hopefully become a precedent for all future reports of the type, gives the evidence on which it reached the conclusion that the council must maintain research which underpins radiological protection but that in future a greater proportion of funds should go to other fields of radiobiology; radiological protection is not the pressing topic it used to be. It recommended that radiotherapy, for example, should receive increasing support especially in conjunction with universities and medical schools. The committee also suggested that the MRC's cyclotrons, reactors and other large machines should be made available to the academic community by, for example, providing laboratory space for visiting workers.

Apart from the four reviews of aspects of medical research—Perutz on molecular biology, Humphrey on immunology, Barnes and Gilson on occupational health and Doll on epidemiology—and the directory of 77 MRC units and individuals receiving support, the report records the establishment of three new units and approval for two others. They are the Biochemical Parasitology Unit, Neurological Prostheses Unit, Social and Applied Psychology Unit, Statistical Research and Services Unit and Leukaemia Therapy Unit. One unit, Professor Pontecorvo's Cell Genetics Research Unit, has been disbanded.

The council's business in fellowships and studentships is with one exception booming as never before. Only the clinical research fellowships are going begging; the travelling fellowships are keenly competed for and junior research fellowships and scholarships for PhD candidates are heavily over-subscribed. This is why the MRC has adopted the same allocation procedure as the SRC and SSRC; quotas of studentships are now allocated to departments which have the responsibility for deciding their internal distribution. Dr Gray also said when he introduced the report that the MRC was enrolling some of its PhD candidates—several of those at the National Institute for Medical Research, for example—with the Council for National Academic Awards (*Nature*, **223**, 338; 1969) rather than with the University of London. Apparently one of the reasons for using the CNAA is that it involves less red tape.

The MRC has not in the past two years escaped unscathed from Government reductions in funds for education and research. The council has, however, recouped some of its cutbacks in the current year. The incidence of payments for long term capital projects is outside the council's control and cannot be evened out year by year. If a project is delayed, for example, funds cannot be spent in the year for which they were allocated and the unspent money has to be surrendered to the Treasury. When the bills pile up in the next year, they have to be paid from that year's short term support.

This problem may, however, not be as acute in the future as it has been in the past because Dr Gray says it is unlikely that the council will be setting up more research centres on the scale of the National Institute and the Clinical Research Centre. Indeed, the report is strangely silent about Northwick Park, which does nothing to allay the suspicion that it may prove the council's greatest white elephant.

THE MRC BUDGETS 1964–1970

Year	Parliamentary grant £m.	Percentage increase over previous year: Actual	Percentage increase over previous year: Expressed in terms of constant prices
1964–65	8·753	24·5	12·8
1965–66	10·088	15·3	10·3
1966–67	11·825	17·2	12·2
1967–68	13·758	16·3	13·0
1968–69	15·231	10·7	6·0
1969–70	17·141	12·5	9·0

MEDICAL EDUCATION

Brave Nottingham

STICKING firmly to its declared intention of enrolling its first medical students in 1970, the University of Nottingham has just published the first prospectus of its medical school, even though the new teaching hospital is still at the planning stage. The first entry of between forty and fifty students will for the time being carry on their preclinical studies in buildings now being built on the university campus.

The general guidelines for the medical school, the first to be built in England this century, were published as the Pickering Report in June 1965. At the time, the report was widely hailed as an almost revolutionary document, advocating as it did a thorough shake-up in the traditional medical course dominated by anatomy and physiology, a curriculum aimed as much at education as vocational training and the opening up of the preclinical courses to students who might not wish to become doctors but who were seeking a general education in the life sciences. With the recent ferment of ideas about medical education and the report of the Todd Commission on the subject, much of what the Pickering Committee had to say has become accepted doctrine, but Nottingham is still likely to be the first medical school to put these notions into practice.

The proposed curriculum follows the broad outlines and the spirit of the Pickering Report, which was never intended as a blueprint to be adhered to rigidly. Nottingham students will start with two years of general biological training followed by one year studying a special subject and then two years of clinical practice. Because of delays in building the new teaching hospital, chiefly as a result of opposition to compulsory purchase orders for the necessary land, it will be several years before the medical school can enrol its full complement of 160. The first few batches of students will be taught clinical medicine in the two city hospitals, which are far from ideal for the purpose. The university seems nevertheless to have been cheered on by the UGC and the Government, and has decided that it would be better to go ahead with less than perfect facilities than to wait for completion of the medical centre.

The shortage of doctors has been a spur, but it has also meant that the university, at the request of the UGC, has given up for the time being the notion of accepting students for the preclinical courses who are not set on a medical career. The university has, however, reserved the right to implement this idea one day, and it is encouraging that even now it does not altogether rule out accepting students with unusual combinations of GCE qualifications.

At Southampton, where the new medical school will enrol its first class of sixty-five students in 1971, there is perhaps more realism and less idealism. There is no intention of enrolling people who do not intend

to become doctors. Moreover the organization of the curriculum, although far from complete, is unlikely to encourage any such trend. Unlike Nottingham, which will take several years to reach full capacity, the Southampton medical school plans to enrol its full complement of 130 students by its second year of operation, 1972. This is possible because clinical teaching will be at two existing hospitals, the Southampton General and the Royal South Hampshire Hospitals, on which the UGC and the Department of Health and Social Security are spending £16 million. The use of existing hospitals means faster growth for Southampton but it has led to the difficulty of finding hospital space for the academic staff. It is no secret that the planners are having to move cautiously in their attempts to infiltrate the two hospitals, dominated by National Health Service consultants and medical staff, with academic doctors.

TEXTILE FIBRES

Courtaulds Booms Away

THE Courtaulds Group continues to provide most of the excitement in the British synthetic fibres industry. After what seems to have been another year of remarkable growth, with sales increasing from £394 million to £576 million, and with profits increased from £36 million to £51 million, the company seems bent on pushing ahead with several schemes for further development. Earlier this week, the details became known of the plan which the company has been talking of for several months to build an acrylic fibre plant in the United States; the new plant will cost £15 million and will be built near Columbia in South Carolina. Courtaulds already operates a plant at Mobile, Alabama, where it manufactures nylon and viscose rayon. In the past few years, Courtaulds has emerged as the largest British manufacturer of acrylic fibres, and Sir Frank Kearton, the chairman, was saying two weeks ago that it might have been even larger in 1968 if ICI, the British supplier of the raw material acrylonitrile, had not been afflicted by manufacturing problems. The company's current product of acrylic fibres, running at just under 200 million pounds a year from the two plants at Grimsby and Calais, is expected to increase by forty per cent in the next two years. The new plant in the United States will add a comparatively modest 50 million pounds a year, but this should be enough to decide whether Courtaulds can sell the product successfully in competition with Du Pont and Monsanto on their home ground.

Among British industrial groupings, Courtaulds stands out for the way in which it has been able to sustain a high level of capital expenditure in the past few years. The £56·4 million spent on new plant in the financial year just ended is expected to be matched by more than £70 million in the year ahead. Apart from its new venture in the United States, the company is also planning to embark on polyester production at a new plant in Northern Ireland. Sensible though this may be in its own right, it is clear that Courtaulds also regards this venture as a further proof of its independence from ICI—the two companies have regarded each other with the detachment of divorcees ever since ICI, previously a partner in nylon produc-

REPRODUCTION

How IUDs Work

from a Correspondent

INTRA-UTERINE devices, although not as popular or effective as the pill, do possess certain advantages over oral contraceptives which are especially important in programmes to curb the birth rates in developing countries. These advantages are principally cheapness of manufacture and the fact that, once an IUD is inserted, no further expense or attention is required—at least, in theory. In practice, however, about 30–40 per cent of women fitted either expel the device spontaneously or have it removed within the first year because of side effects. Current modifications of IUDs have been entirely empirical and attempts to improve them rationally have been hindered by ignorance of their exact mode of action.

Until recently, experimental evidence suggested that the IUD accelerated the movement of ova through the Fallopian tube so that the chances of fertilization and implantation were reduced. But doubt has already been cast on this theory by further experimental work (Mastroianni *et al.*, *Amer. J. Obstet. Gynec.*, **99**, 649; 1967). The most recent study by P. Eckstein, J. H. Marston and W. A. Kelly, reported in a series of five papers (*J. Reprod. Fert.*, **19**, 133, 143, 149, 321 and 331; 1969), points to the uterus as the site of action of IUDs. Some fifty rhesus monkeys were used; about half were fitted with polythene spiral IUDs, the remainder served as controls. None of the females with IUDs became pregnant after three compatible matings, whereas half of the control group conceived after the same number of matings, thus demonstrating the anti-fertility effect of the device.

Laparotomies, autopsies and irrigations of the oviducts and uterus carried out during the mating period revealed no significant difference between the animals with IUDs and the controls in the occurrence and timing of ovulation and fertilization, nor in the rates of development and transport of ova down the tubes. Clearly the ovaries and Fallopian tubes were not influenced by the IUDs.

The crucial question now is: at what stage does the IUD cause the death of the early embryos which arrive in the uterus? If death occurs even shortly after implantation, the more pedantic commentators will claim that IUDs are abortifacient rather than truly contraceptive. The evidence on this point is not completely conclusive. It seems that the embryos were not expelled from the uteri that contained IUDs and it is inferred that the occurrence of implantation was unlikely because most animals fitted with IUDs experienced apparently typical menstrual bleeding at the expected time. Eckstein *et al.* deduce that mortality occurs before implantation. But early abortion or resorption of embryos was not completely ruled out in this study. They have demonstrated that the IUD does not inhibit the decidual reaction of the monkey, in contrast to findings in other species. This implies that the uterus remains receptive to implantation, but it is not known whether the embryos survive until this time.