Letters

The Journal Glut

The Oxford English Dictionary defines "library" as a room or building containing books for reading or reference. Unfortunately, the modern science library has become a prisoner of the scientific journals. The proliferation of publication and the pressure to shelve journals is subverting the function of libraries. In our physics library at Minnesota, there are now more than 200 journals being received. They occupy 65 to 70 percent of the shelf space and use 75 to 80 percent of the acquisitions budget. When the dollar was weak in 1979, 90 to 95 percent of the library funds went to pay for journals, reflecting the relatively large number of foreign journals now "required" by university libraries.

I am a scientist who has worked in cosmic-ray physics, atmospheric physics, and astrophysics. Twenty years ago *Physical Review* was driving me out of my office, 15 years ago it was the *Journal of Geophysical Research*, and last year it was *Astrophysical Journal*. Although I am a member or fellow in the societies that publish them, I had to cancel my subscriptions in self-defense.

In 1960, when I first subscribed to *Astrophysical Journal*, it occupied 3 inches of shelf space a year. Today it requires 2 feet a year. If the exponential growth continues, it will occupy 16 feet of shelf space a year in the year 2000. *Physical Review*, including all sections and the *Letters*, requires 7 feet of space a year. *Nuclear Physics, Section A*, is filling our shelves at the rate of 2½ feet a year at present.

There are several reasons for the proliferation in publication. One of these is surely the emphasis on publication lists in curriculum vitae. Young people who cannot find jobs publish more papers to make their cases look better (News and Comment, 13 Mar. 1981, p. 1137). Similar material is often published in more than one journal to be sure the right people see it. Government granting agencies emphasize publications in their granting process, even though they have to pay the publication costs along with the cost of preprints. The quality of papers today is low, despite the fact that much time on the part of reviewers and editors is spent trying to evaluate it. Perhaps 75 percent of the material in modern journals which I read belongs in laboratory notebooks. I have heard that the editor of a prominent journal has stated that anything can be published if the author is persistent enough.

Is there a solution? A drastic one would be to throw out the journals from most of the university libraries and to have one "journal library" in science, one in medicine, and perhaps one in humanities and the arts. The libraries in specialties such as physics could then afford to buy books, emphasize review articles, and resume their roles as proper libraries.

There are some "nonsolutions" that require each user to have a computer or a microfilm reader. It is my experience that scientists want a piece of paper to mark up—like a reprint of a good paper. The Institute of Technology libraries at Minnesota have taken a step forward in this area. If one knows a journal reference for which a reprint is required, one may dial a document delivery service, enter the requirement on the telephone tape recorder, and have a copy of the paper to study by the next day. This service represents a real attempt to solve the problem of the Journal Glut.

Many readers of *Science* may not agree with the solutions suggested above, but I am sure that most will admit that the Journal Glut has become a major pollution problem.

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Solution of Math Problem

The recent excellent article "Century-old math problem solved" by Gina Kolata (Research News, 7 Oct., p. 40) concerning Gauss's problem (about quadratic imaginary number fields) describes the two major links making up the chain of argument leading to its solution. At various points, however, these links seem to merge into one. To avoid misunderstanding, and because they are made of quite different metals, it is best to keep them distinct.

The first of these links is the great discovery 6 years ago of Dorian Goldfeld that Gauss's problem could be solved if anyone could produce an elliptic curve with order of vanishing ≥ 3, as described in Kolata's article. This connection between Gauss's problem and the analytic number theory of elliptic curves was utterly unexpected. In a scientific field where surprising connections and interrelationships are not uncommon, this achievement of Goldfeld's came as a jolt.

The quest for the type of elliptic curve desired by Goldfeld met with no success until Benedict Gross and Don Zagier recently provided the final link to the chain. Their work too makes a connection between two vastly different types of mathematical questions: Gross and Zagier relate the analytic number theory of elliptic curves with the study of rational points on these curves.

Their immensely important result is primarily a significant step toward the solution of a conjecture framed by Birch and Swinnerton-Dyer 20 years ago. This conjecture had a convincing theoretical coherence and had been tested amply. Thus, the surprise in the achievement of Gross and Zagier lies not in what they prove but in how they prove it. Its added significance in connection with Gauss's problem is due to the earlier great insight of Goldfeld.

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Cover Art

I found Bruce N. Ames's article "Dietary carcinogens and anticarcinogens" (23 Sept., p. 1256) both interesting and informative, a straightforward statement of facts as the author sees them. However, the cover of the same issue, represented as an illustration for Ames's article, comes across as shrill. Appropriate, perhaps, for an artist looking for impact, but not for a scientific journal, the cornerstone of which should be objectivity.

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Erratum: In the letter from George R. Hendrey (7 Oct., p. 8), the references in the headings of tables 1 and 2 were incorrect. They should have been given as (*1*) and (*2*), respectively.