

universities, the locations of which have not yet been chosen, are meant partly to meet the demand for higher education which is, even at present, unsatisfied in west and central France. (There is at present a net movement of students towards Paris, the southwest and the Lyon region.) The problem will be to persuade able academics to move away from the centre.

Research. The government acknowledges the need to "arrest the slow erosion of university research over the past several years". The ministry of education hopes to accomplish this by several means.

There will be a system of competitive grants for research and scholarship administered by a committee (the Conseil Scientifique de l'Education Nationale) under the Nobel prizewinning chemist Jean-Marie Lehn. Salary supplements for academic-researchers should work towards the same end.

It may also help that the government plans to encourage the emergence of new university centres of excellence. It has nominated a handful of places which, "by the quality of their research, the diversity of their teaching and the attractiveness of their locations", may rival "Oxford, Heidelberg and Berkeley" in the united Europe of 1993. The ministry has so far nominated Grenoble, Strasbourg, Orsay-Polytechnique (southwest of Paris) and Toulouse; it promises further names — but a few of them — before 1993.

Organization. The ministry of education, at the Napoleonic hub of France, is used to redefining and rebalancing the interests of the centre and periphery. The new calculation is that four-year renegotiable contracts with the ministry of education will give universities an incentive to skimp on spending in fields in which costs are elastic, and to invest the funds they save where there are intellectual opportunities, or students to be recruited. The council of ministers, on the recommendation of the ministry, will continue to appoint the rectors of the universities.

Several innovations are promised. A study is under way (with the ministry of economics and finance) to see whether budgetary procedures can be radically simplified and whether real-time ("en temps réel") techniques of data processing can assist the administration of universities. (Ways of counting students would be a big help.)

Cosmetics. The ministry, which hopes that it will be possible to double the number of doctoral students preparing theses in the five years ahead, plans to set up an organization for monitoring all theses under preparation. It is hoped that this information (to be published annually) will form the basis for determining university research policy as well as for comparisons between French and other research. □

Lyon's hot-house university

WHY should French teenagers compete so fiercely to go to universities that are unable, by their constitution, to award degrees? Because the universities are not universities at all, but *grandes écoles*.

These citadels of French higher education owe their existence to functional considerations: how best can the state secure the services of able people who have been specially trained in certain fields? By recruiting them young and competitively, by making them civil servants for at least ten years and then, by training them. This was the *École Polytechnique* Napoleon's device for assuring a supply of artillery officers.

By definition, the *grandes écoles* are in Paris, or at least they were. But in the 1980s the ministry of education embarked on an experiment to see whether they could be transplanted to provincial soil. Now, after more than a decade of heart-searching and hard work, a version of the *École Normale Supérieure* has been transplanted from Saint Cloud, in Paris, to a complex of post-Modern buildings on the site of an old abattoir in this provincial city, now the next largest after Marseille.

The *École Normale Supérieure* de Lyon has taken in 100 students in each of the past two years. They are a cut from those successful in the national *concours*. Most give themselves an extra two years preparation after *le bac* before entering the competition, which means that *normaliens* are usually 20 years old when they begin their studies. Although most of those entering the annual competition give one of the Parisian schools as their first choice, they (and their teachers) know they come from the top 0.1 per cent of whatever proxy for the national IQ distribution is measured by the *concours*.

Polytechnic Institutes

THREE relatively new institutions, in many ways intermediate in character between the *grandes écoles* and the national universities, have a particular influence. The best known is the Institut National Polytechnique de Grenoble, with roughly 3,000 students and an associated group of *grandes écoles* specializing in technical fields. There is also an Institut National Polytechnique at Toulouse and another in Lorraine.

All three were founded in the early 1970s as a means of stiffening higher technical education and lending coherence to its academic procedures. All are relatively small in terms of student numbers — between them the institutes have about 8,000 students. □

Moving the school from Saint Cloud to Lyon has not been trouble-free. The idea seems first to have been mooted in the mid-1970s, and more or less agreed by the arrival of the Socialist government in 1981. At that stage, those threatened with banishment from Paris, and their unions, pleaded with the new government to put a stop to the plan. But the then minister of education, having brooded for some time, decided not merely that the move should go ahead, but that Lyon's floor-area should be increased by 11,000 m² to a total of 36,000 m².

Guy Aubert, appointed director of the new school two years ago, is an energetic man; among other things, he reckons to travel 50,000 km a year on the autoroute between his laboratory at Grenoble and the school at Lyon. He has high ambitions, not least that of making Lyon the best of this esoteric bunch, as follows:

■ **To get the best students.** Even at the top, competition remains fierce. Lyon has to stake its claim on the affections of the brightest few hundred making their way to the *grandes écoles* by the reputation it establishes in the next few years. The counter-attractions of Paris will persist. But even as things are, 3,000 people compete for the 100 places at Lyon. Competence in some foreign language is required. French entrants are paid as junior civil servants.

■ **Education through research.** Lyon offers three options — mathematics and *informatique*, science of matter (physics or chemistry) and life and Earth science. From the outset, students at Lyon will be plunged into research (and, during the first two years, taught to write and speak English). The requirements vary from one department to another, but most students spend half of the first three years of the four-year course on laboratory work and research. In the process of doing so, they normally acquire (from the University of Lyon) a first degree and, usually, the *diplôme d'études approfondies* (a necessary but not sufficient qualification for teaching at a university). Students at Lyon follow as a matter of course the laboratory-based *magistère* curriculum. They spend the last of their four years either preparing for a two- or three-year PhD course or in qualifying as fully fledged teachers in higher education (the process known as *Agrégation*. Aubert expects that 9 out of 10 will head towards a PhD.

■ **Internationalization.** Like everybody else in France, Aubert is scheming to do his bit for the integration of Europe. One possibility is to recruit students from elsewhere to Lyon, perhaps as many as 50 each year. (The statutes allow foreign students to attend, and to pay no tuition fees, but they would not be paid or other-

wise dealt with as if they were French civil servants.) News of this scheme advertised on Lyon's research network apparently brought 18 university people from elsewhere in the European Communities and the European Free Trade Area to an enthusiastic meeting on 7 June. Further developments are awaited.

■ **Liberalization.** To guard against the danger that the *normaliens* will be over-narrowly educated, there is a scheme to mix students from the University of Lyon in with them. But there are no plans to follow, for example, the Massachusetts Institute of Technology in introducing liberal studies of some kind to the curriculum.

■ **Research.** In the long run, the success of the Ecole Normale Supérieure de Lyon will hang on the reputation it acquires in research. There are almost 150 researchers already at work, two-thirds of them on the payrolls of either CNRS or INSERM. It is a guiding principle that there should be strong links between the school and the national research organization, with the result that two of the university's six laboratories are joint CNRS-Lyon institutes while the others are less formally linked to CNRS. Aubert is entirely content to think of using laboratories at Grenoble as well as Lyon both as research partners for Lyon's academics and as places at which the *école's* students can follow their *magistère* programmes.

Much thought seems to have gone into the formulation of research programmes which, while having roots in traditional research, are conceptually innovative. For example, the people in *informatique* are concerned with the logic of parallel computers, the physics department with instabilities and order-disorder transitions in liquids.

So has the move indeed confirmed that it is possible to live, and to remain intellectually alive, outside Paris? Almost all the academics at Lyon have moved from Paris, although not from the old campus at Saint Cloud. Interestingly, three people (for this purpose a random sample in that their qualifications were that they speak English) had all used the opportunity of the move to Lyon to change the emphasis of their research. One common goal seems to be the creation of a distinctive line of enquiry, capable of catching national and international attention.

Those who have made the move are youngish people (and Aubert is proud of the average age of the faculty at Lyon). The reason is straightforward: as one explained, "the older people would not move". But even some of those who have done so acknowledge that there are ways in which "Paris is better". What they mean is that the extramural aspects of life in Lyon are not as varied as in the capital. That is perhaps something else on which Aubert should be working. □

What's in a number?

TELL the average academic in Chicago, Manchester, Tokyo (and probably anywhere else outside France) that you teach at the University of Paris and he is likely to say "Ah!, the Sorbonne", perhaps adding that it is "the oldest university in the world, isn't it?". In fact, the Sorbonne ceased to exist in 1790 and was given to the University of Paris in 1808.

In troubled 1968, that was divided into 13 campuses or, more precisely, what is now the Académie de Paris comprises 13 universities — each one numbered. But the numbers have verbal equivalents. A researcher in physics might, for example, give his address as "Paris XI", but say he works at "Orsay". And the rector would call himself "*Professeur en Sorbonne*", not at Université de Paris I.

The confusion is even greater than it first appears. While three campuses might still call themselves "the Sorbonne", being on the original campus in the Latin Quarter, Paris I is known as "Tolbiac", Paris III as "Censier" and only Paris IV, the old faculty of letters and arts, still calls itself "Sorbonne". Meanwhile, the Université Pierre et Marie Curie is always known as Paris VI, while Paris VIII, set up as an experimental university after May 1968, is called "Vincennes", after its original location in the eastern suburbs, but is now at St Denis in the north.

Foreign academics would, however, be right in thinking that the University of Paris is, with Bologna, older than other European universities. It began as a theological school attached to the cathedral of Notre Dame. As the number of tutors

MAGISTERES

Gaining distinction by degrees

IF universities can do little to select the students they teach, they can at least seek to distinguish between those who leave with degrees. That is one function of the *magistère* programme, originally conceived by Jean-Pierre Chevènement in the early 1980s as a way of redressing the balance between the *grandes écoles* and the regular universities.

The result is a highly selective beefed-up diploma for university students called the *magistère*. First introduced in 1985 in 70 selected university departments, in a wide range of disciplines, the *magistère* is meant to prepare students for research or industrial careers no less promising than those of engineers from the *grandes écoles*.

Students enter the *magistère* after the first cycle (first two years) of university education, but must have a special mention

in their diploma (DEUG). Because the *magistère* degree is not national, but awarded by the university, students almost always carry on their regular studies.

The Sorbonne appeared in 1253, as a theological school founded by Robert de

PARIS UNIVERSITY BY NUMBERS

| | | |
|------------|---------------------------------|----------------|
| Paris I | Pantheon-Sorbonne | "Tolbiac" |
| Paris II | (economic law, social sciences) | "Assas" |
| Paris III | Sorbonne Nouvelle | "Censier" |
| Paris IV | Sorbonne | — |
| Paris V | Rene Descartes | — |
| Paris VI | Pierre et Marie Curie | — |
| Paris VII | — | "Jussieu" |
| Paris VIII | Vincennes at Saint-Denis | — |
| Paris IX | Dauphine | — |
| Paris X | Nanterre | — |
| Paris XI | Paris-Sud | "Orsay" |
| Paris XII | Paris Val de Marne | "Creteil" |
| Paris XIII | — | "Villetaneuse" |

Sorbon, and had a stormy history. It was opposed to the establishment of Jesuit orders in France and sided with the English against Joan of Arc. The Sorbonne was closed by Convention in 1790.

Once integrated into the University of Paris, the "Sorbonne" refused to accept the teaching of new disciplines. Consequently, new universities were founded to teach sciences, humanities and the social sciences. Only after 1968 did universities throughout France become truly multi-disciplinary. Today, in the first major reforms since the 1970s, eight new universities are planned, four in the Paris area.

With the growth of the university system as a whole, the numbers game has spread. In Montpellier, for example, there are "Montpellier I", "II" and "III", the first (teaching arts, literature and the humanities) also known as "Université de Paul Valéry".

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In the first year, students carry out supervised research at a state laboratory, one half day each week. In the second, they are working full-time in a research laboratory and, in France, are given priority for grants under the European Commission's Erasmus and Comett programmes to study abroad. Students from the Joseph Fourier University at Lyon last year went to the University of Sussex and others to Philips in Eindhoven, for example.

The ministry of education has no plans to expand the scheme at present; much will no doubt depend on an evaluation of the scheme completed by Dr Guy Aubert.

Peter Coles