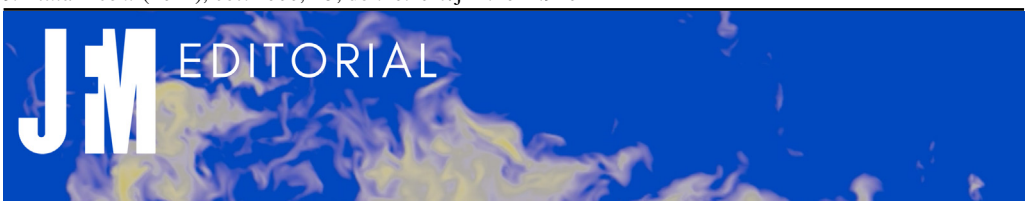
J. Fluid Mech. (2024), *vol*. 1000, E3, doi:10.1017/jfm.2024.920



Reflections on the build-up to the first volume of *JFM* in 1955 and to the *G.K. Batchelor Prize* in the 2000s

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I thought I would reiterate some of the remarks I made at the start of the one-day get-together held to celebrate the 50th birthday of *JFM* on 21 July 2006, since they have not been published anywhere, and maybe follow with reflections on some of the comments from the editorial '*JFM* at 50' written by Steve Davis and myself in vol. 554, pp. 1–4, in that year. I have also added something on the *G.K. Batchelor Prize in Fluid Mechanics*, initiated by *JFM* and CUP in collaboration and awarded every four years since 2008.

> Welcome to this historic celebration, especially to all those past and present associate editors of *JFM* who are able to be here. It is particularly appropriate, and satisfying, that it is we in DAMTP (Department of Applied Mathematics and Theoretical Physics) who are hosting this meeting because, as you know, both the Journal and the Department are distinguished institutions that were founded through the vision of one man, George Batchelor (G.K.B.), who founded *JFM* in 1956, when he was 36 years old, and DAMTP in 1959.

Because *JFM* was initially set up as an offshoot of the *Philosophical Magazine (Phil. Mag.)*, its first publisher was Taylor & Francis (T&F), although they had apparently never previously published a journal with an international editorial board. George insisted, rightly, that it was essential to include some American associate editors from the start; the first of these were Wayland Griffith, who had been in Physics at University College London before returning to Princeton and Lockheed, and George Carrier at Harvard. However, before the end of 1956 and hence before publication of the final part of *JFM* vol. 1, George became dissatisfied with the publishers' performance. We have found some notes he sent to Nevill Mott, the editor of *Phil. Mag.*, who was at Bristol University (before his return to Cambridge, his Knighthood and his Nobel Prize). These notes clearly exemplify Batchelor's attention to detail and his determination that production of his new journal should be as perfect as possible:

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(G.K.B to N.M., 1956)

Experience with the printing of one whole volume of Journal of Fluid Mechanics has shown me the following short comings of the publishers:

(1) Their office work is appalling; the only way to obtain reliable information is to go to Red Lion Court in person.
(2) They seem not to realise the importance of adhering to a regular schedule of publication and no attempts are made, so far as I can see, to plan ahead. Every printing job seems to involve 'unexpected' delays. (Have they the capacity to meet their commitments?)
(3) Lack of concern for speedy work seems to be especially characteristic of the despatch department. On one occasion, an issue of J.F.M. was not ready for distribution until 3 weeks after the month shown on the cover; two more weeks elapsed before they were all posted to subscribers. Bundles of reprints have lain in the despatch department for weeks, waiting for someone to wrap them up and post them. . . . .
(4) No one in the firm knows anything about printing design, and their work shows it, etc.

It should be added that T&F were not happy with the *Journal* either – a combination of G.K.B.'s exacting standards together with the fact that *JFM* was losing money in its first two years. It was then, in time for vol. 3, that CUP stepped in and I think it is fair to say that both *JFM* and CUP have benefited greatly from the relationship ever since.

Also in the archival boxes, of whose existence I became aware only after I became Editor, were copies of a huge number of exchanges between George and the associate editors. The most prolific correspondence was between George in Cambridge and James Lighthill (M.J.L.) in Manchester. It made for fascinating reading, but I will limit myself to quoting from just one exchange, which clearly brings out their different styles:

(G.K.B. to M.J.L., 15 December 1955)

Dear James,
Thank you for the papers by Glauert [the late Michael B. Glauert, then a PhD student of Lighthill] and yourself for the Journal. I notice that you have not put any date of receipt on your own paper; should I mark it December 12th, which is the day on which it left you and which is therefore presumably the day on which it was ready for the appropriate Associate Editor (namely yourself)? I do not think it matters very much whether you record in your book the dates on which the referee receives and sends back the paper in cases where you do the refereeing yourself.

I am afraid that Taylor and Francis want authors of papers to put symbols on diagrams themselves, as I mentioned in the notes for Associate Editors. This is not the usual practice and I tried to get Taylor and Francis to work to the customary plan by which the author inserts the lettering in pencil or describes them on a separate sheet. However they are insistent that this plan leads to costly errors in the making of blocks and they want the letterpress to be on the diagrams in ink before they are sent to the printer. (The legends should of course be typed on a separate sheet as usual.) I am returning herewith the diagrams for your paper and Glauert's paper for you to alter accordingly. The symbols should of course be inserted on a sufficiently large scale to withstand later reduction.

I think it is slightly immoral for Associate Editors to referee their own papers as a general practice but I can well understand that there is no particular need for

certain papers. I propose to read your paper myself in any case out of pure interest. I too have been rather intrigued by Darwin's result about drift, and have recently drawn attention to it in an article on turbulent diffusion for Applied Mechanics Reviews.
Yours sincerely - George

(M.J.L. to G.K.B., 29 December 1955)

Dear George,
Thank you for various missives. I like the layout of the cover, and the general style of the pages of text which you sent me seem quite suitable. The dates of receipt for mine and Hall's papers should, as you assume, be those on which the papers left me.

I was a little upset by your views of Glauert's paper, which I considered to be well written. I wonder whether you are possibly going a bit beyond absolute judgements of style, on which all reasonable people can agree, into questions of purely personal preference? This question of whether you like to have enormous paragraphs or rather frequent short ones seems to me to be a matter of personal taste and of suiting the literary style of the author. Some people object to a paragraph consisting of only one sentence, but this seems to me to suit the style of some authors, and Glauert's rather Jane Austeny style in particular. The question of sub-headings is one which I would accept (although the section which you describe as mammoth is only seven pages). Some of your changes of wording seem to me to be most objectionable however. 'There is the classical Hiemenz solution' seems to me to be much better than 'there is available the classical Hiemenz solution.' 'Since' appears preferable to 'in view of the relation.' 'Now D must be chosen so that' appears better than 'we now choose D so that.' I have picked a few changes at random but these are typical of my views. I am not saying that there are not one or two places where I would agree with you, particularly where you call for display of certain equations on separate lines. Where I cannot agree with you is in the idea that everyone's style must be made uniformly pompous. I do not propose to show Glauert all the alterations you have made as it seems to be unnecessarily antagonising to authors to do this. I shall go through them with an indiarubber first and leave only those which seem to me reasonable editorial suggestions, which he will doubtless be willing to consider.
Yours sincerely - James

Those of us who knew both George Batchelor and James Lighthill will know that their different temperaments led to continued tension between them for the rest of their lives. When asked who was the greatest fluid dynamicist in the first half of the 20th century, George invariably pointed to G.I. Taylor, his hero and early mentor, while James picked Ludwig Prandtl, ostensibly because, in addition to research brilliance, he founded the large and influential research group at Göttingen, whereas Taylor was essentially a loner – but I have always suspected that James's choice was made principally to annoy George. It is not recorded who Lighthill thought was the greatest fluid dynamicist of the second half of the 20th century! I think we would put both Batchelor, who died in 2000, and Lighthill, who died in 1998, among the very few internationally dominant individuals for that half-century. By the way, this year is the centenary of Lighthill's birth; Batchelor would have been 104 now.

Looking back at '*JFM* at 50' I have briefly scanned the list of papers in a single recent volume, no. 986, published in May this year. The total number of papers is 43, whereas

there were 49 in the three volumes 532 to 534 in 2005. I would again wish to remark on the increasing average length of papers, which has been inevitable since the transition to online-only publication removed one of the few constraints that an Associate Editor had been able to wield on authors whose papers were correct but less interesting than they could have been. In vol. 986 the average length was 30 pages, compared with 25 in vol. 532–534 – an increase but not as excessive as it might have been.

The distribution between different topics is still dominated by turbulence-related papers – 13 in the recent volume compared with 12 in the earlier three, but newer subjects like biological fluid dynamics (BFD) are creeping up – BFD had six (or seven) in vol. 986 versus two in the three 2005 volumes.

A major initiative, with the aim of enhancing the profile of fluid mechanics generally, especially among scientists and engineers, was the introduction by CUP and *JFM* together of the *G.K. Batchelor Prize in Fluid Mechanics.* This is awarded every four years and presented, together with a lecture by the prize winner, at the International Congress of Theoretical and Applied Mechanics (ICTAM). It is not an 'early-career researcher' award, but is based on a nominee's publications in the ten years preceding the announcement of the forthcoming award. The first *Batchelor Prize* was awarded in August 2008 (to Professor Howard Stone of Princeton) at the 22nd ICTAM in Adelaide, Australia. (I was the chairman of the selection committee, which met during the 2007 annual meeting of the American Physical Society Division of Fluid Dynamics in Salt Lake City.) Since then CUP has generously maintained its sponsorship of this award and the whole community is extremely grateful. The solid mechanics community quickly learned about this initiative because making the award at the ICTAM would require the agreement of the IUTAM officers and central committees, which are divided roughly equally between fluid and solid mechanics. The solids people successfully lobbied Elsevier to sponsor a similar prize, the *Rodney Hill Prize in Solid Mechanics*, which has also been awarded at each ICTAM since 2008.

I think there can be little doubt that, as long as the writing of refereed scientific papers remains central to the success of scientific endeavour, the field of fluid mechanics and the *Journal of Fluid Mechanics* will continue to grow and to prosper. It has been a pleasure and an honour to contribute in a small way to this prosperity.

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