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Editorial

Foreword: *Carbohydrate Research*: a half century of carbohydrate science

Derek Horton *

Chemistry Department, Ohio State University, Columbus, OH 43210, USA
Chemistry Department, American University, Washington, DC 20016, USA

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ABSTRACT

The article traces the history of the journal *Carbohydrate Research* from its debut in 1964 and its subsequent evolution to the present day, viewed from the perspective of one of the founding editors who served as a receiving editor until 2005. The concept of an international journal focused on the broad aspects of carbohydrate science found ready acceptance in the research community, and its volumes now serve as a unified archive of a significant proportion of published research data on all molecular aspects of carbohydrates. Changes in the editor line-up over the years are noted, along with the transition to electronic publishing, and the role of key people in the Elsevier Company toward the success of the journal.

1. Origins

This journal was conceived back in 1963 in response to a growing dissatisfaction by many researchers in the carbohydrate field with the available outlets for publication of their original research work. Although the major society journals provided avenues for reports on synthetic organic chemistry involving sugars, and various biochemical journals featured work on carbohydrate enzymology, the available possibilities for publishing work on structure determination of polysaccharides and glycoconjugates, and for analytical, technological, industrial, medicinal, and physicochemical aspects, were dispersed over a wide range of other periodicals. A desire to create a journal devoted broadly to all aspects of carbohydrate science gained momentum among researchers in the field, and motivated Dr. Marc Atkins, Director of Science and Technology of the Elsevier Company, to discuss in 1963 with Professors Leslie Hough and Allan Foster in England the idea of founding such a multidisciplinary periodical for original research contributions.

In fact, the idea of a periodical for the coordinated treatment of the carbohydrate field had its origins twenty years earlier, in 1944, when the annual book series *Advances in Carbohydrate Chemistry* (later *Advances in Carbohydrate Chemistry and Biochemistry*) was launched under the editorship of Melville L. Wolfrom and W. Ward Pigman, and published by Academic Press. Its objective was to provide critical reviews by invited specialists of special topics in the broad field of carbohydrates, and thus provide a *secondary* literature reserve of permanent reference value. The new series would thereby complement Pigman and Goepp's monograph, *Chemistry of Carbohydrates*, which appeared some time later, under the Academic Press imprint, followed in 1957 by Pigman's expanded revision *The Carbohydrates, Chemistry, Biochemistry, and Physiology*, and subsequently by a four-volume revision of the book, edited by Pigman and Horton.

It was clear at the outset that a new journal for *primary* research papers had to be international in scope and provide an integrated structure that would be welcomed by investigators working in all areas of carbohydrate science. Professor Hough was not able to take up the invitation from Dr. Atkins, but Allan Foster, then at Birmingham University, accepted the challenge, and asked his former student, Derek Horton, who was by then a junior faculty member at Ohio State University in Columbus, Ohio, to join with him in establishing an Anglo-American cooperative link for the journal. To provide credible expertise in the biochemical area, the Harvard-based Professor Roger Jeanloz was brought in to the picture, along with Dr. R. Stuart Tipson, a Birmingham graduate from the time of Sir Norman Haworth, who had subsequently moved to a government research position in Washington, DC.

2. The founding editorial team and their advisors

Thus the original five-person Anglo-American team of editors was set up, with Foster and his colleague John Webber based at the University of Birmingham, Derek Horton at the Ohio State University in Columbus, Roger Jeanloz at the Harvard Medical School, and R. Stuart Tipson of the National Bureau of Standards,

* Tel.: +1 240 595 8138.
E-mail address: Carbchem@aol.com

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Washington, DC. Each editor operated independently, but there was coordination among the five editors via circulation of articles at the proof stage.

Supporting the editor group was an Advisory Board of eight senior researchers, along with an Editorial Board comprising 38 members from various countries in the world where active research on carbohydrates was being conducted. These individuals provided a core of experts who contributed much valuable input in reviewing manuscripts. The Advisory Board, at that time essentially a male Anglo-American hegemony, included Zev Hassid, Sir Edmund Hirst, Horace Isbell, Fritz Micheel, Ward Pigman, Nelson Richtmyer, Maurice Stacey, and Melville Wolfrom; the only representative from continental Europe was Micheel from Münster in Germany.

The membership of the Editorial Board reflected a wider dispersal of geographic origin, with representation from Argentina, Australia, Canada, Egypt, France, Hungary, Israel, Ireland, Japan, Norway, South Africa, Spain, Sweden, Switzerland, and the USSR, in addition to members from the USA and the United Kingdom. Again it was an all-male club.

The active involvement of Dr. Marc Atkins and the Elsevier Publishing Company based in Amsterdam, a company with a long tradition in publishing, assured high quality production and marketing for the journal. In his senior role as Director of Science and Technology at Elsevier, he took a very close interest in the scientific content of each issue, and was on terms of personal friendship with the five editors, many of the individuals in the Advisory and Editorial Boards, and indeed with many of the authors. In this function he had the able assistance of Ms. Swan Go. Regular meetings of the editors, often in conjunction with the International Carbohydrate Symposia or the Eurocarb meetings, were held to coordinate policies for the journal.

3. Beginnings of the journal

The initial manuscripts were submitted toward the end of 1964. The first issue of the journal appeared later in 1965, and its content reflects the multidisciplinary objective: the topics of the twelve articles in the issue ranged between NMR spectroscopy, acetal stereochemistry, osazones, boric acid complexes, sialic acid assay, glycosaminoglycan structure, starch biosynthesis, plant gum structure, nucleoside synthesis, and the structure of a novel sugar. This broad scope has been sustained over the ensuing five decades and around 15,000 published articles, as is still apparent in any current issue of *Carbohydrate Research.*

Flexibility in the mode of presentation of the manuscripts was acceptable, to take into account the differing styles customarily used by, for example, organic chemists and by biochemists. Complete experimental procedures were mandatory. Articles of substantial scope were considered as Full Papers, while shorter contributions were published as Notes, but again with full experimental documentation. Efforts were made on several occasions over the years to feature Preliminary Communications as 'claim-staking' brief reports, to be followed later by the complete articles, but the journal could rarely compete with the society journals (or such periodicals as *Tetrahedron Letters*, which could eventually offer weekly issues) in speed of publication between date of submission and date of appearance.

4. The community of carbohydrate research workers and acceptance of the journal

Research workers dealing with aspects of carbohydrate science from a broad range of different disciplines welcomed the journal, and the sense of identity that it provided in linking together an international community united by a common theme. Authors who had hitherto been loyal to journals of the major national societies increasingly submitted their work to the new journal, where it would not be 'buried' alongside large numbers of reports dealing with unrelated areas. Authors living in countries where national journals were accessible only with difficulty were particularly motivated to present their work to the broader audience that the journal provided. This was particularly the case for contributors from Asian, South American, and some European countries.

That sense of group identity was particularly enhanced by the personal contacts between researchers meeting at the International Carbohydrate Symposia, and later at the Eurocarb meetings, where the editors made it a practice to hold meetings with the members of the Advisory Board; these meetings were generally hosted by Elsevier representatives, and permitted open discussions on both scientific and production policies.

5. Editorial policies

The founding team of five coeditors remained unchanged for 20 years, although the two supporting boards were merged in 1969 into a single Editorial Advisory Board whose membership was revised periodically to introduce newer experts in the field and accept the retirement of others. The editorial policy allowed work to be presented in a variety of formats according to the nature of the work, but it enforced strict criteria for such items as adequate characterization of new compounds, adherence to standard chemical nomenclature, and use of clear and concise language.

With most of the articles written in English, but addressed to an international audience where the majority of readers did not have English as their mother tongue, the editors insisted on simple direct sentences in grammatically correct English and the avoidance of wordiness or obscure jargon. To this end, a considerable amount of condensation and correction was carried out by the editors, a service that was well appreciated by the end users, the readers, although not always by certain authors, some of whom were given to protest about their manuscripts being 'Fosterized', 'Tipsonized', or even 'Hortonated'. Tipson, the son of two English teachers, waged constant war on 'dangling participles' and other solecisms, while Foster applied vigorously the brevity of expression he had learned from the late R. S. Cahn, editor of the *Journal of the Chemical Society*. It was joked that Foster could condense Lincoln's *Gettysburg Address* to half its length without loss of essential content.

Acceptable criteria in claims for a novel compound normally included crystallization to constant melting-point, specific optical rotation, and acceptable elemental analysis, along with chromatographic criteria of homogeneity, and NMR and other spectroscopic data. In later years these requirements were relaxed with the advent of vastly more powerful NMR spectrometers, along with high-resolution mass spectrometers, sophisticated chromatographic methodologies, and routine procedures for X-ray crystal-structure determination. Traditionally acceptable criteria based on combustion analyses and polarimetric data ceased to become mandatory, provided that adequate evidence for homogeneity and structural identity was provided.

For a number of years the journal published articles in the French or German languages, but eventually the pursuit of favorable citation indexes motivated most authors to submit their papers in English. A consistent policy was maintained in the use of standardized terminology and nomenclature to assure comprehensibility between a range of formal disciplines, and the provision of full experimental detail that would allow another investigator to repeat the work.