the choice of trainees, the training they are given and the way they are eventually used are all inadequate. Between 1947 and 1967 the number of scientists employed by the council has risen from 62 to 706 and the total scientific manpower, including honorary scientists, has risen from 452 to 2,483, but the number of technicians has only doubled, from 207 to 496, in the twenty years. As a result, many of the scientists are now obliged to waste their time doing routine and trivial jobs. The ICMR should set about recruiting many more technicians and demanding that promotion depends on gaining qualifications, not length of service.

The committee's review of the sixteen ICMR units is a sorry catalogue; the trachoma research centre at Aligarh failed to gather the expected momentum, the polio unit in Bombay has been reduced to doing routine work that could be done by a local hospital, the blood group reference centre in Bombay has ceased to function effectively, the tissue culture unit in Bombay "is at a loss to know whether it is worth while producing a large number of cell lines" and so on. But there are a few successes to report as well. The liver diseases unit at Agra, for example, is one. But if the far-reaching recommendations in the report are acted on, the picture could be much brighter by the beginning of the next five-year plan.

Training for Storage and Retrieval

THERE seems to have been a considerable increase in the number of librarians and information scientists working in British industry during the past ten years. This at least is one of the more cheerful of the conclusions reached by a piece of research commissioned by the Department of Education and Science from Mr H. Schur and Mr W. L. Saunders of the University of Sheffield (*Education and Training for Scientific and Technological Library and Information Work*, HMSO, 7s 6d). The report is plainly intended by the ministry to be a stimulus to public and professional discussion of the problems of the information services in the scientific fields, and as such it represents a modest part of the British Government's new (and still tentative) procedure of provoking public discussion before it has committed itself to a final policy.

The improvement of staffing on the information services seems to have been really remarkable. In British industry, there are now five information scientists for every hundred scientists working on research and development compared with two per hundred in 1958. This statistic is one of the few which show Britain in a stronger position than the United States where, according to the report, industrial establishments have been able to set their hands on only 48 per cent of the information scientists in the United States, compared with 43 per cent in Britain.

This cheerful comparison does not, however, allow the authors of the report to hide from the need to recruit more people into the somewhat specialized profession of caring for the scientific literature. The report has its own alarming way of illustrating the pace at which the bulk of the published literature is growing—it took thirty years to 1938 for the first million chemical titles to be abstracted, but chemical abstracts are now accumulating at the rate of a million every five years and there is every prospect that, by 1975, the rate of accumulation will be a million every year. The question is that of recruiting people to manage this explosion.

Perhaps predictably, the report urges that those entering the profession should more frequently than at present equip themselves with a professional qualification. The authors have estimated that well over half of those at present engaged on information work with a scientific slant have no professional qualification, either in librarianship or in information science. The figures suggest that 46·8 per cent of those working on scientific information in the United Kingdom are simply graduates in science or engineering. Arts graduates make up 11·3 per cent of the total. In the United States, the corresponding proportions are 33·3 per cent and 19·4 per cent. The authors of the report would see these proportions much diminished, for they say that "learning on the job in general leads to inbreeding and a narrowness of outlook which inhibits imagination and initiative".

Most of the report's recommendations concern matters of content and level of courses for qualification. It stresses throughout the "unity and interdependence of library and information work and the artificiality of any attempt at rigid separation". It calls for the maximum collaboration between the Library Association, the Institute of Information Scientists, Aslib and all the other organizations concerned with education and training.

One way to produce more professionally qualified science and technology graduates is to enlarge the present university schools rather than create new ones, and the report recommends that there should be an increased availability of SRC studentships to attract good graduates. The report points to the increasing interest being taken by universities in techniques such as the dissemination of information and information bulletins, normally associated with more specialized libraries and information departments. On the other hand, the investigators found that literature analysis and the preparation of evaluative reviews are not necessary in a university library. The availability of large computers in university libraries increases the value of scientific information skills and offers important possibilities for new developments, the report says. Some industries and universities are doing research in science information, but the report urges that this should be increased if science information work is "to progress from the craft to the automation level". Public technical libraries, it suggests, should be given more money and better qualified staff to increase the services of these libraries to small firms and industry.