French education

Higher marks for effort

ONLY 37 per cent of French children attain the coveted *baccalauréat* (*le bac* for short) which guarantees entry to university. But the figure should be 80 per cent by the end of the century, according to the French minister of national education, M. Jean-Pierre Chevènement. Such an increase would raise the number of students in higher education in France to 2 million, four times the figure in Britain, which has a population of the same size.

If all 2 million students were to proceed to higher education, the 80 or so French universities could not cope. At present, with just one million students, as many as two-thirds of entrants leave university after the first year, without a diploma. (Lecturers dub them "ghost students" — some do not even attend courses.) In practice, the ministry of education expects that only a fifth of the extra million French students, who will come through a new form of baccalaureate, *le bac professionnel*, will be seeking places in universities or the French technical colleges, the *Instituts Universitaires de Technologie* (IUT), which are sought after by parents and students because education there usually results in a job.

Others may go to new universities of technology (there is only one at present in France, at Compiègne) or to an "open university", both of which have been promised in recent weeks by the French government. But most of those attaining the new *bac professionnel* are expected to go straight into employment.

The new scheme is designed to loosen up the less academic and employment-oriented French high schools, to make them adapt their education to the real needs and demands of local employers, and to extend the extra 2–3 years of secondary education required for *le bac* (the examination is usually taken at the age of 18) to a wider social group.

The new move must also be seen in its true context as part of the phenomenon of the minister himself. Chevènement is an old-fashioned socialist working in the 1980s. He believes in equality of opportunity: the new *bac* will provide that. He believes in industry: the new *bac* will be tuned to it. But secondary school students will have to work. Chevènement believes in attainment. He also believes in science, as he believes passionately that socialism is equated with knowledge. As President François Mitterrand's first research minister, Chevènement reversed the anti-industry attitudes of most of the French research community, which may be the most substantial achievement of the socialist administration in its four years in power. And now, after a period in political limbo, he seeks to make further lasting marks on France by reshaping the whole education system.

Out have gone the "advanced" liberal attitudes of the 1968 student revolution, whose anti-authoritarian spirit affected schools almost as much as universities, and in has come what the minister calls "republican elitism", basically a renewed respect for an encouragement of academic attainment and for the republican ideals of post-revolutionary France.

"A structured school is more democratic than a lax school", Chevènement wrote recently, discussing the nature of his "elitism". In a lax school, the more confident and middle class pupils rise to the top of the heap. In a structured school, native ability wins through. The proportion of

working class children at universities is still very low, and the minister intends to change that by providing academic and professional opportunities. Hence the new *bac*, which will also have the advantage of helping to train the kind of technicians that new industries need.

Among other important innovations, Chevènement is working on reducing the power of the mathematicians in French schools, which is thought to discourage experimental and observational sciences, in particular biology and geology.

Chevènement has already outlined his ambitions for the universities (see *Nature* 9 May, p.88) but he may not have long to achieve his aims. There will be a general election next year, and the polls suggest that the socialists will be defeated.

Robert Walgate

European computing

Toulouse carries ambitious torch

THE FRENCH proposal for a European computing centre at Toulouse in south-west France, described by a British computer scientist as "a kind of CERN [the European Organisation for Nuclear Research] for computing", has met at least with the approval of Italy. But Britain appears sceptical, while in Toulouse itself, hopes were high for support from West Germany.

That was the position last week over the future of CERFACS, the "Centre Européen de Recherche et de Formation Avancée en Calcul Scientifique", an £18-million-a-year institute for research and training in numerical analysis whose establishment has been championed for over two years now by a group of Toulouse astrophysicists, aerospace engineers and politicians. According to CERFACS supporters, existing techniques of numerical analysis are out-of-date, having been designed for machines with a single central processing unit. With new computer architectures involving vectorial and, increasingly, parallel processing, where the same or different functions can be performed many times simultaneously, numerical analysis needs to be rethought. CERFACS would do the rethinking, provide training and help apply the techniques to develop areas such as the creation of numerical "wind tunnels" (flight testing by pure hydrodynamical computation).

According to CERFACS supporters, with an eye on the 1986 French budget as it approaches its final month of inter-ministerial bargaining, apart from possible support from Germany and Italy, the Netherlands, Denmark and Switzerland are also ready to join in, provided a second country (other than France) offers support. And in France, while government support is still not guaranteed, there is a chance that CERFACS may be caught up in the political snowball of "Eureka"

(see pages 8 and 9).

But there is some concern in Paris, and even more in London, that CERFACS is too ambitious and costly, and should be prepared to grow "at a natural pace". There are "a lot of traps" in the Toulouse plans for CERFACS to start up in September 1987 with over 100 staff, rising to nearly 200 by 1991, it is said in Paris. In London there is a feeling that the centre would not offer "value for money".

Professor Jean Yoccoz, the director of the French nuclear and particle physics institute IN₂P₃, however, says "there are always pluses and minuses" and that "the best of CERFACS" is its plan to mix industrial and fundamental research on one site, as well as training. And Toulouse, with its aerospace and robotics industry, "is a good place for that, at least for France".

A leading British computer scientist, however, is less impressed. He feels the emphasis on new numerical and software techniques for use with vectorial supercomputers is "very esoteric" and "not leading edge computing science".

In Toulouse, however, these criticisms have been met with "surprise". CERFACS is prepared to deal with whatever computer technology is in the forefront, be it a vectorial Cray 2, or the German multiprocessor Suprenum, or a machine still on the drawing board. Far from being esoteric, CERFACS — or something like it — would be essential to the proper use in Europe of these new machines, it is claimed in Toulouse and whatever equipment was provided would moreover be networked to users throughout Europe. "We aim to respond to user needs", a spokesman says. And although the planned rate of development of CERFACS is indeed ambitious, Europe cannot afford to wait to be pre-empted in yet another area by the United States and Japan.

Robert Walgate