

“THE DEVELOPMENT OF SCIENCE REPORTING - A CASE STUDY”

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Many aspects of science reporting can be examined via a study of current media activities. However, in order to question whether current science reporting has any unique features, or, more generally, to look at trends in such reporting, it is necessary to employ an extended timebase. Here we examine ways in which progress in astronomy has been communicated to the general public in the UK since the latter part of the nineteenth century. The intention is to set present-day reporting of astronomy in its appropriate context.

Selection of science for reporting

The impetus for reporting scientific advances depends, to some extent, on the branch of science concerned. Thus, for physics (nowadays a cognate subject to astronomy), advances might be reported in the media for, four main reasons.

(1) Because it possesses some immediate relevance to human life. An obvious example at the end of the Second World War was the atomic bomb; a somewhat less obvious one in the same period was the production of radioactive isotopes for use in medicine.

(2) The next category -applications- tends to merge with (1). Examples in the late nineteenth and early twentieth centuries include advances in physics relating to the provision of electricity and the development of radio and photography.

(3) The third category concerns aspects of physics that relate to the human environment, and so it, too, may also merge with (1). An obvious example under this heading is meteorology.

(4) Finally, and obviously, any advance in physics that the scientific community judges to be of major significance must be reported, however esoteric it may seem. An example is the continuing reporting of work on fundamental particles since the Second World War.

If we now compare astronomy with physics, categories (1), (3) and (4) obviously apply. Category (2) does not. (Though astronomy was previously a highly practical subject for measuring position and time on Earth, these aspects of the subject have become much less important over the past hundred years). However, the categories do require some further interpretation for astronomy, (1) involves considerations of how human beings fit into the universe (i.e. the philosophical or theological implications of astronomical advances). Under (3), the astronomical "environment" tends to split into two categories so far

as public interest is concerned. The first consists of those astronomical objects that are closest to us (i.e. the solar system); the second is, conversely, the most distant objects (i.e. the universe as a whole).

If considered in terms of the foregoing three categories, the "newsworthiness" of astronomy has fluctuated over the past hundred years or more. The changes in the main focus of astronomical research at each epoch can be correlated with variations in type and extent of media coverage of the subject. In the nineteenth century, the solar system was still of key importance for astronomical observation, and these observations were usually of a straightforward kind, and relatively easy to describe. Hence, a fair proportion of all science reporting was devoted to astronomy. By the end of the last century, astronomical attention was coming to concentrate on objects outside the solar system, and especially towards observing the physical properties of stars. Not only was this a move to objects of lesser interest to the general public: the observations involved -for example, spectroscopic- were less easy to interpret in simple language. Consequently, there was a fall off in the relative amount of popular reporting of astronomy in the inter-war years. There were, naturally, exceptions where new material fitted well into our previous categorisation. The obvious example is Einstein's theory (and its observational tests) scored very highly in categories (1) and (4). It was therefore the most widely reported scientific development during the 1920s.

After the Second World War, the proportion of science reporting devoted to astronomy soared with the beginning of the space age. Space exploration was seen as highly significant under all three categories (1), (3) and (4). (Indeed, there was from the start considerable discussion of its importance under category (2) as well). By the latter part of the 1960s, items devoted to space advances had become one of the dominant elements in science reporting. Though the proportion subsequently fell back, a survey of New Scientist readers, published in 1985, showed that space exploration headed the list of what they saw as the most important scientific achievements since the Second World War. It should be added, in passing, that "space research" is not necessarily the same as "astronomy". However, the average member of the public sees them as inextricably linked.

Approaches to reporting

Science can be reported in variety of ways. Some of these seem more appropriate at particular times, and for particular scientific fields, than do others. This can be illustrated by four ways of presenting astronomy: two now lie mainly in the past, while the other two still figure today.

(1) Romance. Until the First World War, it was commonplace to emphasize the romance and wonder of science and technology when writing for a lay public. This was particularly characteristic of children's books, which might even bear titles of the type -"The romance of..." Though this romantic emphasis had a widespread application, it was seen as especially appropriate for astronomy. The French astronomer, Camille Flammarion, exploited this idiom, and was widely read both in French and in English translation. (For example, one of his books, *Astronomie Populaire*, sold 130,000 copies between 1879, when it first appeared, and his death in 1925).

By the latter part of the nineteenth century, this approach tended to be followed by amateur astronomers -more than by professionals when the latter were writing for the general public. The exceptions to this rule were handful of professional astronomers who were better known for the popularisation of their subject, than for their actual research. A more hard-headed approach to astronomy reporting became the norm in the interwar years, and continues so now.

(2) Natural theology. It was customary in nineteenth-century popular writing to stress the connection between astronomy and evidence for the existence of God. By the latter part of the century, astronomy seemed a better bet for this approach than natural history, where Darwinian evolutionary arguments had thrown doubt on the claims of natural theology.

This method of presenting astronomy was already dying out by the First World War, though in sense, it continued in the very popular writing of Eddington and Jeans during the inter war years. However, the mode of presentation had by their time changed greatly. Instead of assuming the period typically presented astronomy in purely scientific terms, only allowing themselves the luxury of speculation at the end.

(3) Spine-chilling. By way of contrast, this way of presenting science is still with us. It involves providing scientific material in such a way that it gives recipients a (sometimes semi-agreeable) frisson of terror. The atomic bomb, pollution scares and warrings about health

derived from recent medical research are obvious examples. In astronomy, it usually takes the form of encounters between extra-terrestrial objects and the Earth. An example from before the First World War was the passage of Comet Halley in 1910. It was predicted that the Earth would pass through the comet's tail. This led to widespread fears, fanned by some newspapers, people would be poisoned.

(4) Gee-whiz. Wonder, awe and fear are not the only emotions that can be played on to arouse readers' interest. Surprise and bewilderment also have a part to play. In astronomy reporting, it has been customary to emphasize the vast distances and times involved: a number followed by a dozen zeroes is guaranteed to bewilder most people. In recent years at least, this approach has been commoner in the tabloids than in the quality newspapers.

These four illustrations of reporting styles by no means complete the gamut of all those available. However, they do illustrate the main point - that astronomical research can be presented to the general public in a number of ways. Over a long timescale, some of these ways become less popular; others stay the same, or become more popular. Overall, not only does the science reported change with time, so does the way it is reported.

Accuracy of reporting

Back in the 1870s, the then editor of *Nature* commented on what he called "newspaper science". He classified popular science writers into three groups - qualified scientists, qualified writers who tried to understand science.

Though he accepted that it was better for science to have some public presentation to the man-in-the-street than to have none at all, he objected to the totally inaccurate picture of science that writers in the last group especially presented.

Such writers typically wrote for what we now label the "tabloid" newspapers, and basic inaccuracy in science reporting by these papers remained common until after the Second World War. "Basic inaccuracy" here means that the reporter totally misunderstood the significance of the advance being reported.

The position improved after the Second World War for a variety of reasons. Some - such as the increased level of education of both

journalists and readers -were general and long-term. Others were specific to science and to the post-war period. One of these was the greatly enhanced importance of science in the eyes of the general public after the war-time developments. Another was the rise of the professional science journalist, whose expertise typically spanned those of the first two groups noted in the Nature editorial. Consequently, though inaccuracy obviously still continue in science reporting, they now rarely fall into the category of basic incomprehension of what is being reported.

Conclusion

Studies of science reporting over a long baseline can be useful in assessing what are the limitations and virtues of present-day reporting. For astronomy, though the amount of information both reportable and reported has grown immensely, some styles of reporting progress have virtually disappeared. As against this, the accuracy of reporting astronomical research has advanced considerably in the past half century.