



The James Lighthill Memorial Papers

Last year James Lighthill, one of the great applied mathematicians of this century, died rather unexpectedly. Earlier this year the Journal of Engineering Mathematics published Lighthill's last paper in a special issue on oceanography. That issue was appropriately dedicated to his memory. In the same issue one of us published a review of his four-volume collected works, interspersing it with many details of Lighthill's professional life.

One of the most striking aspects of James Lighthill's work, characterising his place within applied mathematics, is its breadth. He was anything but a single-issue scientist. Indeed, his interests were truly eclectic. He opened up a great many different fields of study. He often shifted his focus of attention, leaving behind freshly cultivated land for others to work. His earlier endeavours were in aerodynamics, but later he applied his mind to such diverse fields as acoustics, heat transfer, water waves, oceanography, generalised functions, biofluidynamics, the mechanics of the inner ear, hurricane modelling and many, many more.

With a professional life as rich and varied as his, it is inevitable that Lighthill's research has left many open ends that are still waiting for others to bring a little closer to completion. All one has to do is to browse through his collected works and marvel at the opportunities he has left for others. Indeed, this may have been his deeper purpose all along: to cast as wide a view as his great talents permitted him to do, expecting those that would come after to follow him into the newly discovered lands.

Having acknowledged all of the above and considering that James Lighthill was a member of our Honorary Advisory Board, we believe that it will be most appropriate for this journal to start a series of *James Lighthill Memorial Papers*. This series is subjected to the following loosely formulated set of rules:

- The subject of each paper should be related closely to work done by James Lighthill;
- The list of references should contain at least one paper or book written by James Lighthill. This should not be a token reference, but one that is meaningful in the paper's general context;
- A *James Lighthill Memorial Paper* should normally present new results based on Lighthill's work; in exceptional circumstances and by special request a review will be allowed;
- The minimum length of each paper should normally be twenty printed journal pages;
- H. K. Kuiken, N. Riley and F. T. Smith are the committee responsible for soliciting authors for the *James Lighthill Memorial Papers*;
- The refereeing should be in accordance with the invited character of the paper, *i.e.*, the paper is acceptable in principle, unless it is felt that a closer inspection by other experts is needed;
- There will only be one *James Lighthill Memorial Paper* each year;
- Initially, the duration of the series is for ten papers;
- On the first page there will be the words: *year of publication + James Lighthill Memorial Paper*

- Normally, the *James Lighthill Memorial Papers* will appear each year in the final issue as from 1999.
- A *James Lighthill Memorial Paper* will be single-authored.

The significance of most of these rules should be self-evident. This is also true for the requirement that these papers should be single-authored. James Lighthill seldom co-authored papers. Indeed, he never succumbed to the frequent practice of research leaders squeezing in their names as authors of papers that are mostly, if not completely, the work of their younger colleagues. He regarded himself as a lone hunter on the fertile grounds of science. He was never one of a pack of wolves, but rather preferred to stalk his quarry as does the tiger.

We proudly announce the first of the series, which is a paper by G. I. Barenblatt. It appears at the end of this issue, making it our last paper of the millennium. Very much like Lighthill, Barenblatt has spread his talents over many fields. Porous media, (intermediate) asymptotics, dimensional analysis, flow through rock formations and turbulence are some of the areas that have benefited from his insights. Barenblatt has discovered that a little-known paper by Lighthill contains the first glimmer of an idea that he himself has now been working on for many years. We do hope that Barenblatt's paper, and the ones that will follow later in the series, will help keep the memory of James Lighthill alive for many years to come.

H. K. Kuiken, N. Riley and F. T. Smith