Annals of the
**RHEUMATIC
 DISEASES**

Leader

Future of specialist journals

Asked how long specialist medical journals had been around, the average clinician would probably reply: since the second world war. Yet a few of them have been published for almost as long as some major general journals. The *New England Journal of Medicine* was founded in 1812, the *Lancet* in 1823, and the *Midland Medical and Surgical Reporter* (later the *BMJ*) in 1828; against these can be placed specialist journals that are still published—*Annals d'hygiène publique* (1828), the *Archiv für Anatomie* (1834), and the *Pharmaceutical Journal* (1841). Nevertheless, our clinician would have some grounds for his reply. Though the pace of publishing new specialist journals increased around the turn of the century—and by the first world war many specialties had a general journal of their own, on both sides of the Atlantic—what seems to many an 'explosion' in journal titles has occurred only in the past 20 or 30 years. Is this explosion an illusion and in any case what is the likely future of this type of journal?

All generations have complained of too much to read. In 1899 a Cambridge professor lamented: 'The publication of such matter is a serious injury to the man of science; it absorbs the scanty funds of his libraries, and steals away his poor hours of leisure', in 1940 Sir Robert Hutchison spoke of the danger of science suffocating in its own secretions, repeated in 1965 by Sir Theodore Fox, who concluded that a vast international system of scientific communication was daily becoming less efficient. Yet in Fox's time there were no more than 6000 biomedical journals; today there are probably over 20 000. And, despite complaints and suggestions for betterment, new journals continue to appear. Surely these publications must arise for a purpose?

The answer has come from Derek de Solla Price, the British expatriate physicist who became a historian of science at Yale. Emphasising that such a growth was a sign of health rather than disease, he showed that scientists have read and written at much the same rate ever since the first journals were started over three centuries ago, and for the same reasons—communication with their peers, establishing priorities for their results, and professional kudos. But as science advances boundaries are crossed and the existing disciplines are found to be too rigid to cope with the new developments; 'invisible colleges' of new disciplines are formed, with members recruited from several of the old ones. New disciplines tend to 'bud off' from the old ones every 10 years or so. For example, rheumatology arose as a new specialty out of general medicine with contributions from orthopaedics, immunology, pathology, and bio-

chemistry. Subsequently, paediatric rheumatology emerged as a subdiscipline, and again contributions came from other specialties such as paediatrics and plastic surgery. Each of the new subspecialties and sub-subspecialties will require its own journal to serve its particular needs. And the emergence of a new condition such as AIDS where there is a burgeoning amount of information and research results must predictably give rise to a crop of journals each serving a particular aspect of the disease.

For these reasons scientific publications have increased steadily, reflecting the number of scientists engaged in the field. The rate has been a consistent 6–7% a year, doubling the number of journals every 10–15 years and rising tenfold every 35–50 years. Thus there is no explosion but a predictable exponential growth. Nevertheless, the impression of sudden expansion is given because of the widening of each discipline; compared with 20 years ago, for instance, today a typical article will have references to twice as many other journals.

What are the implications of these developments? They vary, I believe, according to the 'level' of the journal concerned. The mainstream specialist journal, such as the *Annals of the Rheumatic Diseases* or the *British Journal of Rheumatology*, will survive in its present printed form, but it will continue the evolution of the past few years: to become a general journal of its discipline. Not only will it continue its original function of information, printing the best research articles after ever-more rigorous peer review (including any specific statistical component), but it will also introduce or extend the other components of general journals, such as the *Lancet* or *BMJ*: instruction (editorials or other didactic features), outside comment (letter to the editor or commissioned articles on controversial issues), and miscellaneous (such as news and features on developments abroad). In this way the rheumatological biochemist will know what is going on in the genetic aspects of the subject, the electron-microscopist about new orthopaedic developments, and so on—communication which is in the best interests of the discipline as well as its primary target: improving patient care.

The third and fourth tiers of journals (the hypothetical *Journal of Biochemical Rheumatology* and *Proteides in Synovial Fluid*) will probably survive in print form if there is a real need for them; publishers still find that a circulation as low as 300–400 is financially feasible where there is a true demand for a journal devoted to an important and rapidly developing topic. As to any journals in the superspecialist

fifth tier (*DNA Sequences in Synovial Fluid Proteides*); I suspect this is where the new technology, such as on line services and CDROMS, will come in. Authors will be able to input articles directly, something that is already happening with the human genome project, for example, and, though this method raises problems over peer review, special algorithms are being developed to referee data, while authors are tending to write a different type of article, giving details of the background to the data, and a very brief tentative interpretation.

The final question must be economic. Most such on line services are heavily subsidised in one way or another and any widespread extension seems likely to be limited by costs. Will scientists be willing to pay \$50 for every article they retrieve, as against a \$300 current subscription to a journal? At present it seems likely that only the pharmaceutical industry can contemplate expenditure on this scale,

but information has never been cheap (consider, for example, the hidden costs even today, of libraries, commercial information services, and producing journals) and it is likely that the scientific community will eventually find the means. Obviously I am prejudiced but I cannot see science without publication in some form or other. Without communication, after all, research is incomplete—leading Faraday, for example, to say over 150 years ago ‘work, finish, publish’, and John Ziman no less tersely in our time ‘the object of science is publication’.

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