Bell Labs

New order augers well

Murray Hill, New Jersey

BELL Labs insists that its fundamental research will not be harmed by the upheaval in the affairs of its parent companies due to take effect on 1 January. But even at this late stage, the Federal Communications Commission (FCC) has not yet agreed the details of how the cost of the largest private research organization in the world is to be met.

Dr Arno Penzias, the director of the basic research division (affectionately known as Area Eleven), is unabashed. As evidence that basic research will survive more or less intact, he says that his biggest preoccupation just now is recruitment. His division is to lose 100 of its 1,000 people on 1 January, and he hopes to make good the loss by skimming the cream from this season's crop of graduates, mostly at the doctoral level.

The coming upheaval is the impending break-up of the telephone company AT&T, decreed last year by the courts in settlement of the suit against the telephone company brought by the US Department of Justice. The question of Bell Labs' future was sharpened during the court proceedings by the frequent statement by AT&T officials that any change would put fundamental research at risk.

Penzias says that the only damage done so far is to his own research. "Last year, I published only one paper, and that was work I should have written up earlier." The snag is that he took over Area Eleven only a few weeks before the court settlement. Since then there has been no time for astrophysics: he holds a Nobel prize for work on the microwave background radiation.

For the future, he relies to a large extent on the promises which have been made by AT&T to Bell Labs and by the internal understanding he has reached about the importance of his own patch. For Bell Labs as a whole, the staff will shrink from 26,000 to 18,000, and the budget from $2,100 million to $1,800 million, but Area Eleven still plans to have $200 million to spend.

For Bell Labs as a whole, the January upheaval will be a bigger trauma. For the time being, 7,000 of the 8,000 people being shed will remain on this site, 4,000 of them working for the new Central Services Organization intended to provide research and development services for the seven regional networks into which the peripheral parts of the network will be divided in January. A further 3,000 people will work for the new central information services company, the part of AT&T that will in future be allowed to compete with other organizations in data processing of various kinds, videotext services for example.

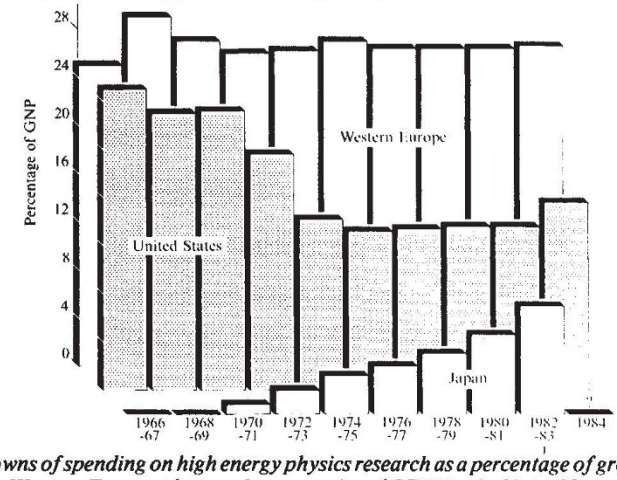
Bell Labs will be financed in an entirely novel way. Hitherto, its funds have come from a 1 per cent tax on the revenues of the 22 companies operating local networks within the Bell system, but the inheritors of those companies will in future pay only for the cost of the Central Services Organization. What is left of Bell Labs will be supported by the four centralized operating companies (the trunk network, manufacturing facilities and operations overseas and the new information systems company).

Penzias says he is satisfied with the formula (which he calls an algorithm) so far worked out for "taxing" the four operating companies. The principle is that each company should contribute towards the joint cost of AT&T's rump of a headquarters and of Bell Labs according to a four-component measure of the scale of its operations. FCC is still unhappy with some of the details, however.

Penzias is sanguine about the future, arguing that even the huge cost of Bell Labs is only small for an organization whose earnings (trading profit) amount, to $1000 million a week. Nor does Penzias see a change in patent policy, under which Bell Labs has been required since 1956 to provide non-exclusive licences to all who ask for them and who are willing to pay a royalty. Astonishingly, according to Penzias, there is an agreement with IBM under which the parties provide royalty-free licences to each other on all patents — and reckon not to apply for patents on their most treasured secrets.

In the long run, however, next January's divestiture must bring a change. The whole objective has been to put the separate part of the telephone company on a basis that would make fair competition possible, which means that Bell Labs will depend for its survival not merely on its own cleverness but on the success of the central operating companies, any one of which might in principle be a failure. This no doubt explains how Penzias, two years ago a simple astrophysicist, is now full of the commercial merits of AT&T's new digital switching system, developed at Bell Labs. There will be many more entrepreneurs in Area Eleven before the divestiture is out. □

Spending on high energy physics



The ups and downs of spending on high energy physics research as a percentage of gross national product (GNP) for Western Europe (the member countries of CERN), the United States and Japan have recently been calculated by Professor Tetsuji Nishikawa, head of Japan's new high energy physics research laboratory (see p.379). (Except for 1984, figures are two-year averages — no figures are yet available for spending in Japan in 1984).

No fellow feeling

RECENTLY-elected Fellow of the Royal Society, Mrs Margaret Thatcher, is being made unwelcome by a group of 44, anonymous, fellow Fellows who have written to Sir Andrew Huxley, President of the Royal Society, to protest at her election in June, under "rule 12". Under this rule, candidates may be proposed by Council without the usual paperwork (list of publications and so on), if the individual is thought to have made a contribution to science that is a little out of the ordinary.

The errant 44 would agree that Mrs Thatcher's contribution was out of the ordinary, but not in quite the way that the drafters of the constitution had in mind. They write that it was "damaging to the good name of the Royal Society to propose Mrs Thatcher, whose Cabinet is responsible for highly contentious policies which have had, and are having, very serious effects on education and research".

Nevertheless, in the society's election in June, Mrs Thatcher won the necessary two-thirds majority of the 100 fellows present. And since Mrs Thatcher is now a Fellow, there is little the 44 can do about it, except demonstrate at her admission ceremony.

But the letter may create pressure to have rule 12 changed, to distinguish political appointees (like Churchill, Macmillan and Wilson) from more scientific rule 12 FRSs (like Sir Karl Popper). This question may now find its way onto the agenda of the next Council meeting (on 13 October), a Royal Society spokesman said. Robert Walgate

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