia, Research area: Metabolism, digestive physiology, nutritional ecology of mammals and birds

The last 20 years have been characterized by major changes in the field of comparative physiology due to new methods in molecular biology and the decryption of the genetic code of several animal species. Physiology attempts to understand how animals function by looking at the behavior of animals and the systemic machinery which enables them to swim, walk or fly, to see and hear, to eat and digest, to regulate the body temperature, etc. Biochemical methods allow insights into the cellular processes which are involved in the functions of different organs and how these are coordinated by neural and endocrine integration. This has been the focus of JCPB for many years. Now molecular methods provide additional insights into the genetic basis of physiological mechanisms, their evolutionary origin and adaptation to the environment.

A central objective of comparative physiology is to understand the origin of animal life and how vital functions evolved

to support the current enormous diversity of species adapted to different environments around the globe. Most physiologists agree on this objective and we know something about the mechanisms involved, but we are often far from a full explanation that covers the molecular machinery, the systemic dimension and the ecological relevance of particular functions. Physiology usually analyses animal functions at one of three different levels: behavioral and organismic responses of an animal, the cellular machinery involved, or its genetic base. Each of these systems is itself highly complex but the greatest limitation is our relative lack of knowledge about the network of interactions between these different levels of organization.

Many papers submitted to and published by our Journal focus on organismic and behavioral aspects of physiology, often combined with analysis of cellular metabolism, sometimes including genetic information. This probably has to do with the long history and competence of our Journal in systemic physiology, and the fact that we explicitly include studies on all animals, invertebrates and vertebrates, and animals in their natural environment. These studies often focus on new or rare physiological mechanisms and adaptations to extreme environments, like cold, heat, starvation, or lack of oxygen. Any discovery of adaptive behavior requires studies at the organismic level with intact animals as a first step. However, methods for the analysis of metabolic responses at the cellular level and their genetic control are rapidly improving and we can predict that the number of articles we publish on the analysis of physiological responses at the cellular and molecular levels will increase further in forthcoming issues of the Journal of Comparative Physiology B.

The growing number of original articles in scientific journals makes it rather difficult in some fields to follow the current development of knowledge in detail. One way out of this dilemma is review articles where experts in the field summarize the current state of knowledge. A few years ago we introduced this category of articles in JCPB. Our intention was that these reviews not only look into the past but also outline open questions and develop new perspectives for research in the field. Readers of JCPB have clearly welcomed this addition to the journal; many of these reviews are downloaded at rather high rates and are frequently referred to in continuing studies.

In the public and also the scientific community there is a growing demand for free access to all results of research. JCPB, like other Springer journals, offers this possibility to the authors of individual articles by “Springer Open Choice”. At the moment this opportunity is only used by about 10 % of authors.

Springer Verlag founded, supported and has now maintained this Journal for 90 years. This long-term engagement has been an essential foundation for the reputation of the Journal of Comparative Physiology. Springer has always

supported our view that scientific quality should be the only criterion for the publication of manuscripts. During recent years the publication of scientific manuscripts experienced dramatic changes. Up to 2000 all manuscripts were submitted typewritten on paper, in triplicate, by mail and reviewers were contacted by mail. Now the entire handling of manuscripts is managed via the internet and all articles are published online. An overwhelming majority of readers uses the electronic format of articles. The number of institutional

subscriptions to the electronic version of the Journal (currently more than 8000) as well as the download of articles increased steadily over last few years. This indicates that there is a growing, renewed interest for discoveries in comparative physiology. For the sake of authors and readers we will continue our efforts to maintain JCPB as an attractive journal for high-quality papers and novel developments in comparative physiology.