

major papers in the early 1960s on ionization-front propagation by Allin Goldsworthy and ionization-front structure by Ian Axford, who at that time were both in the mathematics department at Manchester.) The work initiated by Franz is central to an understanding of areas such as star formation, planetary nebula dynamics, and even galactic superwind generation. It is interesting to note that the interpretation of some of the most spectacular Hubble Space Telescope data (e.g. the “Pillars of Creation” in M16 and the proplyds in the Orion Nebula) is largely based on Franz’s work. Franz was also the first person to explore the dynamics of the dusty envelopes around recently formed massive stars. In 1974 he produced a model for cocoon stars where the effects of the stellar radiation field on both the gas and dust components of the accreting gas were taken into account.

Later, he became interested in the global dynamics of planetary nebulae. He was particularly concerned with the way the shapes of these nebulae are determined by the interaction of the fast wind from the hot central stars with the non-spherical envelopes ejected during the red-giant and asymptotic giant branch phases of the central star’s evolution. In 1985 he wrote (with Kym West) a particularly elegant

paper where he reproduced the expansion dynamics of the envelopes by considering a model based on simple angular momentum considerations. Although present studies of such interactions are now carried out by heroic numerical studies, this paper anticipated most of their believable results. He also (with Dieter Breitschwerdt) wrote the first papers which explored the dynamical effects (e.g. the importance of Rayleigh–Taylor instabilities) produced when the interactions of time-dependent fast winds are considered. Incidentally, Franz was probably one of the last theoretical astrophysicists to use a slide rule, which he used almost up to retirement. He reluctantly gave this up for a pocket calculator which was given to him by his children.

Franz was an excellent teacher who enjoyed supervising research students (although he certainly made them work!). It is no coincidence that some of his research students (e.g. Wal Sargent, John Hazlehurst and Leon Lucy) have also had distinguished careers in astronomy. Franz had the great gift of making scientific criticism both helpful and courteous. He was a generous person whose ideas given at meetings, seminars or even in the local pub, must far outnumber the many contributions published actually in his name. He was a delightful

companion and a very sociable person who was fond of good company, food and, in particular, malt whisky (of which his knowledge was as extensive as his knowledge of astrophysics).

Franz was a devoted family man, and his family was a constant source of happiness to him. He and Carla had four children; they, and, later, their seven grandchildren, were probably his proudest achievement. Carla’s early death hit him very badly. It coincided with the time he took over the group at Manchester, and when he was in the process of compiling a “Festschrift” to mark Zdenek Kopal’s retirement. The introduction to his contribution on “The Galactic Fountain” in that volume very movingly recounts that this paper contained the first work he had attempted since Carla died, and the paper is dedicated to her memory. Franz never remarried, but in later years he found great friendship with Junis Davis, which lasted until his very sudden death from a heart attack while he was visiting his family in London on 8 February this year. Franz left behind a legacy of scientific achievement and many friends who mourn him. The old phrase “a scholar and a gentleman” could have been coined just for him.

John Dyson.

Olaf Pedersen 1920–1997

Associate and Fellow of the RAS, authority on the history of science and especially the astronomy of the Middle Ages.

Olaf Pedersen, a leading authority on astronomy in classical antiquity and the Latin Middle Ages, and an associate of the Society since 1994, died in Aarhus, Denmark, on 3 December 1997 following a heart operation. He was born in the village of Egtved in Jutland on 8 April 1920, and studied at the University of Copenhagen. In 1943, when Denmark was an occupied country, he graduated in theoretical physics at Niels Bohr’s institute in Copenhagen, and the following year took a position as physics teacher in the state high school at Randers, Jutland. There he broadened his intellectual interests to include not only history of science but also philosophy and the history of ideas, and he was to be distinguished throughout the rest of his life for the breadth and cultivation of his mind.

The academic year 1949–50 found him in Paris attending the lectures of the great historian of medieval philosophy, Etienne Gilson, but his vocation lay in physics and the history of the physical sciences, and in 1956 he was appointed lecturer in physics at the University

of Aarhus. The same year he completed a doctoral dissertation on the 14th-century Parisian natural philosopher Nicole Oresme, and from this he moved to what was to be a life-long interest in the technical planetary treatises of the later Middle Ages, the so-called *theorica planetarum*. He also investigated what he termed the medieval “corpus astronomicum”. Noting that astronomical manuscripts tended to be found in associations that collectively covered the needs of students, he studied how these associations developed over time, a treatise dropping out when it was no longer thought adequate and being replaced by a similar but more demanding work.

Until Copernicus, all astronomical writings took their inspiration from Ptolemy’s *Almagest*, and in 1974 Pedersen published his magnum opus, *A survey of the Almagest*, a chapter-by-chapter analysis of the most demanding treatise in the early history of exact science. In the same year there appeared *Early physics and astronomy*, an outline account of the physical sciences in ancient Greece and the

Deaths of Fellows

Dr J E Geake

Born 1 April 1925
Elected 11 December 1953
Died 2 June 1998

Comdr H D Howse

Born 10 October 1918
Elected 10 January 1969
Died 26 July 1998

Dr J M Jackson

Born 8 February 1907
Elected 14 April 1950
Died 23 March 1998

Prof. T R Kaiser

Born 2 May 1924
Elected 13 December 1957
Died 2 July 1998

Mr J Kershaw

Born 28 October 1906
Elected 8 February 1952
Died 26 July 1998

Mr T J E Palmer

Born 15 April 1918
Elected 12 April 1957
Died 21 February 1998

Mr D F Trombino

Born 16 August 1940
Elected 7 April 1992
Died 20 July 1998

Latin Middle Ages that was to supply the needs of a generation of students in the infant discipline of history of science. Intended as the first volume of a trilogy covering the history of physical science and to be written in collaboration with a fellow author, the second English edition rightly appeared under Pedersen's name alone. The last quarter-century has seen a remarkable development in history of science, and today the cursory treatment of Babylon and Egypt, and of the Islamic Middle Ages, would be seen as a major defect; but for its time the textbook was invaluable.

At Aarhus, Pedersen fostered a small group of talented students who themselves obtained teaching posts as interest in history of science developed within the physics department. In 1965 the university established a department for the history of science, and two years later

Pedersen was nominated professor. The staff of the department, including Pedersen, taught science courses as well as history of science, and although this diluted their research it kept them in contact with science and maintained their *bona fides* among science colleagues.

Pedersen also devoted much effort to the establishment of a science museum, for which he solicited both funds and instruments, and this is now the Steno Museum. He was deeply involved in *Centaurus*, a small-circulation journal that provided an outlet for many technical articles in history of physical science that might not otherwise have seen the light of day. From 1970 he was treasurer of the History of Science division within the International Union for History and Philosophy of Science, and in the 1980s was vice-president and then president of the International Academy of the

History of Science. He was very much the European, deeply interested in the development of European culture, and especially in the role played by European universities down the ages. Proofs from Cambridge University Press of the English edition of his exploration of this theme, *The first universities: Studium generale and the origins of university education in Europe*, were beside his bedside as he lay unconscious in hospital.

From time to time attempts were made to lure Pedersen to Britain or America, but were frustrated by his devotion to his Aarhus colleagues and students, and especially to his adored wife Simone, whom he thought might not flourish if transplanted to another land. He was never the same after she died. They are survived by a daughter and two granddaughters.

Michael Hoskin.

Notes for contributors to *Astronomy & Geophysics*

Astronomy & Geophysics is a journal for the publication of serious scientific articles of interest to a broad range of astronomers and geophysicists. Contributions can take the form of review articles (up to 6000 words) and articles (up to 4000 words), as well as shorter contributions, news items, letters and scientific correspondence. Articles and review articles are subject to peer review; shorter contributions may be, at the Editor's discretion.

Articles

Articles and review articles can cover any topic likely to be of interest to members of the RAS. Introduce material at a level comprehensible to a final-year undergraduate in the subject, but do not limit discussion to this level. Editorial policy is to encourage contributions of accuracy and scientific authority over a wide range of interest, with a topical slant where feasible. The Editor welcomes lively writing and a variety of personal styles, but reserves the right to reject material that is unsuitable.

All manuscripts must include a brief, informative abstract of about 150 words, stressing the significance of key points. The body of the text should be divided into sections as appropriate, without numbering. Use SI units where appropriate and explain acronyms.

Illustrations, both images and diagrams, are welcome and colour will be used for appropriate material. Ideally authors should submit a small number of high-quality illustrations. The Editor has discretion over which to accept: the main criteria will be content and quality. Illustrations should be sent digitally where possible, using TIFF format. Authors should also

send high-quality prints. Number figures in sequence and put the main author's name and the figure number on the reverse of printed copies. Refer to figures in the text by number.

Give brief but informative figure captions in a separate list at the end of the text. Tables should be separate from the main text. Number them in sequence and provide each with a brief, informative title.

References should follow the style of *Monthly Notices of the RAS*, giving abbreviated journal title and first and last page numbers. In the text, references should cite authors, using *et al.* where there are three or more authors. References to larger works such as books should include the page number where possible. Authors alone are responsible for ensuring that their references are correct. A few broad references are preferred to many detailed citations.

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Submission on disk is also welcome. Whatever submission route you choose, Word6 files are preferred; otherwise use plain ASCII or rich-text formats. Copy in TeX and LaTeX is acceptable; again, avoid complex formats. *A&G* also accepts contributions submitted on paper alone; send to the Editor as above.

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Sue Bowler, Editor.