

ROYAL METEOROLOGICAL SOCIETY: AUSTRALIAN BRANCH MEETING

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Images of a Meteorologist

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Introducing his talk with a lighthearted definition of a 'weather man' and a 'weather modifier', Dr Priestley urged the importance to our profession of our 'images' as meteorologists. He admitted to being still self conscious about his profession.

A number of other professions, be believed, are easier than ours, are of less public benefit, and yet have better images. We should be concerned to remedy this position, and the Society must provide the forum.

His concern is not only the public image, but also that reflected by the scientific and educational world, and the images that the different groups within the profession have of each other. We must be prepared to analyse our self image and expose it to others.

Scientific image

Browsing among histories of meteorology and particularly the relevant volume of Napier Shaw's *Manual of Meteorology*, one is impressed by the number of famous names in physics and applied mathematics receiving frequent mention.

The speaker then read a list of twenty-six such names, ranging from Francis Bacon to N.L. Carnot. Most of these men saw in the atmosphere an outlet of practical importance for their work, and deliberately sought to develop this practical association to the utmost of their ability. It is an impressive list of 'meteorologists', any one of whom would have been a Nobel prize winner if they hadn't lived before Nobel. One would have been proud to write a joint paper with any one of them!

An interesting feature of this list is that it cuts off abruptly at about 1850. Only three names could be listed of comparably eminent mathematicians or physicists of the speaker's time who deliberately turned to look at meteorology, and two of these deliberately turned away again.

If we ask what was significant about the date of discontinuity, we must turn to the history of another aspect of meteorology.

About 1840 came the invention of the electric telegraph by Wheatstone and Morse, for which meteorology might be said to have been waiting. This made it possible to plot weather maps in real time. There followed the landmark of 1853, the first conference on international meteorology, essentially synoptic meteorology, in Brussels; and the landmark of 1854 when Admiral FitzRoy was appointed the first Head of the Meteorological Department of the Board of Trade in Great Britain. It is common knowledge that a few years later the validity of what FitzRoy was doing was publicly questioned. A group of scientists, several of them from the Royal Society, were appointed to examine it, and came up with the verdict that it was not scientifically viable. The activities were discontinued.

Although for practical reasons FitzRoy's official efforts were resumed a few years later, it was obvious that here was a major confrontation between the establishment of science and the way meteorology wanted to develop. The clear fact was, at that time, that the best mathematical and physical minds could take no interest in a subject that was developing along almost purely descriptive lines, with the enormous room for error and uncertainty that this inevitably implied.

It was a most regrettable separation, but it was real, and it persisted. It was still strongly in evidence early in Dr Priestley's own career, and it is probably only within the last 25 to 30 years that conscious efforts have been made from both sides to bridge the gap. Even this attempt at times has had its setbacks: notably about 15 years ago in the American Meteorological Society, whose very existence was imperilled by differences of attitudes between the service and the academic component. Australia, then, faces no new situation in this regard.

The speaker remembered 10 years ago asking Prof. P.A. Sheppard why he was such an enthusiastic advocate of GARP, since he was far from the synoptic in his main interests. The reply was that the great virtue of GARP was that it would 'help to make meteorology respectable'. Sheppard saw in GARP an exercise that most professional mathematicians and physicists could understand and admire, and this would help to bring about a better status for meteorology in the world of science.

Thus the symptoms of this separation have been world-wide, but it is useful to mention a few that seem to be of importance on the Australian scene. Some it may be possible to remedy, others not, but without a proper diagnosis we can hardly expect to effect a cure.

Pre-eminent among the symptoms has been the difficulty of gaining for meteorology its proper place in the sun, so far as Australian universities are concerned (or British either, as Sheppard's above remarks illustrate). Professorial boards have not by and large extended welcoming arms to us. This has tended to create for us a self-perpetuating handicap. If we seek a better image, education is our most important weapon. By this is meant education in the wider sense, producing a greater awareness of meteorology, as well as in the sense of producing professional meteorologists.

Dr Priestley particularly regretted the way the Branch had been slow to pursue the survey of tertiary education in meteorology that it announced in its first flush of enthusiasm, and welcomed the recent announcement that this is to be revived. He offered what help he could give in these endeavours.

The Branch should also be asking itself how well meteorology is being introduced into Australian schools, in geography and science teaching. He could remember being taught that wind is caused by hot air rising and cold air rushing in to take its place; and hoped (but doubted) that modern teaching is better. There must be scope for action here. Could the Society do more to promote works like the excellent little book on Australian weather Mr A.J. Shields wrote 12 years ago that was published in the 'Jacaranda Pocket Guides' series?

Another 'symptom' was described. A letter was received several months ago from a professor who was chairing a committee of the Australian Institute of Physics, formed to prepare a submission to the Independent Inquiry into CSIRO. Dr Priestley was asked to comment on their draft, which he did, stressing the value of this submission for CSIRO. He added, however, that he had noticed that the Institute had made no response to the Green Paper on Australian meteorological services. This was odd, because whereas only a small part of CSIRO's work was in physics, almost the whole of meteorology was. The professor agreed, but pointed out that such actions are responses to government inquiries arose from the existence of groups of activist interest within the Institute, and although meteorology constituted a large profession within physics, there had been relatively few members in the Institute. Those who have been active in the past, such as Dr Priestley and Dr Dyer, had noted this for themselves. The moral might be that our profession is taking too narrow a view of itself, and not joining sufficiently in wider scientific activities.

In the higher scientific echelons there have been similar problems to those in universities. Dr Priestley had been elected a Fellow of the Australian Academy at its foundation, but in his struggle to obtain better recognition for meteorology within the Academy, and further representatives as Fellows, he has had to fight some

lonely battles against heavy odds. The traditional and well-established sciences, and those, such as radio astronomy, with exceptionally strong local achievement, have the numbers, get the votes, and thereby dominate the attitudes.

About two years ago, when the Academy decided, at the Government's request, on a Review of Climatic Change, there was pressure for it to be chaired by a distinguished biologist. This was averted, but one must consider the false scents such a chairman might have followed and the sad external scientific image Australian meteorology would have gained thereby.

Lest the audience should incline to the view that Academy matters are elitist issues beyond the concern of this Society, it was pointed out that the role of the Academy in meteorology down the years has been substantial. The Academy was instrumental in the establishment of hydrometeorological services and of the International Antarctic Analysis Centre. Moreover, after the National Committee for GARP first presented its recommendations, early in 1974, as to the form and extent of the Australian contribution to FGGE, the matter remained in dangerous abeyance for over two years. However, the speaker had been able to convince the Council of the Academy of the real practical and scientific value of the program, and they had espoused the cause wholeheartedly. This, in the event, gave the meteorological community as a whole the only lever through which it was able to keep exerting some real pressure on the Government. Finally the battle was won, and a substantial grant was obtained for the drifting buoy program. Subsequent events proved what had previously been warned, that had Australia not committed itself to this project, in the nick of time, the whole international southern hemisphere buoy project would have been scrapped, and GARP would indeed have become HARP. Any success of FGGE in the southern hemisphere will owe much to this critical Academy support.

Mutual and self images

Mutual images are, it was said, prickly matters, but as this was his first address to this Branch of the Society, and as he had recently more or less shed his institutional cloak, Dr Priestley concentrated on discussing his own image, and allowing implications about mutual images to flow from that. With his own image he included that of Aspendale.

His closest professional colleague was Dr W.C. Swinbank, and over a period of more than 20 years they knew exactly what each thought of the other. At times their 'discussions' were heated enough to ring down the passage, and their secretary had to soothe them with cups of tea or draughts from a bottle that she kept tucked away for this purpose, at her own expense. (Something is implied here about the image of an ideal secretary.)

Both of them had ideas, and they made a better partnership by exposing and facing up to their differences than if they had suppressed them, or if one had been submissive to the ideas of the other. The same was felt to apply to institutions, which is why some frank speaking is necessary. There is need for studying each other much more, for more individual goodwill and less institutional prejudice. The speaker was pleased to note that the Branch, in its submission to the Independent Inquiry on CSIRO, has emphasised the importance of interchange of staff between institutions.

Among Swinbank's papers was found a form asking him to comment on 'My strengths and weaknesses as a manager'. To this he made the characteristic reply:

I find self-evaluation difficult, and it is anyhow notoriously unreliable and not well correlated with other opinions.

This provoked the speaker's reaction:

Oh wad some power the giftie gie us
To see oursels as others see us!

and the comment that Swinbank was not right to hold back on the grounds that self images can be distorted: equally so can external images. It is somewhere between the self image and the external image that the real truth is to be found, so that both are relevant.

Stories were then related of experiences in a chemical warfare unit in Canada, and of upper wind forecasts for Bomber Command in Europe. In both situations an image was earned, one highly favourable, the other highly unfavourable, both purely of circumstantial origin and almost equally undeserved.

Other examples were given from his experience of completely false images coming about between individuals or groups of professional meteorologists.

Better mutual understanding requires us to expose our self image to others. One myth that prevails in some quarters and needs to be exploded is that CSIRO guarantees to meteorology a predetermined level of support. This never has been so.

It should be appreciated that meteorology in CSIRO, as compared with the Bureau, has not the same immediate routine community service to discharge, and so does *not* have the same security of tenure. This depends in the long run purely on the continuing effort of the people themselves, and the results they can produce. It has always been so.

The original Section of Meteorological Physics was started on a purely experimental basis. Dr Priestley had been told, both by Sir Nelson Johnson, Director of the Meteorological Office, and Sir David Brunt, who had recommended him for the job, that if he went to Australia he was gambling with his career, but the challenge appealed to him, and he had no regrets. At first CSIR had arranged a committee, chaired by Dr Woolley (then Commonwealth Astronomer) and including the heads of the other meteorological institutions, to advise them and Dr Priestley on desired lines of research for the new group to undertake. After a few meetings Dr Woolley recommended that the group should make its own headway and the committee be disbanded, since he had heard no advice brought forward: a good illustration that it is not formal relationships but effective working relationships that really matter.

Dr Priestley attempted to answer the question recently asked, of what is he personally proudest. He has been fortunate to be able to do intellectually satisfying personal research, to help develop some aspects of meteorology, and at least outside Australia has had more than handsome recognition. If he is to be remembered at all he hopes it will be for his contribution to Australian meteorology in the broad rather than the particular. His objective has been to serve Australian meteorology; institutional considerations have been secondary. Nevertheless, the thing of which he is proudest is the creation of the Division of Atmospheric Physics at Aspendale and the atmosphere that prevails there. He had set his heart on building an institution where good original scientific work could be stimulated and thrive hand in hand with community usefulness. He had come to Australia direct from synoptic meteorology, but the synoptic door had been closed to him. His objectives had to be sought largely in other directions.

It might be thought that what followed was typical for CSIRO, but CSIRO Divisions can be as different from each other as chalk from cheese, and the cultivation of the atmosphere desired by the Chief is something very personal that he must see to himself, working on it very hard, deliberately and subtly. The Division has had its setbacks. It lost its two brightest younger men, one by death and one by accident, and indeed in the mid 1960s the Chief thought he read the signs that it was threatened with stagnation, a condition that overtakes many institutions of this type. Swinbank thought so too, and this was one reason for his seeking greener pastures in the USA. Fortunately, however, word had got around that meteorology *was* becoming respectable, that Aspendale was not a bad place to work, and the tide of recruitment quite suddenly and dramatically changed. One can look around today, not just at

Aspendale, but more widely, and identify a considerably larger number of young men than ever before who are making a very distinct mark on the development of our subject, and may be expected to continue doing so for 20 years. In fact we have today in Australian meteorology a potential for progress as good as anywhere in the world, and whoever weakens this strength will have much to answer for. These younger men do not have to be fed with ideas. They have the quality that makes this unnecessary, and encouragement plus maintenance of the proper background is all that is called for. The speaker does pride himself however that, whether they realise it or not, most of them have benefitted from an atmosphere that he worked very hard to create, and that did not exist in Australia before.

Public image

The final area of images is one we all share: the public image of the meteorologist, including that prevailing in Canberra and like corridors of governmental power.

Recently a review was held of the Bureau of Meteorology, the largest and most important organisation for meteorology in the country; and it was conducted by a committee that included no meteorologist or anyone really at all versed in the subject. Could one imagine a review of the National Standards Laboratories that did not include a physicist, or of the National Observatory without an astronomer? Such committees would never have been formed, but what a howl would have been raised if they had! The implications about our image seem to be very serious indeed. Both Dr Priestley and the Australian Branch of the Society had tried to anticipate and prevent this from happening. It is uncertain what more could have been done, but it is hoped the Branch will do its best to stop anything remotely like this ever happening again.

Coming now to the more public, as distinct from the governmental image, in a recent very interesting talk by Mr R.L. Southern, the tremendous impact of American meteorologists on television programs was described. Satellite pictures are used in these presentations to unfold the exciting drama of the weather to the public. While we cannot do this sort of thing in Australia just yet with quite the same impact, one vividly recalls in Melbourne what might be referred to as the era of Mr Bob Crowder. The speaker believed Bob Crowder did more for the public image of the meteorologist, in Victoria at least, than anyone before or since; he said this not only because of the enjoyment he himself received from Crowder's programs, but from the many spontaneous reactions fed back to him from laymen in all walks of life. These people became aware for the first time not only of some of the drama, but also of the inherent nature of the problems and the very considerable difficulties under which the forecaster operates. The amount of sympathy this generated, and the improved tolerance for the occasional mistakes, was immense. The speaker wondered whether the time is not ripe, possibly for the Branch and the Bureau acting together, to try to get this type of presentation restored.

The view was put that the general public has yet to be made properly conscious of the potential width of importance of meteorology to the community. Generally speaking, the public evaluate it only in terms of the forecast being right or wrong: that is all there is to meteorology so far as they are concerned. We seem to be selling ourselves short on publicising the many other uses to which our understanding of the atmosphere is being put.

One example of this is the area of urban meteorology. The Branch had a very good conference on this recently but did not hit the headlines in the way it might have done.

Urban meteorology is only one such extension area that the Branch has not advertised enough. There is water conservation, climatology, microclimatology, the environment of plants and animals, and many others that could be elaborated. The speaker himself accepted much of the blame here, for although he had promoted effort in these fields, he had never been a good public relations man. We must publicise more of what we have to offer in these and other fields, in order to open up a greater diversity of employment opportunity.

Our still somewhat monolithic employment structure is another symptom from which we suffer, which has feedback to the future, since it affects our competitive power in attracting a full share of the best students to come into meteorology.

It was suggested that we might ask ourselves whether the community, or authorities who appoint members of technical inquiries, have ever yet approached this branch of the Society for its opinion, or asked it to nominate an expert or other sort of representative to serve on a committee. Perhaps the Branch is as yet too young to have reasonably expected this to happen, but it should look for it to happen, and try to see that it does happen, increasingly from now on. In this environmentally conscious age there is a growing obligation on the profession as a whole to look at contentious environmental issues and see that a balanced opinion is put forward. Some of our scientists (the reference is to the total profession rather than the Australian sector of it) have themselves set the pace in making extreme and exaggerated statements, always given prominence in the media, and it is largely left to other individuals in the profession who value a more balanced attitude to try to tone them down. Such public debates within our own profession are a worrying feature and do not help our image. Most of us agree that the extreme view should not be advanced but, once it has been done, and the media have seized upon it, should the rest of us let it go, or should we publicly challenge the view? If we choose the latter course, more often than not we are only labelled and abused for our pains.

Dr Priestley spoke from personal experience of this situation. He referred particularly to the supersonic transport brouhaha which erupted a few years ago, when he was given the job by the Academy of chairing a committee about it.

This was a purely spontaneous decision of the Academy aimed at providing the *public* with a balanced viewpoint based on the best scientific knowledge and understanding available at the time.

What eventuated? First, this purpose was publicly misconstrued, in some cases deliberately. The committee was represented as having been requested by, and reporting to, the Government, and only concerned to report what the Government wanted to hear. A representative of a group called Ecology Action broadcast in a radio program and most clearly implied that strong-arm tactics and suppression of viewpoint had been used within the Committee itself. The Society for Social Responsibility of Scientists also abused the Committee publicly, although it was pointed out to them in response that the prime social responsibility of scientists was to project good, *balanced* scientific views. A senior officer of the National Conservation Foundation, at a luncheon about a year later, told Dr Priestley that he was now personally firmly labelled as an anti-conservationist by the Foundation and hoped that his opinion was never sought on any such matter ever again.

The danger of being labelled and ostracised is sad, but the greater danger is that many of us will lose our professional integrity through emotional attitudes towards such issues and be caught up more and more in the bigotry of the pressure groups. Dr Priestley felt so strongly about this that when he was asked to give the Graduation Day address at the University of New South Wales in the same year, the theme he chose was the desirability of scientists taking a balanced and unemotional stance on environmental issues. This address was published in full. A sad aftermath was revealed by an officer at the Division in Aspendale, taking a university course. She picked up the arguments for a balanced point of view and used them in her answer to an examination question. She was given a low mark and told this was not what she had been taught!

Dr Priestley concluded his address on the note that the modern trend towards unbalanced pressure group attitudes is a feature about our subject today that should be causing the Branch very great concern. To reach a balanced view ourselves and to persuade the media to present it, are two of our greatest challenges - but this is what the science of meteorology is all about, and this should be one of the prime motives of a Meteorological Society.