

scientists can read everything of potential interest, most consider they remain reasonably *au courant* with events on the forefront of their own disciplines. They keep up, however, not just by private reading, but by attending meetings and exchanging publications under the aegis of "invisible colleges". Some 90 per cent of life scientists polled in the survey had attended at least one meeting in 1966, 15 per cent had attended four or more, and nearly 10 per cent managed to participate in meetings outside the United States. Holders of purse strings should remain sympathetic to requests for travel grants, the committee argues.

Table 1. PUBLICATIONS REPORTED IN 1966 BY 12,364 LIFE SCIENTISTS.

Type of publication	Investigators reporting one or more	Number published	Average* no. per respondent
TOTAL, ALL TYPES	10,727	50,858	4.1
Full-length research articles	8,801	24,573	2.0
In-house publications	2,527	7,684	0.6
Books and monographs	442	489	<0.1
Chapters in books	1,710	2,416	0.2
Major reviews	887	1,134	0.1
Abstracts of original research	4,668	9,674	0.8
Other publications	2,028	4,888	0.4

\*Average numbers based on 12,364 respondents to individual questionnaire.

Among the 13,000 biological journals now churning forth from the presses the academy committee finds it possible to identify—by an unstated method—about 1,000 journals in which more than 90 per cent of the truly significant work in biology appears. *Biological Abstracts* covered some 7,400 journals in 1968 but most of these are unlikely to publish anything that will materially advance the progress of science. Despite this acrid but probably accurate judgment, the committee urges federal government support for journals, some of which are being hit by rising costs and are on the way to pricing themselves out of business.

MIT

## Paved with Good Intentions

by our Cambridge Correspondent

THE Commission on MIT Education has just issued a major report called "Creative Renewal in a Time of Crisis" which attempts to take stock of the role of MIT in the educational world today. There is perhaps no university anywhere that so confidently regards itself as closely associated with national goals, the quality of a technological society and the responsibility for mapping out the future of this society. However, because it takes itself so seriously, this effort at re-evaluation comes in a uniformly dull format. Too many witnesses, too many words, too many platitudes and too many authors, one is forced to admit.

The committee of 12 had submissions from about 350 witnesses. Most of these are at present associated with MIT. No one from Caltech gave evidence, and only three from Harvard, 5 minutes' bus ride away. The witnesses from all other universities numbered about 20. In view of the importance which MIT correctly attaches to itself, one would have thought that a balanced national view was every bit as important as testimony from the insiders. The report reads

very much as a lowest common denominator inflated with some truly ghastly expressions of good intentions as "Such fundamental questions as the nature of truth and explanation, the sources and validity of human values, the qualitative distinctions between styles and aesthetic judgements, the role of reason and passion in individual social behaviour, ought to form the core of much of undergraduate education". Well, everyone would agree with that, all 350 of them, but such statements provide no concrete help in achieving creative renewal.

If one carps at the style of the report, it is mainly because the voluminous prose seems to cover up a genuine inability to answer very specific questions. MIT has as many graduates as undergraduates—would it make sense to become a totally graduate school? Is it likely that in ten years the physical sciences will have experienced such a severe recession that MIT ought to be looking for new fields? If the environment and urban problems are here to stay, what in MIT is peculiarly suited to solve these problems, and how are students to be attracted? How does Defense Department spending fit into MIT's future? Why are so many MIT students both outstandingly brilliant and also depressed by the place? Is it possible to convey that overall view of science which its best practitioners have at their fingertips without the drudgery of learning much by rote? The report admits that it is only dealing with general issues, and eschews practical details, but many will question whether the general issues discussed fully cover the problems facing MIT.

The chief recommendation of the report is for a new look at undergraduate education. This is sound, as undergraduate education is always worth a new look. MIT has recently been quite extensively involved in experiments to make its teaching "more meaningful". The new proposals would broaden the first two years by the creation of what is called a "First Division" in which the responsibility for education would fall on more shoulders than it does at present and an attempt would be made to give students an overview of science. Perhaps the most interesting proposal is that an experiment should be made involving the teaching of students from the age of 16. This is certainly worth serious attention in the case of students who know at that age that they are committed to a scientific career. The report pays the customary lip service to the humanities.

On graduate education, the only proposals which appear to have major significance are that more attention should be paid to training for teaching and (probably related) that credit be given in the form of a degree for those students who are unable or unwilling to pursue research but who can perform a "consolidation of knowledge" or a "scholarly review".

What future, then, for MIT education? The two commission members unhappy with the report voice concern over its inadequacy, its lack of depth and its preoccupation with minimal adjustments. They throw into the arena some more debatable topics, and because the commission has a year to run it is to be hoped that more concrete discussion will follow, if not of the generalities of the report, at least of the minority views. Ultimately, however, committees are not as effective as people at changing things. If sufficient faculty members at MIT set personal examples of high quality teaching such reports as this will prove unnecessary.