# CORRESPONDENCE

***The following have been received in answer to Mr. A. D. Baxter's article in the March 1966 Journal.***

I AGREE absolutely with two major functions set out for the JOURNAL to fulfil. The first function, that of upholding the learned reputation of the Society, would appear to be carried out extremely well through the lectures and papers published. It is in the second function, the rapid dissemination of technical matters of current importance and interest, where I feel the JOURNAL's record becomes a little dismal.

A survey of the Technical Notes published in the past four relevant issues of the JOURNAL reveals an average time from first receipt of manuscript to publication of some five months, with a spread of from one to ten months. If due account is taken of time for authors' revisions, the average time to publication still remains at over four months. When one considers the situation of our trans-Atlantic counterpart in the AIAA, it is found that although average publication times turn out to be very similar (just less actually), there is a very much reduced spread, and the AIAA anyway produces several journals *each one* containing a number of Technical Comments almost an order of magnitude greater than that published in the JOURNAL.

The "current knowledge dissemination rate" of the Royal Aeronautical Society compares therefore, very unfavourably indeed with that of the AIAA. Thus, if one happens to be working in a rapidly moving research area, it can actually be a positive disadvantage to an author to submit his Technical Notes to the JOURNAL for publication.

One recognises that the Royal Aeronautical Society cannot match, on financial grounds alone, the production of the AIAA, but if the JOURNAL is to fulfil the second of its stated functions, then surely a more vigorous approach to and expansion of, the Technical Notes section is called for. No article which is ten months before a publications committee can be called "current" when related to the present rates of advance.

G. J. STURGESS (*Graduate*)
23*rd March* 1966

I THINK it is right that the Society should foster discussion of all matters concerning the aircraft industry. The question for the Society's *second* century is how we can make the industry sufficiently flexible and efficient so that it will thrive rather than merely survive. Everyone in the industry is virtually concerned about this, and the activities of the Society give an opportunity to those normally in "the back room" to canvass their ideas.

I doubt if anyone would disagree that the need is to ensure that each project the industry undertakes

(*a*) is studied in great detail and compared with alternatives before any metal is cut, to ensure that the main engineering problems have been foreseen and can be overcome;

(*b*) represents a sufficient step forward to ensure a reasonable production run;

(*c*) is of a construction that is easy and cheap to produce and, at the same time, increasingly reliable.

I venture to suggest that far too much of the design and development work is carried through by the experience and judgment of senior men, and far too little attention is paid to the possibilities of eliminating crises long before they occur. Of course the experience and judgment of these people is vital, and of course some attention is given to bringing science and computers to bear. (I myself am employed by an engine company on the science and computers aspect, and am now given much encouragement). However, I find it very sad how limited is the general vision of what is now possible.

I believe if the effort in basic research and computing in the industry is sufficiently expanded and well directed it will be possible to expect projects to work straight from the drawing board in five to ten years' time. The effect that this would have on development time and cost hardly needs stating. Such a break-through would also make the industry far less liable to government cancellations.

I would imagine the Society playing a decisive role. Collaboration and advisory committees are already legion, but these do not have their deliberations widely publicised, and interchange of ideas between these bodies is not automatic. More important, the Society has the ear of senior management which these bodies do not necessarily have. It may be that the research and computing should be organised by a national body like the Council's proposed "Aerospace Planning Authority", but there are obvious disadvantages in not having the science in the industry itself.

P. E. HUBBLE (*Associate Fellow*)
28*th March* 1966

THE editorial in the March JOURNAL seems to me admirably timed and deserves to provoke a wide response. Most of the criticism I feel constrained to advance is less of the JOURNAL, than of the Society.

It seems to me the Society does an admirable job in ventilating the engineering side of the art and science of aeronautics, but that it has failed utterly in the task of examining what, for want of a better word, may be described as the operational aspects. Certainly there are occasional forays into this field but the results seem to me at least to have been invariably disappointing, mainly because the debates have been poorly organised and the Society appears to lack in this field the sense of purpose that motivates its members on engineering matters. In short, the Society's activities hold more interest for aircraft constructors than for aircraft users, for designers more than for pilots, for engineers more than for navigators or air traffic controllers.

A further impression is that perhaps unconsciously the Society has created its own form of Establishment that only accepts and acts on the criticisms with which it agrees. At the recent meeting on the Plowden Report I found the first hour or so of the talks rather boring. Surely there was no need to waste so much of the limited time available on reports of committee work that could have been circulated in advance. However, I thought the later discussion quite exhilarating and exemplary of what the Society is capable of generating, both in its own and the national interest, if its energies are suitably directed.

In the current edition of the JOURNAL (March 1966) are several articles that illustrate my point. Everbody who attended the discussion on 4th November last (Relationships Between Government and Aeronautics) must have concluded as I did that our French and Swedish friends are much more sensible than we have been in managing their aircraft industry. Does the Society propose any changes or plan to make any recommendations to the Government? I completely disagree with statements such as that made at the Plowden Report meeting to the effect that the Society must learn to live with some of the thoroughly out-of-date practices in our Governmental financial control methods. Surely we should press for changes if we believe they are necessary if we are to achieve the purposes expressed in our charter.

Sir Frederick Tymm's admirable contribution is largely historical, but does refer finally to the chaotic international situation on control and financing of aeronautical services. Does the Society have any views on how a solution might be found to a defect that is having tremendous repercussions throughout the air transport industry?

The Society in my opinion gives inadequate attention to flight safety. I am speaking (as are others) at a meeting held on the Society's premises by an international association this week. Even a cursory look at aircraft accidents over the last ten years shows that the cause in most cases is less to do with the construction or design of the vehicle than the environment in which or the methods by which it was operated. What is the Society doing to examine this very important question?

Air Traffic Control discussions (a most important subject these days) within the Society are usually dull affairs whereat mostly civil servants are asked to speak on government policy they are paid to implement and likely to be in trouble if they criticise.

Does the Society have any views as to whether the current expenditure of well over £100 000 000 on ATC modernisation in this country is either justifiable or being devoted to the best means of correcting its inadequacies?

Has the Society examined the current UK programme of automatic landing to consider whether we are not paying too much heed to scientists' arguments and too little attention to the pilots' reactions?

Finally, may I, with respect, suggest that the Society takes a long hard look at what it should do in the next century to advance the art and science of aeronautics and defines specific objectives in areas it proposes to investigate. So many of its debates are nothing more than interesting and sometimes amusing bull sessions at which the grinding of axes is often too poorly disguised. I believe the outcome of our major discussions should be to formulate subsequently carefully considered recommendations by the Society's Council, especially to answer some of the uninformed and ill-conceived criticism of our aircraft industry that seems these days to be the prerogative of certain outsiders whose ignorance is only equalled by their astonishing audacity.

As you will see, I am certainly amongst those who demand a new outlook for the Society to which I count it a privilege to belong.

E. W. PIKE (*Associate Fellow*)
29*th March* 1966

THE article concerning "The JOURNAL" in the March issue has achieved its purpose so far as I am concerned and I hope that you will accept the following remarks in the spirit in which they are intended and not as an unnecessary harsh criticism of either yourself or the Editor.

First, I must start with the centenary issue of the JOURNAL. I wonder how many members have really written to congratulate you on this issue. I would have thought very few as the general consensus of opinion, so far as the people to whom I have shown it, is the same as my own.

I think it is tragic to have to devote 66 pages to advertisements with 300 for reading matter. Even if you had needed to charge members a special price for this particular centenary copy then it should have been done so that the resultant issue could have been something really worthy of the occasion. It is possible that the current offer to bind the Centenary JOURNAL would have included for the removal of the advertisement section but from the way it is worded I very much doubt it.

Not only have I this criticism to make but with the tragedy at present overtaking the British aircraft industry, I am afraid the centenary issue provides a clue to the reasons behind it, being mainly devoted to an obsession in the past rather than being forward looking, for example: "Cloud Flying in the First World War." How many of today's members can possibly be interested—and still more articles "held over" from the cententary issue continue to appear. Many of us who are not so closely connected with the aircraft industry at the present, often because of the lack of opportunity there, possibly feel more intensely about this situation than those still directly involved. However, it is encouraging to know the attitude of the "Graduates' and Students' Section" in the current issue (March), see page XXVI.

Is the JOURNAL really the best place for technical papers? Admittedly, they are of a high standard but most are so specialised that they can only be of interest to a very small number of readers at any one time—why not have a section in the JOURNAL devoted to a precis of perhaps a dozen papers in each issue so that your readers can apply for those that particularly interest them? The additional space then available should be used for articles of much wider interest so that the majority of your readers could really participate in each issue of the JOURNAL. Other journals, such as that of the Institute of Water Engineers do, I believe, fulfil this function to a much greater extent than does the Aeronautical Society's JOURNAL.

Another way of bringing the JOURNAL to life would be for readers to be invited to participate in a really lively correspondence section. Why, as you suggest in your article, put a page at the disposal of "prominent members"? This is restrictive in itself and perhaps the younger and less prominent members of the Society may also have something to say which is useful or provocative or, perhaps both.

Many of us, because we live away from the centre of town or away from branches, or because our work takes us away from our homes in the UK or abroad, cannot attend the meetings and this means probably that all meetings are attended by the same "hard core" of members. Hence the aliveness of the JOURNAL is, to a large extent, the mainspring of the Society.

Another constant source of irritation is the fact that the JOURNAL is never delivered on time. This is better than it used to be but there still seems little excuse for the March issue arriving last post on the 23rd March. Many have arrived long after at least half the meetings mentioned in the Diary had already taken place, again I am sure readers who might like to attend are not in the position to make last minute dates due to their business and private commitments.

At least, Mr. Baxter, your article provoked me sufficiently to write and I can assure you that my feelings have always been the same ever since I joined the Society about 20 years ago as a student. Receiving the Centenary issue, in which I was extremely disappointed, was the first pinprick and your article was the second.

A. D. MUNRO (*Associate*)
28*th March* 1966

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**"The Gap"**

HE was the Project Team Leader for a very advanced supersonic new fighter for the Royal Air Force undergoing intensive flying trials in Fighter Command; I had called to see him about another recent accident connected with a spate of undercarriage troubles besetting the Squadron selected to test a full complement of these aircraft before full-scale production was started. The Air Staff—always trying to keep their dates with Destiny—were much perturbed.

As I entered his office I was immediately attracted by a disorderly pile of unopened JOURNALS on a side table which lay there just as they had been received, rolled up in their familiar buff wrappings which temptingly said on

one side, "Pull!" Nodding towards them enquiringly, I joked, "Saving them for some quiet holiday reading?" PTL smiled back, "My form of protest: easier than marching. Don't you think they have a certain mute appeal lying there? So much patent theory going to waste; they're always so beautifully edited and printed too: a treasure trove waiting to be opened and read, *and understood,* by someone with time to spare: by someone like me in my Graduate days, avidly trying to keep up with the state of the Art. But now I'm too preoccupied with bridging the Gap." "The Gap?" I echoed.

"Yes, the Gap. I'll come to it in a moment. I gave up reading the JOURNAL immediately it came, about two years ago when I returned from a post-graduate course on supersonics at Henlow and Cranfield and was posted into this job; into almost a different world of problems which have not let up for a moment and given me no time to think of anything else, let alone read those time-consuming JOURNALS. Do you read them? Come, be honest?"

"Oh, I read the Notices, and I like to thumb through them quickly to see what my favourite Sir Oracles have had to say when a particularly topical and maybe controversial subject has been discussed by the Society, like the Plowden Report, for example. This might lead me on to read more."

"I used to do that, but then they seemed to me to be so hopelessly out of touch, particularly the News of Members and my Branch news. In a Society like this one likes to know of professional news of one's friends, and rivals, as quickly as possible. Often I found the JOURNAL gave out details of a meeting or of an exciting discussion which I would have liked to have made the effort to go to, after the event. I do think this kind of information could be sent around by means of a Weekly News Sheet, don't you?"

"Yes, with a footnote on the latest crises in the Aircraft Industry," I quipped. It's a question of semantics though—what do you mean by the word 'JOURNAL'?"

"My idea of it is a specialist magazine for all the Society's members to keep them in touch with their profession and in which to exchange their ideas and knowledge, not in the way you incline to, but in another way, in which I think the JOURNAL'S out of touch. So much in it seems to me to be remote from the real world of aeronautical engineering as I find it; I mean the active, solid and practical end of all the aeronautical theories with which I have to grapple in this job. The JOURNAL leaves a 'gap' in my mind and work between the purist theory of the laboratory operating in a vacuum and the practical application which the engineer has to cope with. It is this void of information which I call the 'Gap'. The gap between theory and practice; between the design and the hardware. At least in this Country, it seems to exist, not only in the JOURNAL, but also in the Aircraft Industry as a whole. We have designers and academaticians who are exceptional, whose ideas and designs are as advanced as any in the World, but their translation into hardware is sometimes b— awful, to put it mildly. Take this undercarriage we're concerned about for example: did you ever see such a contraption made to give trouble; and what trouble!" PTL mused, "Every time it sticks up the pilot has to eject and £500 000 of the Tax-payers' hard earned money is written off because it is fatal for the pilot to try to make a belly landing to save the aircraft. Thank Heaven we've got at least one good Engineer in the Industry who can get the pilot out of his cockpit safely very much quicker than he can get into it—and in Fighter Command we have to try and get them into their cockpits pretty quickly if they are to do much good. Where are all the good Engineers?" (PTL was warming to his subject—getting up onto his tub.) "Barnes Wallis would have had his swing-wing swinging all over England by now if only we had had enough Engineers able to get hold of it and make it work." *Sotto voce* he added, "With a little more R & D money too, of course. It seems as if most of the worst designs get rushed into production before they have been 'engineered'. You may remember that story about the 'Bullfinch' we had before the War. The designer was old So-and-So; quite a *prima donna,* but a clever chap. He met the Chief Engineer and proudly presented him with the GA drawings. The CE gave them a long hard look and then deliberately tore them into little pieces. Pointing to the pieces, he turned to old So-and-So and said, 'Now we will redesign each of those sections so that they can be engineered as systems, manufactured easily and cheaply, and flown safely!' It was the best aircraft the RAF ever had for its role."

"So you think the JOURNAL carries some of the blame for all this?" I asked PTL.

"In a way, yes. It is an indication, I feel that, like engineering in general in this Country, the JOURNAL doesn't give enough of the right food for thought along the lines which helps to breed good Engineers and consequently, good aircraft. Perhaps it's the fault of the Engineers themselves for not ploughing back, via the JOURNAL, their knowledge and experience: but as there are too few of them and they are hard at it, with no spare time, it becomes a gap constantly getting wider. We should remember too that the Society incorporated the Institution of Aeronautical Engineers in 1927, so it owes its Engineers something more than I think they get from it. Or am I wrong? Perhaps you think it is another case of semantics: what do I mean by aeronautical engineering? All I can say to that is this, I would open all those JOURNALS in a flash and pore through them if I thought I would find some help from them in solving the kind of problems I'm constantly plagued by. We don't get anywhere near enough papers now such as we used to get from Fedden on engines, Banks on fuels, Gouge on structures, Dowty on undercarriages."

PTL went on. "Now take Dowty's paper on undercarriages given in December 1935. Here is the very essence of aeronautical engineering. I have a copy which is dog-eared. If we'd more of this kind of paper during the past 20 years maybe we would not now be so frantic over our failures today. As it is, we're all desperately and retrospectively trying to bridge the Gap I've been talking far too much about; the Gap that only well trained Engineers can bridge, by costly modifications when it should have been right first time, and by Engineers I mean—Engineers who forge, cut and bend materials to do their will."

"I'm with you now, go on." Cautiously I added, "But there must be food for all tastes in the JOURNAL."

"Of course, but we could all enjoy the food more if it is served up more palatably. A lot of the papers in the JOURNAL are beyond my comprehension and I get very annoyed at my apparent ignorance. Sheer vanity I admit, but you know many scientists just cannot write to be understood."

"Well, PTL, I think if you open your JOURNALS you will find that during the past year at least things are beginning to swing your way, so hang on to them."

"Oh, to me they are ranked with very good books on the Library shelf. I like to see them there. They give me a faint sense of security somehow: quite inexplicable. Anway, rolled up they make darned good coches when I'm pressed too hard about 'serviceability' states. So let's get down to some real engineering and go over this latest undercarriage failure."

Gp. Capt. E. A. HARROP, OBE, CEng, *Fellow,* RAF (retd)
16*th April* 1966.