



Couple the rapid increase in the volume of research published annually since 1945 to the sharp rise in the cost of printing, and it is evident that the economies in paper stock and format recently effected in physics journals merely lessen the gap between expense and income. These measures hold no promise of closing it.

Income itself must be increased for the physics journals and the first steps in this direction have been the recent increases in society dues and subscription prices. These may have to be raised more, but there is an upper limit beyond which they would effect a reduction rather than an increase in income. Moreover, prices which are too high will obstruct rather than facilitate the dissemination of research results. And, though it may have to be done, the superficially less painful device of increasing prices to readers as a whole by splitting existing journals has its grave disadvantages.

Of other sources of income, that from advertising may be enlarged but, though advertising is being promoted vigorously, it is not the bonanza one might think. Grants sound good, but they are generally available only for short term, emergency needs. Of government support, more later.

I would like to discuss here what we in physics believe to be a sound and dependable method of assessing publication costs as part of the cost of research itself, namely the practice of providing for institutional support in the form of a per-page publication charge.

This is an old institution in physics, dating from before the establishment of the Institute. The idea is that an institution which supports research has an obligation to see it published, that results are sterile unless they are published, and that the standing of an institution gains from publication. In practice the institution (not the individual author) is asked to contribute four dollars per page of a paper toward its publishing cost. The paper is accepted for publication solely on its merits irrespective of whether or not the charge is honored. Actually some eighty-five percent of such charges, in the case of the *Physical Review*, are honored.

The charge has been raised once—from three dollars to four dollars! The number of words on a page has been increased by a much larger ratio so this is not really an increase. Here, as in other instances, physicists have been slow to feel the weight of increased costs in their service, with the consequence now that unduly sharp changes must be made. All of the research journals will shortly announce increases in the per-page publication charges.

The immediate financial need is the first motive for such changes, but the rationality of the concept of the per-page publication charge is very impressive because it is geared to the volume of research and not to the volume of readers.

Assembly cost in publishing includes editing, engraving, typesetting, and correcting. It is all incurred before the first copy is printed and may be half the total. It de-

pends on the number of pages and is independent of the number of copies printed. Distribution cost covers what is left and includes press-running, paper, binding, mailing, and subscription handling. It is mainly a function of circulation.

Many problems would be solved if two kinds of income, one dependent on number of pages and the other on size of circulation, could be separately equated to assembly and distribution costs. Per-page charges are tied to the assembly costs. If they were adequate, subscription fees, already tied to the distribution costs, would not have to bear an extra burden as the amount to be published goes up.

A second line of reasoning in favor of per-page charges is that government money for publication would be less subject to political hazard and competitive bidding if it came as per-page charges taken right out of research appropriations. Support would vary with load, distribution between journals would be automatic rather than contentious, and it would be a small thing in terms of percent.

A third advantage of the page-charge concept appears when scientific journals are viewed in terms of their share in advancing science. It is estimated that, of all the money devoted to salaries, buildings, maintenance, equipment, supplies, services, etc. for the advancement of science, an amount equal to about one percent finds its way into journal publication—and then mostly through the salaries of individuals where, after competing with living costs, it emerges as dues and paid subscriptions.

It is open to question whether the journals can continue adequately to serve the advancement of science on a type of support which perforce must compete with grocery bills. Alternatively it seems reasonable to allocate more of their cost as a type of expenditure for the tools, supplies, and information necessary to research.

As science has accelerated and journals have correspondingly increased their bulk, it may have become as unreasonable to ask the individual to bear the whole cost as it is to ask him to buy his instruments now that elaborate and expensive equipment is required in place of a few simple hand tools.

The page charge offers a way of equitably adjusting this division of the cost so as to achieve best the over-all objective of advancing science. Presumably the distribution cost should continued to be paid by the individual—in return for the convenience of having his personal copies of journals. A part of the rest—in the form of a per-page charge—should be carried along with the other costs of research.

As announced elsewhere in this issue, Mr. Wallace Waterfall has been appointed Executive Secretary of the Institute. This means that in addition to continuing as Secretary of the Governing Board, he will devote the major portion of his time to the administration of the Institute as an operating organization. The need of such strong internal management has been increasingly felt.

It is the Institute's rare good fortune that a man of the ability and attainments of Mr. Waterfall can be obtained at all. When to this is added the fact that he already knows about the Institute and its work and has abundantly demonstrated his interest, it becomes clear that the members—as well as the staff—of the Institute are to be heartily congratulated.

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