

THE NEW JOURNALS

Every time you turn around it seems that someone has published a new physics journal. Announcements of new journals appear regularly in *PHYSICS TODAY*, publishers' solicitations crowd your mail box, librarians demand extra display space for current issues.

Some idea of the number of new titles can be obtained from the accompanying list of the English-language physics and astronomy journals, started within the last three years, that have come to the attention of *PHYSICS TODAY*.

Should we, as physicists, welcome these additions to our reading lists? Or should we bemoan the extra contents pages that must be scanned, and deplore the steadily increasing departmental-library budgets?

This proliferation of scientific journals is not a new phenomenon. The now-familiar exponential growth

trying to keep in touch with each other's work. "One of the traditional modes of expression among such groups," says Price, "is the founding of a new scientific organ, a journal which is their medium for communication. . . . Since the 17th century, the besetting sin of all journal creators has been to imagine that theirs was a journal to end all journals in that particular realm of subject matter."

With the 100 or so active supporters and potential authors, a thousand or more subscribers whose work overlaps sufficiently to warrant a subscription, and those libraries that feel they must have everything, the return on investment is apparently good enough to tempt publishers into the journal business.

A physicist starting a literature search in the unfamiliar subfield must first find his way to the appropriate specialist journals. He will need not

are being overlooked by particle physicists who do not realize how much of their subject is hiding behind the "Nuclear Physics" of the title.

To return to our original question, do we really need all these new journals? What quality of papers will we find in them? Does the exponential curve of growth in publishing apply equally to worthwhile papers as it does to all papers?

Unfortunately there are no simple answers. Each individual must review journals in the light of his own needs. If you are one of the club of a hundred or so originators of a new journal you will of course support it; you will find the work of your colleagues there, and you will presumably publish in it yourself. If you read the journal as a newcomer to the field you will soon become familiar with the regular work of the group whose journal it is. But you will probably have to go back to one of the established large-circulation journals to find the occasional landmark paper.

If you are an author whose manuscripts collect more rejection slips than citations you might welcome the extra opportunities for publication. However, the competition among authors for space in the journals will remain high as long as the number of physicists and the number of journals both increase. There are already signs that the steady exponential increase in the production of physicists will not continue to be maintained at the rate of the last hundred years. Is the total number of journals showing equivalent signs of saturation too? After all, many of the small, specialist journals die young. Another factor reducing the total number of journals is consolidation. Two recent examples illustrate this trend.

In the fall of 1968 five established astronomical and astrophysical journals in Europe merged to form one new journal with the title *Astronomy and Astrophysics: a European Journal*. The original five (with the dates of first publication in parentheses)



curves that have characterized annual science expenditures, numbers of new graduates per year and all the other growth parameters of our scientific age used to apply to journals too. More recently the number of journals has been growing linearly—from 200 in 1920 to about 800 now. The doubling times for the exponentially growing physics literature and numbers of physicists have been equal at 8.1 years.

It takes only a few hundred active scientists to start and support a new journal, Derek J. de Solla Price estimates in his book "Little Science, Big Science" (Columbia U. P., New York, 1963). Price discusses the emergence of "invisible colleges," each of a few hundred specialists in some subfield

only the frankly specialized ones but also those general publications that have "acquired" a specialization over the years, such as *Applied Physics Letters* and lasers, or *Nature* and pulsars.

Among the newer specialized journals the searcher has to rely on titles to guide him, and an unspecific title can be misleading. Morton Hamermesh, of the State University of New York at Stony Brook, has mentioned such a case to *PHYSICS TODAY*. *Soviet Journal of Nuclear Physics*, one of the American Institute of Physics translation journals, devotes about half of its space to experimental and theoretical elementary-particle physics. Hamermesh believes that important papers

New Physics and Astronomy Journals

The list that follows includes all the physics and astronomy journals started in 1968 or later that have come to the attention of the PHYSICS TODAY office. Only those published wholly or in part in English are included.

ASTRONOMY

Photographic Journal of the Sun, Osservatorio Astronomico Di Roma, Rome, Italy. (Monthly) 1968

Comments on Astrophysics & Space Physics, Gordon and Breach, New York. (Bimonthly) 1969

Journal for the History of Astronomy, MacDonald and Co., London, UK. (Twice yearly) 1970

Moon; An International Journal of Lunar Studies, D. Reidel Publishing Co., Dordrecht, Netherlands. (Quarterly) 1969

American Astronomical Society Bulletin, AIP for AAS. (Quarterly) 1969

Astronomisk Tidsskrift, published jointly by Astronomisk Selskab, Copenhagen; Norsk Astronomisk Selskab, Oslo; Svenska Astronomiska Sällskapet, Stockholm. (Quarterly) 1968

Astronomy and Astrophysics ("A European Journal"), Springer-Verlag, New York. 1969

PHYSICS

AIP Conference Proceedings, American Institute of Physics, New York. 1970

Applied Acoustics, Elsevier Pub. Co., Ltd., Barking, Essex, UK. (Quarterly) 1968

Applied Spectroscopy Reviews, Marcel Dekker, Inc., New York. 1968

Archives of Mass Spectral Data, John

Wiley, New York. (Bimonthly) 1968

Atomic Data, Academic Press, New York. (Quarterly) 1969

Comments on Atomic & Molecular Physics, Gordon and Breach, New York. (Bimonthly) 1969

Computer Physics Communications, North-Holland, Amsterdam, Netherlands. 1970

Crystal Lattice Defects, Gordon and Breach, New York. (Quarterly) 1969

Defects in Crystalline Solids, North-Holland, Amsterdam, Netherlands. 1968

Foundations of Physics (An International Journal Devoted to the Conceptual Bases of Modern Natural Science), Plenum, New York. (Quarterly) 1970

Gasdynamics, Marcel Dekker, New York. 1969

Geophysical Fluid Dynamics, Gordon and Breach, New York. (Quarterly) 1969

High Temperature Science, Academic Press, New York. (Quarterly) 1969

High Temperatures-High Pressures, Pion Ltd, London, UK. (Bimonthly) 1969

International Journal for Radiation Physics and Chemistry, Pergamon Press, Oxford. (Quarterly) 1969

Journal of Low Temperature Physics, Plenum Pub. Co., New York. (Bimonthly) 1969

Journal of Magnetic Resonance, Academic, New York. (Bimonthly) 1969

Journal of Non-Crystalline Solids, North-Holland, Amsterdam, Netherlands. (Bimonthly) 1968

Journal of Statistical Physics, Plenum Press, New York. (Quarterly) 1969

Lettere Al Nuovo Cimento, Societa Italiana Di Fisica, Bologna, Italy. (3 issues per year) 1969

Mass Spectrometry and Ion Physics (Intl. Journal of), Elsevier Pub. Co., Amsterdam, Netherlands. (Monthly) 1968

Metallography, American Elsevier, New York. (Quarterly) 1969

Monographs in Semiconductor Physics, Plenum Press, New York. 1969

Optics Communications, North-Holland, Amsterdam, Netherlands. (Quarterly) 1969

Optics Technology, Iliffe Science & Technology Pub., Guildford, Surrey, UK. 1968

Particle Accelerators, Gordon and Breach, New York. (Quarterly) 1970

Physica Scripta, Royal Swedish Academy of Sciences, Stockholm, Sweden. (Monthly) 1970

Physical Review Abstracts, American Physical Society, New York. (Semi-monthly) 1970

Remote Sensing of Environment, American Elsevier, New York. (Quarterly) 1969

Review of Physics in Technology, IPPS, London, UK. (3 issues per year) 1970

Solar Energy (Official journal of Solar Energy Society), Pergamon Press, New York. (Quarterly) 1969

Soviet Journal of Optical Technology, American Institute of Physics, New York. 1968. Translated from Russian

Solid-Liquid Flow Abstracts, Gordon and Breach, New York. (Quarterly) 1968

Theoretical and Mathematical Physics, Plenum, New York. 1970. Translated from Russian

were: *Annales d'Astrophysique* (1938); *Bulletin of the Astronomical Institutes of the Netherlands* (1921); *Bulletin Astronomique* (1884); *Journal des Observateurs* (1915), and *Zeitschrift für Astrophysik* (1930).

J. L. Steinberg, of the Observatoire de Paris, told PHYSICS TODAY that the individual journals were having difficulty competing with the American *Astrophysical Journal*, which "stood out well above the other journals in the world." Many European astronomers were beginning to prefer publication in *Astrophysical Journal* rather than in their own national journals, as the only way to have their papers read by a significant number of other astronomers. Since the merger, according to Steinberg, circulation of the new journal has picked up—already

the institutional circulation is 50% higher than it was for any of the five original journals—and the standard is high enough to attract papers from outside Europe, including many from the US.

Although it is produced by a commercial publisher (Springer-Verlag), *Astronomy and Astrophysics* is not a commercial venture in the usual sense. The editors and staff are not under contract to the publisher, as is often the case. Instead, the publisher is under contract to the sponsoring scientific bodies to provide editorial-mechanics, production and marketing facilities. This system is closer to AIP's publication procedure, for example, than it is to the commercial ventures more common in Europe.

The other example of journal con-

solidation also comes from Europe. One of the first achievements of the European Physical Society, founded in 1969, has been to coordinate eight national nonspecialist journals under the overall title of "Europhysics Journals." The eight are: *Czechoslovak Journal of Physics*; *Fizika*; *Il Nuovo Cimento*; *Journal de Physique*; *Journal of Physics*, Section A, B, and C (formerly *Proceedings of the Physical Society*); *Physica*; *The Philosophical Magazine*, and *Zeitschrift für Naturforschung*.

Here there is no suggestion of a merger; the eight journals will retain their individual titles and autonomy. But the collaboration among them will eventually provide a uniform size, style, refereeing, abstracting and indexing procedures, and so on. —JTS