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Is this Paper Within the Scope of the Journal?

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The Analyst aims to publish original research papers on the theory and practice of all aspects of analytical chemistry. This seemingly innocuous statement, taken from The Royal Society of Chemistry Information Services publicity on analytical chemistry journals, hides not only a problem for the potential contributor but also one for the referees. "Is this paper within the scope of the journal?" is the first question to which referees are asked to respond when compiling a report.

Analytical chemistry, perhaps more than any of the other branches of chemistry, has suffered chronically from an identity crisis. Over the years, many eminent analytical chemists have attempted to provide definitions of the subject. There is a problem with the provision of concise definitions of scientific disciplines akin to that of trying to specify the position and momentum of an electron. Just as the closer one looks for the electron the fuzzier it becomes, so the uncertainty principle of definitions operates to make a scientific discipline appear more diffuse the closer it is examined. Unlike the situation for the electron, for which historical perspective is an irrelevant parameter, views on the nature of analytical chemistry change with time. This, of course, is because the subject itself is continually changing with time. However, at any given time there are several legitimate viewpoints and the direction from which the observer of a scientific discipline is coming affect the view of the subject. Whether the scientific analogue of this phenomenon is better expressed as angular dependence or as a Doppler shift is probably stretching the use of such analogies too far.

Several writers, including myself,[1] have circumvented the problem by adopting the time-invariant definition that "analytical chemistry is what analytical chemists do." My view of the subject is that, by and large, what analytical chemists do is provide information about the chemical composition of materials in order that a decision may be taken. The various processes by which I considered this information could be provided and evaluated were set out in a recent contribution to the Analytical Viewpoint Series.[2] In that article I described a philosophy of analytical chemistry primarily as a framework for the teaching of the subject. However, I further argued that both the practice of, and research in, the subject were encompassed in that philosophy. This is not my only view of analytical chemistry research. Over the last ten years I have

made observations at a variety of angles and Doppler shifts.[3,4] It would not be inconsistent with any of my previous observations to suggest that research in analytical chemistry consists of attempts to improve the performance of analytical methods by improving the performance of one, some, or all of the various contributing procedures.

These procedures consist of (*a*) sampling, (*b*) chemical pre-treatment (in order that) (*c*) a test or instrumental measurement (may be made), (*d*) interpretation of the test or calibration to convert the result into chemical information and (*e*) evaluation of the quality of that information. The criteria for the evaluation of analytical methods are well known. Though, in the present context, it is worth bearing in mind that they are as much concerned with factors such as speed and cost, as with factors such as accuracy and detection limit.

The criteria for evaluating potential contributions to the analytical literature are perhaps not so well known. The Royal Society of Chemistry issues some guidelines for its referees in which it is stated[5] "The primary criterion for acceptance of a contribution for publication is that it should advance scientific knowledge significantly." It has also been said[6] "that the prime criterion (for the general assessment) of a paper on analysis must be its usefulness." Any apparent discrepancy between these two criteria is resolved if the argument that a contribution to the analytical literature can only be significant if it is useful is accepted.

Despite the existence of these rules, I think we are still some way from the situation where potential contributions can be refereed by an expert system with access to a database containing all published work on analytical chemistry. Professional judgement of a particularly exacting nature is called for in making a decision about what is useful to the analytical chemistry community.

There is no doubt that the interests of the analytical chemistry community are one of the broadest of any area of scientific activity. It follows that a journal, such as *The Analyst*, which aims to serve the need of such a community as a vehicle for the dissemination of research findings will contain a broad spectrum of material. For example, a recent issue[7] contained papers on (*a*) the determination of trace metallic impurities in high-purity cobalt salts, (*b*) the use of a fibre-optic fluorescence probe for the determination of potassium in blood, (*c*) the characterisation of essential oils by gas - liquid chromatography and (*d*) the adulteration of petrol with kerosine.

I predict that rarely, as far as the topic of a contribution is concerned, will *Analyst* referees answer "no" to the question posed in the title. I look forward to many opportunities for allowing them to exercise their judgement on whether contributions represent significant advances to our knowledge of analytical chemistry.

References

1. Tyson, J. F., "Analysis, What Analytical Chemists Do," Royal Society of Chemistry, London, 1988.
2. Tyson, J. F., *Anal. Proc.*, 1989, **26**, 251. "Analytical Viewpoint" is a continuing series of articles providing either a personal view of part of one discipline in analytical chemistry or a philosophical look at a topic of relevance to chemists in general or analytical chemists in particular. Persons wishing to provide an article for publication in the series are invited to contact the Editor of *Analytical Proceedings*.
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4. Tyson, J. F., *Anal. Proc.*, 1988, **25**, 111.
5. "Journals of the Royal Society of Chemistry, Refereeing Procedure and Policy" (1988), p. xxvi.
6. Chalmers, R. A., *Talanta*, 1986, **33**, 7.
7. *Analyst*, 1990, **115**, 353.

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