

Journals in Science Communication

Dr W.R. Breckenridge

Scientific research is a social or community activity, although carried out by individuals or groups of individuals. Scientific research takes place "within a broad social and historical context". Inherent in this practice and vital to its survival is communication. **Communicating research findings, thoughts, and ideas is thus seen as essential for the progress of science.**

In earlier times, the proceedings of scientific societies, the discussions, readings and the circulation of notes and letters by post came to be replaced by more formal means of communication, and the first English language scientific journal was launched in 1665 as the Philosophical Transactions of the Royal Society, which continues to be published today. The regularly issued printed journal or periodical is very much a part of the scientific enterprise today.

As many as 50,000 journals are published in the world today with about 25,000 in Biomedical Science alone. The weekly Current Contents (Life Sciences) lists over 1,500 journals in English. In Sri Lanka, up to 50 or more journals are published – mainly in English, and the oldest journals are the Ceylon Journal of Science first published in 1924, and Spolia Zeylanica first issued by the Colombo Museum in the early nineteen hundreds (1904 or there about).

Journals in science cover a very wide range of disciplines, and many serve very narrow specialties as knowledge has increased enormously today. The general journals serving

a wide readership are few in number, and two such journals receiving the widest circulation in the world are **Nature** (published in England) and **Science** (published in the USA) and both of them appear weekly. Specialist journals have a narrower readership and serve the interests of a particular discipline. Most journals appear regularly every month, bimonthly or quarterly and are paid for by subscriptions.

The organization of a journal involves an Editor and Editorial Board, a panel of reviewers to review articles prior to publication, and every journal has its own set of instructions to authors, which should be followed if a submission is to be considered for publication. Most journals do not charge a fee for publication, but there are a few journals, which require payment for publication. Publishing, printing and distributing the journals are the responsibilities of a separate body.

Journals are published in a number of languages – English, French, Spanish, German, Russian, Chinese, Japanese and Italian to name the dominant languages. Arabic, a once dominant language in ancient science is still in use in countries of North Africa, and the Middle East. English has gradually taken over as the language in which the bulk of scientific findings are published today. No longer is it compulsory or essential for a practicing scientist today to be able to read French, German or even Russian, Japanese or Chinese to keep abreast of current work. Most scientists if they wish to have their work known, or recognized and rewarded, publish in English or

see that their written findings are translated into English. Some good and original work published in a language other than English has been tragically ignored or “discovered” too late to appropriately reward its author.

The expression of a Journal is universal. Many journals published in the so-called third world are not ‘recognized’ in the first world, but nevertheless serve an important function in the local scientific community. It is important that local or regional journals be recognized in their own countries, given support and encouraged to meet the usually expected standards of scientific validity. Breaking into the first world circuit as a journal or as an author will always be difficult for scientists in the third world, and this may be partly overcome by the new revolutionary use of computers, the internet and worldwide web, where one’s work could get immediate attention for whatever the worth of it.

Electronic publishing and printed journals will continue to exist side by side, and each system has its relative merits. A recent report in **Nature** focuses on the Journal of Young Investigators – an international web based journal, which encourages young scientists to publish their work done as undergraduate research projects. This provides “valuable experience in all aspects of scientific publishing for researchers, journal editors and science writers of tomorrow”.

A scientific paper, depending on the particular discipline and the journal it is published in, has a very traditional form or structure. In the biological sciences it generally follows the order summarized as follows: Title, names of authors, a short abstract, introduction, materials

and methods, results, discussion and summary of findings, followed by acknowledgements, and the reference literature cited.

The written article of publication lies at the very core of the scientific endeavour. Here, lies a big challenge to scientific progress – namely the question of misconduct or fraud in science, which has received much publicity during the past 10 to 15 years. Misconduct is outside the scope of this short essay, but briefly it assumes that scientists are truthful or honest in what they publish, follow all the established norms in conducting research and writing up their findings as indicated above in the structure of the scientific paper. Failure to meet these requirements constitutes misconduct, which is a punishable offence, and serves only to sully and inhibit the progress of science.

All scientists should enjoy reading journals, seeing progress and taking pleasure in their own achievements and the achievements of fellow scientists. We can only wish for the continued progress, usefulness, and good health of the scientific journal in whatever forms it may take in the future.