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ABSTRACT

An established practice within the program of the Organization for Economic Cooperation and Development (OECD) is an examination, on request, of educational policy and planning trends in individual member countries. It involves: (1) the preparation by the country concerned of a report documenting and explaining current educational development trends and policies; (2) a visit to the country by a team of independent examiners to prepare their own critical evaluation of the situation and a list of questions for the formal examination; and (3) the formal examination, which takes that form of a confrontation between a delegation from the country under review, the examiners, and members of the OECD Education Commission. Although Austria has already been reported on, this review is more limited in scope. It is restricted to the university sector, which has been an area of particularly dynamic growth since the formation in 1970 of a new ministry responsible for higher education and research. (Author/MSE)

OECD

AUSTRIA

HIGHER EDUCATION AND RESEARCH

OECD

REVIEWS OF NATIONAL POLICIES FOR EDUCATION

AUSTRIA

HIGHER EDUCATION AND RESEARCH

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
PARIS 1976

The Organisation for Economic Co-operation and Development (OECD) was set up under a Convention signed in Paris on 14th December, 1960, which provides that the OECD shall promote policies designed:

— to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;

— to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development;

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PREFACE

An established practice within the programme of the OECD Education Committee is an examination, on request, of educational policy and planning trends in individual Member countries. This has come to be known as the Country Review Procedure and it involves first, the preparation by the country concerned of a report documenting and explaining current educational development trends and policies; second, a visit to the country by a team of independent "Examiners" (foreign nationals appointed by the OECD) to prepare their own critical evaluation of the situation and a list of questions for the formal examination which, as the third stage, takes the form of a confrontation between a special delegation from the country under review, the Examiners and members of the Education Committee itself.

The review of which an account is given in the following pages is the eleventh in this series, but it differs from the others in reconsidering a country that has already been reported upon. The former review of Austrian policies for education was published in 1970; this new one is more limited in scope, being restricted to the university sector which, following the formation of a new Ministry responsible for higher education and research in 1970, has been an area of particular dynamic growth.

The report of the Examiners with which this review begins is the result of numerous meetings in Vienna, in the course of which they had discussions with a wide range of responsible people on the basis of a background report ("The Universities in Austria") prepared in the new Ministry for Science and Research. In November, 1974, the final round of these meetings was led by the Minister, Frau Dr. Hertha Firnberg, whose direct interest in these proceedings and in the issues raised greatly facilitated the work, as did the impeccable courtesy shown to all members of the OECD group during their visits to Austria.

An agenda for discussion of the Examiners' report and an account of the confrontation meeting at which this took place in July, 1975 are presented in Part Two of this review. Part Three gives the gist of the background report of the Ministry of Science and Research - its first six chapters in summary and its final chapter (concerned with policy ideas and initiatives for the future) in full.

As well as its gratitude for the co-operation extended by members of the universities and ministries of Austria, the Secretariat is glad to record its appreciation of the effectiveness and self-application of the Examiners in discharging their responsibilities.

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REPORT OF THE EXAMINERS

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HIGHER EDUCATION AND RESEARCH IN AUSTRIA

I. INTRODUCTION

This report is concerned with the present situation and future development of the Austrian "universities". The description "universities", however, needs some explanation. The parallel collective noun in Austrian is not "Universitäten", but "Hochschulen" translated in the English version of the Background Report* as "Institutions of Higher Learning". Among the 17 institutions, only the four oldest as yet carry the title Universität, though when the new University Organisation Law at present before Parliament is passed, all will do so. The four are:

- Vienna (1365)
- Graz (1585)
- Salzburg (1623)
- Innsbruck (1669)

All the remaining institutions, except the "Akademie" of Art in Vienna, originally founded in 1692, as yet still carry the title of "Hochschule". All are of more recent foundation and all cover a more specialized field.

Two - in Graz (1811) and Vienna (1815) - are well known "technical universities" from which emerge most of the highly qualified engineers for Austrian industry.

Two - in Vienna (1873) and Linz (1962) - are parallel institutions in the Economic Sciences.

Four are still more specialized:

- Veterinary Science, Vienna (1767)
- Mining, Leoben (1840)
- Agriculture, Vienna (1872)
- Educational Sciences, Klagenfurt (1970)

The remaining five - including the "Akademie" in Vienna - are Art Institutions. Throughout our report we have used the term "universities" to include them all and have rarely referred to any one of them individually.

* Higher Education and Research in Austria: Background Report by the Austrian Authorities. See Part Three, following.

We have concentrated our attention on elements which in general relate to them collectively, despite their varying size and specialization, but this may in some respects be misleading, particularly in relation to the Schools of Art and Music, of which we made no special study. This reservation should be borne in mind.

II. EXPANSION: QUANTITATIVE ASPECTS

The Austrian universities are in the throes of very rapid expansion. Full information on this is given in the Background Report; in 1955/56 the total numbers of normally enrolled students was 13,888; by 1973/74 it had risen to 66,850, of whom 58,613 were Austrian nationals. Newly enrolled Austrian students in 1955/56 numbered 2,987 of whom 740 (24.8%) were women; in 1967/68 new enrolments totalled 6,946 of whom 1,971 (28%) were women, and by 1973/74 they were 11,101 of whom 4,412 (39.7%) were women.

The tale of growth is told in terms of expansion in student enrolment, staffing and space, all with implication for outlays of public funds.

Almost every year since 1955/56 has shown a rise in enrolment. The following Table is derived from the figures provided in the Background Report (Chapter 2.2.3 Table 5).

YEAR-TO-YEAR CHANGES IN ENROLMENT, WISSENSCHAFTLICHE HOCHSCHULEN

(Austrian regular degree students only)

WINTER-SEMESTERS	ANNUAL CHANGE IN NUMBERS	PERCENTAGE CHANGE
1955/56 - 1956/57 ..	215	1.5
1956/57 - 1957/58 ..	1,881	13.3
1957/58 - 1958/59 ..	3,094	19.4
1958/59 - 1959/60 ..	3,529	18.5
1959/60 - 1960/61 ..	4,230	18.7
1960/61 - 1961/62 ..	3,611	13.3
1961/62 - 1962/63 ..	3,136	10.2
1962/63 - 1963/64 ..	2,403	7.1
1963/64 - 1964/65 ..	979	2.7
1964/65 - 1965/66 ..	691	1.8
1965/66 - 1966/67 ..	-158	-0.04
1966/67 - 1967/68 ..	3,369	8.9
1967/68 - 1968/69 ..	-1,891	-4.6
1968/69 - 1969/70 ..	1,512	3.8
1969/70 - 1970/71 ..	2,233	5.5
1970/71 - 1971/72 ..	3,828	8.6
1971/72 - 1972/73 ..	6,208	13.2
1972/73 - 1973/74 ..	5,455	10.3

It will be noted that enrolment growth has not followed a smooth path. There were two years when enrolment actually declined, four years when the annual growth rate was below 5%, and four more years when it lay between 5 and 20%. However, this still leaves eight of the 18 years showing annual growth rates of more than 10%. Moreover, in the last five years alone (1969/70 - 1973/74) a total increase in enrolment of 17,724 students was recorded. Over the entire period, 1955/56 - 1973/74, enrolments have grown at an average rate of about 8% per annum. We understand that in 1974/75 it was down again to 16%.

In the last decade staff numbers have grown at an even faster rate than enrolments. Thus, comparing 1974 with 1966, established positions increased 80%, while total student numbers grew only about 50%.

In recent years, too, a substantial increase in available space for university operation has been achieved; an increase of roughly 33% between 1969 and 1974. Meanwhile, building costs per cubic metre nearly doubled.

The expansion of total numbers will continue for some time, but it is worth noting that during the last few years the increase in first year students has been very largely in women: since 1968/69, the number of female students has more than doubled while the number of men has risen by less than a quarter. This leads us to doubt whether the rapid expansion of recent years will continue. On the other hand, though the sex balance is approaching equilibrium, the regional and social group balances are still severely distorted; a young person from the city of Vienna still has almost twice as good a chance of getting to the university as one from the other provinces and almost three times as good as one from the province of Vorarlberg. Though the classes described as "workers" and "farmers" comprise 38% and 12% respectively of the male working population between the ages of 40 and 65, the proportion of students from these two occupational groups is 13% and 6%. Experience shows how difficult it is to correct these inequalities, and the Austrian authorities are, therefore, right to be cautious about the future. Nonetheless, all the projections made suggest that by the end of this decade the number of Austrian students on normal degree courses is likely to rise to at least 80,000.

III. EXPANSION: QUALITATIVE IMPLICATIONS

Even though growth of the university sector produces problems, it is clearly too late now to decry it, or to reverse the developments of the past twenty years. Moreover, most people in the universities are not willing to forgo the benefits of growth, if only because it has become an index of success and a harbinger of riches. After all is said and done about overcrowding and understaffing, the fact remains that these problems involve only a minority of subjects and often among these only a minority of the teachers. The remainder of the university has

benefited in resources and in status from growth, especially as most of those persons who were part of the enterprise before it began to grow now find themselves in positions of some power, controlling very substantial resources.

But the past and projected growth has far-reaching implications, not all of which have been fully recognized by Austrian university authorities. In general, they do not appear to have realised that quantitative expansion must be accompanied by far-reaching qualitative changes, nor have they demonstrated willingness to adapt themselves to new needs, new social imperatives, and new students with different backgrounds and aspirations, which arise from the increasingly high and increasingly obvious rate of change in Austrian society. Part of the problem is that the universities have grown gradually. There has not been one great leap forward that was large enough to be seen as a decisive turning point. Instead, growth has gone forward as a series of cumulative increases. Thus, throughout the successive stages of expansion, university institutions were viewed as somehow remaining essentially unaltered. This is manifestly not the case. Traditionally, universities have been typified by features that characterize small groups, not only in the number of staff members, but even more strongly in the size and the internal functioning of the faculty. Traditional university self-government is most comparable to the working of a rather exclusive club: the rules of admission are stringent, but once admitted, the member is presumed competent, even in the face of evidence to the contrary. Conduct is regulated not by the working of impersonal rules but by mutual consent and discreet pressure. The cement that binds together such a club is the fact that everybody knows everybody else. Very rapid growth eliminates precisely this vital cohesive element, while the appearance of gradual growth may make it possible to avoid having to take a decision to put something in its place.

IV. THE FUNCTION OF SCIENTIFIC RESEARCH

A main characteristic of Austrian universities is a very high degree of structure based on a rather narrow concept of what higher level academic education is. There are always dangers in translation, for words frequently have a significance based on modes of thought which are difficult to convey by direct translation. This would certainly seem to be the case with the word "wissenschaftlich", the essence of which is not adequately translated by "academic" or "scientific". In the Austrian context, at least, it embodies the assumption that the function of the universities is to convey to the student the basic principles of enquiry. Though it would be unjust to say that this is done irrespective of content or purpose, it does seem to be true that it is the training in, or the inculcation of, this "scientific" attitude of mind, the intellectual discipline per se, which is the factor of prime importance. It is a matter

of approach rather than of content, of principles in the abstract rather than of actual knowledge, which appears still to be dominant in the Austrian universities. Inevitably, therefore, there arises a degree of uniformity and a rigid structuring of courses which would seem to be most inappropriate in preparing today's young scholars for tomorrow's society.

It would be unfortunate if this conformism were confused with the particular organisational and political structures within which the Austrian universities operate. In writing the previous paragraph we were not thinking of the function of legislature and ministry in passing laws or making statutory orders; to this we shall return later. We were concerned with something much more fundamental - an attitude of mind and a series of assumptions which prevail in and are without doubt regarded as basic to a university education as being the high responsibility of the university teacher to convey to his students. It was repeatedly said to us in the course of the discussions that the function of the university was to give "general" education and not primarily to prepare for professional life. Under some formulations, there is force in this argument but, as stated, it seems to us wholly to beg the question as to what the purpose and the nature of this general education shall be.

Not surprisingly, too, reference is frequently made to the essential unity of teaching and research. This emphasis is not, of course, peculiar to Austria, for it dominates traditional thinking in Europe and beyond. But in the Austrian universities it seems still to have behind it an intensity of conviction which has been challenged in many other countries. We do not deny and have no wish to undervalue the importance of scientific research or the essential role of the university, whether in Austria or any other country, in extending the bounds of knowledge. The function of discovery is an essential one and is rightly highly esteemed. We do not deny it, nor the very considerable contributions which Austrian scholars have made. We accept, too, that many fruitless research efforts may have to be tolerated in the process of enabling the really original thinker to emerge. But in our view it would be unfortunate to apply to all study at university level the norms of the physical sciences, under which the great imperative is new discovery, a pressure on all university teachers to make some contribution to knowledge, however remote that knowledge may be from the realities of life or the needs of their students. What we cannot accept as necessary or desirable is the cast of mind which seems to assume that all teaching and all learning at university level should be imbued with the high aspirations of the researcher. We were disappointed that the official voice of the universities seemed to be speaking largely from this negative viewpoint which appears to us to be inappropriate to the needs of most students of today or of the rapidly changing society in which we live.

V. COURSE OPPORTUNITIES

The pattern which prevails for the vast majority of university students in Austria is that of the "ordentliche Studien", with normally a minimum time of 8 semesters, divided into two two-year stages and leading to the Diploma or first degree examination. This can be followed by another two-year stage leading to the Doctorate. This is the normal pattern but there are variations; in some cases, including the courses for secondary school teachers, the prescribed minimum time is 9 or 10 semesters; in two Faculties, Medicine and as yet still in Law, there is only the Doctorate and no Diploma. This is the apparent strait jacket, defined in a comprehensive series of laws and statutory orders made by Parliament and Ministry, within which the universities operate. But the word "apparent" is used deliberately. The universities are not compelled to operate in this way: there are many alternatives available to them which could be used far more intensively than they are. They can be described briefly thus:

First, there is the significantly named "studium irregulare", made possible by the General University Studies Law of 1966 (Allgemeines Hochschulstudiengesetz). This makes it possible for an individual student to follow a course which does not conform to any one of the prescribed discipline-oriented patterns, but is a combination that cuts across normal boundaries.

Second, there is the "Experimental Course" (Studienversuch) made possible under the 1971 Law regulating courses in the arts and natural sciences. Under this arrangement a course can be specially recognized for ten or more students, i.e. a multiple studium irregulare.

Third, there is the "Short Course" (Kurzstudium) which has a minimum prescribed time of less than 8 semesters.

Fourth, there are the so-called "Hochschulkurse" and "Hochschullehrgänge", which are quite outside the normal pattern and can be of any length and on any subject. They are in principle open to anyone over the age of 18, and in some cases over the age of 15, without any requirement as to the school leaving qualification, such students being called "extra-ordinary" students to distinguish them from the regular degree students. Such "ausserordentliche" students can also be admitted to individual classes in a normal course. There is yet another variation, in that Kurse or Lehrgange can be provided for graduates, distinguished as "Gasthörer"; potentially, at least, such courses form the basis for Continuation or Post-graduate Education.

This is an impressive range of possibilities, but the use made of them so far has been pitifully small. There have been about 250 "irregular" students; there are four Studienversuche (in Sociology and Economic Information, both in Vienna, in Business and Administrative Information at Linz and in Educational Science at Klagenfurt); there are three Short Courses (in Computer Technology in Vienna and Linz, in Insurance Mathematics in Vienna and in Interpreting in Vienna, Graz

and Innsbruck). The information about Kurse and Lehrgange is less readily available, but it is known that in 197[illegible]4 there were some 1200 "extraordinary" students, mostly on language courses, and 210 "guest", i.e. graduate, students. This is not an impressive record. It is true that under the Austrian system a university that wishes to introduce such departures from the established pattern must obtain the imprimatur of the Ministry and the required legal sanction, but we have received no evidence to suggest that the Ministry has in any way frustrated the efforts of the universities by refusing approval nor, given the general acceptance of this tight legal basis for courses, do we believe it has been a deterrent.

Our main purpose is not, however to criticise, but to point out that the universities do possess a formal mechanism for meeting a wide-ranging variety of needs. We would draw attention in particular to the opportunities provided by the introduction of Hochschulkurse and Lehrgänge to make a large contribution to the general education of adults and to develop the comprehensive system of advanced refresher up-dating courses, so essential in a rapidly developing industrial society. It could be argued that there are many providers of education for adults in Austria, and this is indeed true. With the strong support of the Federal Ministry of Education, these agencies have recently received encouraging legal and financial backing, but the universities have a distinctive responsibility and could make a major contribution, of which there is at present little sign. In graduate training and re-training there can be even less question as to the role of the universities; the few large firms and employers' organisations will no doubt continue their present training activities for their own personnel, and we do not overlook the valuable but inevitably quantitatively small contribution made by the Institute for Advanced Studies in Vienna, but the universities are in a unique position to supply the knowledge base and the skills required.

A different but no less important responsibility of the universities is towards adult students. For many years there has existed the Berufsreifeprüfung which enables people between the ages of 25 and 45 who have missed secondary education to obtain entry to a university. It is a written and oral examination in general subjects and in the special field of interest of the candidate, which can be taken at any one of the four recognized "Universitäten" of Vienna, Graz, Salzburg and Innsbruck. No preparatory courses are provided so the student must prepare for the examination by self-study or at one of the institutes of adult education. The number of students who have taken advantage of this channel into the universities is very small; at the University of Vienna in the 16 years 1958/59 - 1973/74 there were only 254 applicants and even of these only a little over 80% started a course. We feel that the universities should be doing more in relation to adult students and should make strenuous efforts in this direction.

The Ministry are giving the lead; they have recently taken two initiatives which we strongly commend. One is to open a new avenue for adult students into the university by the establishment of the necessary

preparatory courses; the other is the setting up of a committee to develop distant study courses. It is to be hoped that the universities will respond whole-heartedly to these initiatives.

VI. RATIONALIZATION

Austria is faced with the necessity for continued expansion in higher education. As we have previously noted, there is the expectation, even on conservative projections, of an increase in the number of normal university students to at least 80,000 by 1980, and there is in addition the largely unrealized contribution of the universities to adult education and graduate education to which we have already referred. Can this be matched by additional resources?

The record of the Austrian Government in recent years has been impressive. As Section 6 of the Background Report points out, the budget for the universities has increased by 95% since 1970. For 1974, direct public budget outlays per regular degree student are estimated to be AS 72,000; omitting outlays on construction and research reduces this sum to AS 53,587 per student enrolled. Even these direct outlays represent 2.42% of the Federal Budget and 0.62% of the Gross National Product. Over the period 1970/74, not only have the absolute figures grown significantly (from AS 53,152 in 1970 to AS 72,000 in 1974 for total per student expenditure) but the share of university expenditure in the Federal Budget has grown (from 2.40% to 2.97%), as well as the share in the GNP (from 0.65% to 0.76%). These, then, are the gross indicators that underline the urgent need to rationalize existing levels of expenditure, to scrutinize carefully all plans for future expansion and, above all, to be imaginative about the reorganisation and reform, so that resources may be developed more efficiently.

It is evident that there are opportunities open to the Ministry of Science and Research, as well as to the individual institutions of higher education, to eliminate wasteful duplication and under-utilisation of facilities and to prevent losses to society caused by poor information and by lack of coordination among the various segments of Austrian higher education. The Background Report points to several of these areas, particularly in the field of specialist libraries, electronic data processing, course offerings and staff-student ratios. We will look more closely at some of these matters later, but we are convinced that the major returns to efforts at rationalization will come from taking measures to achieve one prime goal: namely, reduction of the high rates of non-completion by students of their university studies.

Austrian higher education is marked by an extraordinarily high rate of non-completion. The Background Report (p. 161) estimates that "during the past 15 years, an average of 13% (men) and 11% (women) have completed their studies after five years; 33% (men) and 29% (women) within seven years." In toto about 60% (male) and 46% (female) completed their studies regardless of the time factor.

The Austrian authorities have had since 1967/68 a remarkable and highly commendable system of following and reporting on students' careers through the higher education institutions. The retention rates observed are as follows:

WINTER SEMESTER

Re-enrolment of Students Registering for the first time in the Winter Semester 1967/68 in a Programme of Studies

(percentages)

1967/68	1968/69	1969/70	1970/71	1971/72	1972/73
100	87	83	80	72	64

(Background Report, Table 1, p. 170)

Female retention rates were consistently below rates for males (after four to five years by about 10 percentage points).

Drop-out figures are equally disturbing. "After 8 semesters, 21% of those students [who registered for the first time in the winter semester 1967/68] had either ex-matriculated or had not registered in three consecutive semesters, and were thus ex-matriculated ex lege". Moreover, "9% of all Austrian regular degree students dropped out of their studies after the first two semesters." (Background Report, p. 174). Again, females showed much higher drop-out rates than males. Over the period 1955/56 to 1970, Federal Ministry estimates reveal, there were 78 drop-outs from higher education for every 100 students completing their studies. It is, of course, generally expected that open access will involve wastage, but the Austrian figures go well beyond such expectations. It appears that, so far, it has not been possible to identify a definite set of factors linked to these high drop-out rates. Preliminary studies indicate that excessively burdensome academic loads, disappointment with the content of studies, and too heavy a load of extra-mural obligations may be three important reasons, but these results are not yet definitive. We commend the research effort presently being mounted in the Ministry to trace more accurately the factors associated with drop-out decisions.

On the time taken to complete courses, there is need for more information. The statistics show precisely what the student does in the university, but they tell nothing of his activities outside, and this is critical to any proper assessment of the economic or educational "waste" involved in a protracted period of study. If the intermittent student is indeed being "lazy", as has been suggested, then the waste of resources could be serious; if, on the other hand, he is practising what many have advocated as a positive policy, i.e. alternating study

and work, then the net effect may be minimal loss and even positive educational, social and economic gain. Some method of establishing the facts is urgently required, but we would emphasize that what matters is not the time taken but the use of resources involved. This suggests to us one way of reconciling the optimum use of scarce resources, the freedom of the student and the phenomenon of growth.

Meanwhile, we wish to suggest a number of approaches that may be worth consideration in the attempt to check the waste of public (and individual) resources that must be associated, in some measure, with the observed drop-out rates.

From an academic point of view, if from no other, Austrian students entering an institution of higher education are a highly selected group. They have passed successfully through a course of study, at a gymnasium or at a vocational secondary school, that is both long and rigorous. They have reached a high level of proficiency in a wide range of subjects. In no sense can any of them be dubbed academic failures. Yet, because of certain (as yet undetermined) characteristics of the system of higher education they enter, a very high proportion will become "academic failures" within a few years of secondary school graduation.

It seems to us imperative that steps be taken to remedy this situation. At present, there are available through the Austrian universities the two qualifications we have already noted: the diploma or magister, gained in from 8 to as many as 12 or 16 semesters; and the doctorate, taking from 8 to also, sometimes, 16 or more semesters. The earning of higher educational qualifications opening the way to professional employment is geared virtually exclusively to these two fixed points of completion. A student who completes, say, four semesters of study successfully is given no official certificate attesting to this fact, though he can if he wishes, have a list of the examinations he has passed. It seems that a valuable first step would be to build upon the recent division of diploma courses into lower and upper cycles and to make available to a student successfully completing the lower cycle (four semesters) an official university certificate attesting to that fact.

As a longer-term objective, we would urge that consideration be given to devising a system whereby each semester of successful attendance and study earns for the student an official university recognition that he can take with him from the university, should he leave before gaining the diploma or doctorate. In this way, even if the percentage of those dropping out is not reduced, the present orientation of the system toward the production of "failures" may be somewhat attenuated. We are optimistic, however, that the provision of more points of completion within the total study period will itself help eliminate some part of the drop-out phenomenon. Surely, some young people must despair of ever finishing a course of studies extending over five, six or even nine years, in the absence of some intermediate official recognition of their progress toward that goal.

It should not be surprising that so many students decide that they do not wish to continue their studies to completion. They come to the universities bringing a wide range of aptitudes, interests and study skills. Their personalities, modes of learning and academic, professional and personal goals vary greatly. Yet, like so many other countries, Austria has provided for them a university system that is marked by a highly uniform approach to teaching and learning. Instead of the system making great allowance for the variety of its young students, the students are expected to conform to a fairly limited set of possibilities, or opt out of the system. Unfortunately, too many of them are constrained to do just that.

What seem to be required are far-reaching efforts to provide an enlarged number of alternative (and equally respected) teaching and learning styles, programmes and course structures and a widening of the range of studies deemed worthy of university status. Some students can do well in a rather bookish, theoretical, discipline-oriented regime; others do not, and may profit from more practical, applied and problem-oriented studies. Some students find it difficult to launch into independent research and self-guided study at an early date. Others need this freedom if they are to develop, and may wither intellectually without it. Some students will profit greatly from a close and frequent monitoring of their performance, others may need a more relaxed, permissive atmosphere. In any case, the general level of achievement of the university will rise, with educational and economic benefit to the universities themselves and to the country as a whole.

The Background Report has some wise things to say concerning the highly controversial subject of teaching methods. The condemnation of the mass lecture as the main instrument for the imparting of information is a commonplace these days; the case against it, as it has been used in the past, is strong, because of its uni-directional character, its impersonality and its general ineffectiveness. This no longer needs demonstration, though we would not go so far as some critics and abandon the lecture method altogether; in our view, for some specific areas of study and for some broad educational purposes the lecture has a valuable function. It is relatively economical in its demand on resources of space and manpower and, judiciously used, it can be helpful in providing the margin of extra resources needed for other forms of teaching.

The greatest weakness of the lecture is the lack of involvement of the student, which is partly a matter of technique and partly one of size. In Austria in recent years the lecture seems to have been largely replaced by the "seminar", the principle of which is student participation and specific student contribution. This seems sound, but if, as we have heard, these seminars frequently consist of as many as 80 students, the involvement and the contribution must, for most students, be nominal, and it is difficult to see what actual advantage such an overloaded substitute for the lecture can have. We must emphasize

the importance of size of unit. The small seminar with continuous interchange between staff and students and between the students themselves is a highly effective educational instrument because of its immediacy and its adaptability. But it demands a high degree of involvement on both sides and there is some evidence that small group work is not necessarily popular with students - which suggests the need for careful guidance from the teacher. It is necessary to remember, too, that the small teaching group is expensive in its demand on resources and cannot be used indiscriminately. Here we would like to restate our conviction that experience elsewhere suggests that there is great advantage, educational and economic, in arrangements whereby senior students play a definite and regular part in the studies of more junior students. This suggestion, when we made it during the course of our discussions in Vienna, was not warmly received - presumably because of its novelty and not because experience in Austria has shown that the practice was ineffective or otherwise undesirable. We would urge that more serious attention be given to it and that a study be made of experience elsewhere. It would seem to be a technique easily adaptable to the "Übungen" which are an increasingly prominent feature of Austrian degree courses.

In addition, there is a great need for more flexibility and a wider range of choice for students. In some European countries, though with many different motives, this has been attempted, if not always achieved, by building up a range of post-secondary institutions outside and parallel with the traditional universities. Mention has only to be made of the Instituts Universitaires de Technologie en France, the Polytechnics in the United Kingdom, the District Colleges in Norway, with rather more far-reaching proposals in the Gesamthochschulen in the Federal Republic of Germany and the University Centres in Denmark and in the aspirations of the U 68 Commission in Sweden. Despite the very great differences between these various efforts, they all have at least one aim in common - to provide for a greatly enlarged student population a more varied range of courses and approaches to learning.

Although these developments, particularly in the Federal Republic, are much discussed in Austria, any parallel change is not likely, at least in the foreseeable future. At present the identifiable non-university sector of post-secondary education is negligibly small in comparison with the universities. The process of definition is itself not simple, but if one takes as the yardstick movement from one institution to another by students who have obtained the normal school leaving examination, the Matura, no less than 82.3% of such students in 1973/74 were in the universities and another 4% in the Schools of Art and Music, which are mostly long-established and have university rank. None of the institutions housing the remaining 13.7% comes within the competence of the Federal Ministry for Science and Research, which is responsible for the universities; the only group of any size is the Pädagogische Akademien (for the training of elementary and middle

school teachers; with 7,243 students, 10.2% of the total in 1973/74) which come within the competence of the Federal Ministry for Education and Art.

What marks this pattern of provision of post-secondary education as unique in Western Europe is the complete absence of any technical institutions in the non-university sector. This is not because the Austrian universities meet the needs which were largely responsible for the creation of the French IUTs or the British Polytechnics, but because of the existence of a group of vocationally oriented upper secondary schools (Berufsbildende Höhere Schulen) in the achievements of which the Austrians take great pride. The schools have five-year courses starting from the 9th grade (age 14) with programmes which appear to be strenuous indeed; the weekly programme is often of 43-45 hours compared with 30-32 hours in the academic secondary schools, and there is in some types an additional requirement or expectation of acquiring practical experience during the school holidays. During these five years the pupils follow a course of normal academic subjects which approaches that of the general schools, and they pursue at the same time a highly differentiated course of technical or commercial education and training. With success in the special Technical School Leaving Examination they are welcomed by industry and after five years' working experience are granted the title of Engineer, apparently with a status equal to that of the products of the three-year post-Abitur course in the Federal Republic of Germany.

Whether the evident pride in these schools is fully justified, whether the strenuousness of the course and the associated high wastage rates are justifiable on educational or economic grounds, whether the strong support expressed for them by the employers' representatives reflects relative cheapness for the employer as much as the excellence of the product, these are questions to be considered on another occasion than this. We merely note that no need is recognized for a level of qualification between this vocational school leaving certificate and the degree of a technical university, and that the creation of new post-secondary non-academic institutions is not within the range of possibility in Austria. Given the breadth and flexibility which is normally one of the objectives associated with such institutions in other countries, this throws an even greater responsibility on the Austrian universities to meet a range of needs which goes far beyond anything they have achieved so far.

To assume that economy in the use of public resources demands that, in the main, students in a particular field must be treated alike, because alternatives are too expensive to provide, is often a mistake. Much greater waste may result from trying to bring all students into conformity with some single "ideal" vision of what an education at a university ought to be. Rationalization and economy in the use of public resources is often aimed primarily at reducing charges on government budgets. This is, of course, an important aspect of the management of public services, but it is worth emphasizing that, especially when

considering higher education provision, the concepts "rationalization", "efficiency" and "economy" have wider implications than just saving money.

The ultimate value of much of what goes on in universities depends on the initiative, morale and energy of the teachers and the taught. Even large sums of money spent in ways that do not harness the interests and enthusiasm of students and teachers may run to waste. More modest sums spent differently may yield dividends in the form of higher levels of student learning and success ratios, and in better staff performance in teaching and research. Thus, while "rationalization" of expenditures is a term that certainly includes the notion of "economy", it must go beyond the concept of simply "saving", and embrace a positive conception of the organisation of higher education, to provide ample incentive for all engaged to make the most of their opportunities.

Students not only drop out of higher education altogether, they switch from one course (or institution) to another. In the Austrian situation, institutional switching is not frequent; course changing is. The Austrian authorities are making a most determined effort to improve the provision of counselling (Beratung). Thus, secondary school leavers are now probably much more aware than were their predecessors of the alternatives open to them in higher education, and of the kind of academic activities expected from them. Nevertheless, there remains a great deal of course-switching during the early semesters of study. Several universities are developing centres for dealing with psychological problems, which will undoubtedly meet the difficulties of some students, but the real need would appear to be a greater emphasis on educational rather than psychological guidance. These changes of course need not be regarded as resulting from failures of counselling, or necessarily as a waste of resources. Most often, switches are made to a cognate field of study, so that students are able to apply their previous studies in full to the credit of their new courses (for example, switches are very frequent from, and to economics, sociology and business studies). However, the Austrian authorities suggest that "[switching] could also be a consequence of disappointment in the course of studies", that is, not merely the result of a wrong selection of study programme. (Background Report, p. 172).

In evaluating this suggestion, there is some evidence that the internal structure of Austrian universities, the modes of instruction, problems of staff-student relationships, the timing and structure of the examination system and the content of individual courses and programmes of study may together result in a quite unwelcome and high level of student frustration. This frustration is brought to public notice most obviously in the form of drop-out, course-switching and prolongation of studies, for these are the phenomena that can be readily measured and even quantified.

A welcome development in the course of the study reforms springing from the implementation of the Allgemeines Hochschulstudiengesetz

of 1966 has been the introduction of some degree of choice for students through "elective" subjects (Wahlfächer), which offer some alternative groups of subjects, and, even more, through "free" subjects (Freifächer), which are additional single subjects chosen purely at will and may be related to the Student's main field of study or may simply reflect his personal interests. During our discussions, we were told that, in some degree courses in the Science and Arts Faculty, this optional area during the last four semesters was as high as 65% of the total registered hours, but of this the "free" subjects as yet form only a very small part. This liberalization, extremely limited as it is, is a step in the right direction; we feel that it could be a significant pointer for future progress. At the moment, however, it stands in marked contrast to the normal pattern of change.

Under the series of laws and ordinances which have followed the Act of 1966, a complete revision has been undertaken of the degree courses in the Austrian universities -- complete in the most literal sense of the word: the unit of accomplishment for the student is the complete course of study, albeit composed of many sub-units -- courses, seminars, demonstrations, laboratory work, etc. Students progress through the sequence of learning events, step by step, with an accumulation of completed courses preparing them for their final examination. Recently, it has become possible for certain examinations on the way to the Final to be passed cumulatively rather than leave all the subjects to be covered in one major examination.

In spite of this and other developments, basic rigidities remain: the unit of account for the student is the completed course of study; as we have already remarked, none of its parts has independent value as a sign of accomplishment. Revisions in the course of study require complete revision; single learning events are not the basic subject for consideration.

There is some justification, of course, for the reluctance of the Austrian authorities to adopt a formal credit system in which the unit of account is a course of approximately standardized length, difficulty and workload. The artificialities of such a system - employed chiefly in the United States - are too manifest to justify its adoption. In the United States these artificialities are mitigated by long years of practice in dealing with this particular system of academic accounting, which was developed in the 19th century in response to the dispersal of institutions of higher education and the mobility of students. Paradoxically, it is the very imperfection of the course-credit system which has made it so adaptable over the years; it is a conventional unit of account, an abstraction with only limited descriptive character. Keeping this in mind, we feel that further steps are needed towards creating a more clearly structured and a more flexible system of developing courses of study.

As the United States example shows, structure and flexibility are not necessarily incompatible; but somehow the necessary linkage between them appears to have eluded most European countries; there

exists a sense that more structure in the course of studies implies more rigidity in the way in which students can study. Consequently, the development of new patterns of study have encountered resistance from both students and teachers on the grounds that their freedoms are being eroded to no good purpose. What is therefore required is not only a more rational system of patterning courses of study, but one which can be seen by both students and teachers to provide adequate flexibility.

In Germany, in recent years, there has been extensive discussion of a Baukasten system of courses. What this implies is the structuring of the courses of study in such a way that they interlock in a system of modules which are maximally exchangeable. To achieve this, the various courses of study must be coordinated and disaggregated, i.e. they must contain as many common elements as possible, and to do this required breaking them down into the necessary sizes - sometimes very compact, sometimes much more significant in length, depending on the study goals involved. In Germany, a number of complete courses of study have been developed according to this model, and several universities have conducted experiments along these lines. This is not the place to describe in detail the Baukastensystem*; from the planning point of view, however, the development of such a process has the virtue of transforming "Studiendauer" into a variable but distinct number of steps, allowing a more careful assessment of the allocation of resources and the distribution of effort within the universities. Without necessarily accepting all the details of the system evolved in Germany, we are convinced that the application of the fundamental principles involved could make a valuable contribution to the opening up of the Austrian universities to the flexibility we regard as highly desirable from both the educational and the economic points of view.

VII. OTHER RATIONALIZATION MEASURES

We have dealt at some length with the rationalization of courses because it seems to us to go to the heart of the educational problem itself. But as we noted at the outset, there are many other measures which could be taken to avoid unnecessary dispersion of resources, through a process of more rational provision. This has many different aspects, at different levels.

Traditionally status and promotion in universities are based mainly on research. Thus, there is a tendency to allocate research time and other resources more or less evenly to all fields. This is not necessarily in the interest of either education or research. Procedures (centralized and/or decentralized) for creating well-grounded differences between different fields of study as regards research intensity seem to be required.

* See Weizsäcker/Dohmen/Juchter, "Baukasten gegen Systemzwang", München: Piper 1972.

From the Background Report and the discussions we had in Vienna, it is clear that the problem is understood in some quarters and is being studied. It is of interest to note that the Ministry is actively engaged in a project aiming at the establishment of more rational procedures for the allocation of resources for teaching and research respectively. The results of such an investigation might well be of considerable interest to other countries faced with the same problem.

It is clear, also, that Austria could be somewhat more restrictive than she has been hitherto in permitting the proliferation of similar courses in different universities. There are regional considerations which politically are not unimportant, but there is evidence given in the Background Report that the opening of a course in a new location, though it has to some extent created a new clientele, has served principally to relieve existing courses.

In such cases a hard look may be necessary to determine whether it would not be better on economic grounds to build on the existing courses rather than open up similar courses elsewhere. Carried to its logical conclusion, this is the Schwerpunkt policy of concentration and division of labour. In some areas it is already existing policy; there is only one Agricultural University, one for Mining, one for Veterinary Science, but it is at least a question whether there are not already too many centres for some studies. We have not examined this in detail, but a priori one might ask whether it is necessary to have five law schools or four centres for degrees in geography, philosophy or psychology. Experience shows how difficult it is to close down existing centres, but at least the lesson can be drawn that no new centres should be opened in subjects which are already provided in a number of different institutions. We realize that this may cut across or even directly negate existing policies such as more equal regional distribution to offset the over-concentration in the capital city or the maximum freedom of choice and of movement for students, but this is the difficult choice that has to be made. For the individual university, there is the not inconsiderable compensation that in one or more fields it may receive the resources to become a real "centre of excellence".

A corollary of this greater rationalization is the need to establish inter-university co-operation. It is very difficult for the layman to understand why academics from different institutions (and all too often even members of one institution) find it so difficult to share material resources; colleagues in the same academic field in different institutions will readily work together on research programmes but each from his own independent base. Already with the need in some fields for very expensive equipment, such as electron microscopes, this independent base has proved impossible. In the computer field the Ministry has developed a comprehensive policy based on concentration in Vienna and on a division of labour between the two main university level institutions in Vienna together with a nation-wide networking arrangement. We think it likely that this rationalization could be carried further. It could be

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developed, too, within the course patterns of particular disciplines; we wonder, for instance, whether it would not be possible in relation to the scientific aspects and the pedagogical aspects of the same subject, especially now that the University for the Educational Sciences at Klagenfurt has been established. To give an obvious example, it would seem odd if the Klagenfurt University were excluded even from the professional aspects of the training of teachers in the important field of the natural sciences, yet it is inconceivable that this institution should be provided with the full range of laboratories needed for teaching the subject itself; the obvious answer would appear to be joint courses between Klagenfurt and universities with a strong base in the natural sciences, whereby the former was responsible for the didactical training and the latter provided the basic knowledge in the discipline itself.

We can and indeed do carry this argument one stage further by extending it to the international plane. Here, at least at Ministry level, we appear to be pushing at an open door, for the Austrian Government has shown no reluctance to participate in international organisations or activities, as for instance, in the European Centre for Nuclear Research (CERN) at Geneva, the European Molecular Biology Laboratory (EMBL) at Heidelberg, the International Institute for Applied Systems Analysis (IIASA) at Luxembourg or the Centre for Educational Research and Innovation (CERI) in Paris. Despite the argument that a country cannot effectively participate at international level without a strong national base, we think that it is an economically justified policy for a country of the size of Austria and one which is fully in line with the rationalization we think will be increasingly necessary.

Measures of rationalization would seem to be possible also within the individual institutions, and the Background Report shows that the Ministry is well aware of this. On a parallel with the economical distribution and to some degree concentration on the national scale is the central control of facilities in the university and the avoidance of unnecessary duplication. One example is the pooling of expensive laboratory equipment or audio-visual aids; another and more difficult one is the merging of institutional libraries first on a faculty basis and then for the university as a whole. To this latter task the Ministry has set its hand, but the tables in the Background Report (pp. 315-317) giving the relative size and growth of institute and central libraries show how far there is to go. The case for centralization is on a par with that for computers, with a nation-wide catalogue and access on a national scale as the ultimate objective. But, unlike the newly developed computer field, the library is an area in which vested interests are strong and the belief in proprietary rights is deeply ingrained. This is by no means peculiar to Austria, but the traditional patterns of the autonomous institute, which Austria has shared with the Federal Republic of Germany, makes the resistance to concentration even more tenacious. Quite apart from this wider aspect, the risks of duplication and of uneconomic

use and inexpert management are clearly much greater than in a centralized system; at the same time, the sensational rise in acquisition costs, the phenomenal increase in the number of duplications and the rapid development of other aids to teaching, which ought to be coordinated with the more traditional media, make efficient management and economical use, even from the purely educational point of view, still more urgent. The model of Klagenfurt with centralized management and centralized purchasing coupled with some decentralized location of the material, would seem to us to be a highly desirable objective. Progress may only be gradual, but we would strongly urge a firm course set in this direction.

One aspect of this has a wider application on which we have already touched. The centralized library can justify and use specialist trained staff which the dispersed institute libraries will not have. This not only has educational advantages of its own, but will release the more costly time of Assistenten for their proper teaching duties. The same applies to many administrative tasks at present being carried out by academic staff in the institutes. These could be carried out more cheaply and almost certainly at least as efficiently by "nichtwissenschaftliches" personnel. This, by analogy with the library system, raises the issue of centralized administration which is regarded with an unfriendly eye by academic staff the world over.

We recognize not only the sensitivity but also the delicacy of this issue. The price of centralized administration can be high if the bureaucratic vices tending to uniformity, insensitivity and regimentation are allowed to develop. However, in all countries the increased size of the student body, the diversities of need and of provision which should follow, the range of services with which students are provided in grants and other allowances, in travel and housing, the need for fuller and more regular statistical information to be handled by computer, and not least, the need for increasingly economical use of resources - all these make it clear that the separation of teaching and administrative duties is necessary and indeed unavoidable. The resistance to this concentration seems to us to be mistaken, even though the grounds for the resistance are wholly admirable, in so far as it is rooted in a genuine concern for the wider interests and problems of students. The universities are by now handling immense sums of money, and academics are prone to forget that it takes specially trained staff to handle such sums responsibly.

Much more controversial is the further, and to us quite different, point of the introduction in Austria of greater responsibility of the university administration to the Ministry. To this we shall refer in another section of this report.

Underlying all these suggestions for more economical management is the importance of realistic costing. In many aspects of statistical information the Austrian authorities have been extremely active, and in the richness and thoroughness of the data provided are ahead of any

other European country. But this appears not to be so true of financial statistics and financial analyses in which a sustained effort would seem to be well worth while in order to develop norms and yardsticks by which efficiency in the material sense can be judged. Unless the ground is carefully prepared and the objectives fully explained, the collection of the necessary data will, of course, produce resistance not only from those whose vested interests appear to be threatened, but from those whose firm devotion to educational values makes them extremely sensitive to the apparent impersonality and materialism of the statistician and the economic analyst. They need to be convinced that the objective is not so much avoidance of expenditure per se, but the building up of a store of precise information so that the necessary decisions can be taken with full knowledge of the implications and in the best interest of the educational process itself. The link here with study reform is evident.

One particular aspect of realistic costing arises from the subsidizing of foreign students. This point was mentioned in the first OECD Report, and though the situation has changed during the last few years, it is still valid. It is true that in principle foreign students were excluded from the recent abolition of tuition fees for university students; it is true, too, that the percentage of foreigners in the student body has fallen from 20% in 1966/67 to 12% in 1973/74, and may fall still more as the result of recent restrictions arising from the wide extension of numerus clausus in the Federal Republic. But there are so many exceptions to the liability to pay fees that the number who do so is small and further, the full fee is still only AS 1500 a semester, which must be a fraction of the real cost. It is not our function nor our wish to question the decisions of the Austrian Government in regard to the admission of foreign students; the tradition is an honourable one, and the high consideration given to students from the developing countries and to stateless persons is wholly laudable, far be it from us, either, to question the educational value of the fullest possible exchange of students across national frontiers. Our main point is that it is desirable in making such decisions to have full knowledge of the financial implications; it is merely one of the more obvious examples of the need for better costing mechanisms.

We have dealt with these unpalatable rationalization measures at some length because we recognize and respect the strong wish of the Austrian authorities to extend educational opportunity, and because we realize, as does the Ministry, that there is still a long way to go. The willingness to give high priority in the national programmes to education has been amply demonstrated, but we fear, perhaps more than the Ministry does, that the financial burdens will become so great that the increase in budgetary credits will on present standards become intolerable. It seems to us t [illegible] merely prudent to avoid severe retrenchment later by a careful strengthening of good housekeeping now. This can only be in the long-term interest of the educational system itself.

VIII. ORGANISATIONAL REFORM

We are aware that the present Government has developed in the course of extensive consultations the draft of a new law - the Universitäts-organisationsgesetz (UOG) - which is now before Parliament. We did not discuss this draft during our short stay in Austria. It is not possible, and it would in any case probably be improper, for us to comment on it at this particular stage.

We must therefore confine ourselves to the existing legal situation, by which in this context we mean the University Organisation Law (Hochschulorganisationsgesetz) of 1955 and the General University Study Law (Allgemeines Hochschulstudiengesetz) of 1966 and the action taken under them. This action has been energetic and though for most of us, coming from countries with very different traditions, the highly centralized initiatives in the form of laws and governmental decrees with the force of law are at first somewhat startling, they have undoubtedly been effective and we can only applaud the energy with which the framework law has been followed up. The main objective has been the modernization of degree course structures and course content with a three stage process:

a) The passing by Parliament of a Study Law for each of the different types of Faculty, i.e. Medical, Legal, Technical, Philosophical, Economic, etc. laying down the main features of study courses in that Faculty's relevant disciplines;

b) The promulgation by the Ministry of a Study Ordinance under each law; this prescribes the rules for the conduct of courses and examinations in the particular field of study, e.g. the subjects to be studied, their relative balance, etc.;

c) The determination and promulgation by the university itself of the more detailed content of courses and the precise pattern of examinations; worked out by Study Commissions.

This summary is somewhat oversimplified in that there is inevitably in practice a more complex relationship between the last two stages, for instance in the reconciling of the principles of individual university autonomy with the necessary degree of uniformity in the same subject throughout Austria. But the three-level allocation of responsibility among Legislature, Ministry and University is clear.

The original and highly interesting part of this procedure is the work of the Study Commissions, composed in equal numbers of Professors, non-professorial teaching staff (Assistenten) and students. These Commissions, first established under the Law on Technical Studies (1969), have the task of examining the content of degree programmes and the arrangements for the corresponding examinations. No change in subject content can be made without the approval of the Commission, and any one of the three groups, provided all its members are unanimous, can veto any proposal.

Aware as we were that the law at present before Parliament proposes to confirm and strengthen these tripartite commissions, we enquired about experience so far. The report we got reflected general satisfaction but, as with most procedures of this kind, there had been some individual cases of abuse and exploitation of the veto power - not, as may have been envisaged when the device was introduced, on the part of professors concerned to preserve their traditional authority, but on the part of students with external political motivations. Determined action by one party can, of course, frustrate any progress which depends upon cooperation and agreement, and it must be expected that, given the present regulations, one side or the other will exploit the situation to its own advantage. This does not invalidate the general principle of participation by students and non-professorial staff in the decision-making process.

In the abundant discussion on this matter, the main attention has been focused on the role of students. This is understable in view of the clear political motivations which are occasionally evident, the relatively transitory interest students have because of the limited period of their active membership of the institution and the consequent lack of commitment which many of them show. But we are concerned rather more with the realities of the situation in which the non-professorial staff are apt to find themselves. As members of the Study Commission, they as a group have equal authority with the professors, in whose hands at the same time their careers rest. The question arises as to whether these two positions are in practice capable of reconciliation. Can Drittelparität be a reality if at the same time the promotion prospects of the Assistent depend on the judgment of his professor? Perhaps it is unnecessarily depressing and discouraging to suggest that it is not possible to achieve reform of one part of a system without changing all other parts simultaneously, but it is at least open to question whether the work of the Study Commissions may not be frustrated by the realities of power of the professors as much as by the ideological obsessions of students - with the unfortunate Assistenten squeezed between the two. There is some hope that the arrangements proposed under the new Organisation Law will go at least some way towards remedying the present uneasy situation of the Assistenten. In more general terms we draw the conclusion that study reform must go hand in hand with organisational reform and that planning for the future must comprehend both.

IX. THE PLANNING PROCESS IN ORGANISATIONAL REFORM

This brings us to the last point on which we would like to comment. We have already expressed our high regard for the quantitative and qualitative excellence of the progress already made by the Statistical and Planning Division of the Ministry; the Paper produced as

background information for the review is itself more than adequate evidence of what has been achieved so far and of the Government's intentions for the future. We have ourselves more than once made mention of the highly professional system of Individualized Student Flow Statistics which have given clarity and precision to many of the issues facing the policy makers, while at the same time, the frankness with which so many of the outstanding issues are discussed shows that there is genuine concern for the qualitative aspects which go far beyond the statistical base. We have drawn attention to the need for more information about these qualitative aspects which cannot be properly examined in the light of statistical information only; here we are almost certainly only anticipating what the Ministry already had in mind, but we would strongly urge the rapid development of a research programme to amplify and supplement the statistics, e.g. by projects related to student interests and student motivations and by further exploration of alternative courses and methods of study. There is much generalized discussion in the German-speaking world of the relatively neglected field of university didactics ("Hochschuldidaktik"), but so far little positive result; we applaud the intention expressed in the Background Report to intensify the effort given to this subject, e.g. by establishing new departments of didactics, and hope that through their research programmes they will be able to provide a sound knowledge base for qualitative planning.

In saying this we acknowledge by implication the expressed intention of the Ministry to develop decentralized planning at the institutional level to match the planning activities of the Ministry itself, this in its turn being linked with, and to be interpreted in the light of, the plans for the greater development of participation at various levels, and particularly at the level of the institute within the universities. From at least some angles there is the possibility of the evolution of a degree of participatory planning that would be quite new in Austria and in Europe and would be watched with great interest in other countries. As experience has shown, the risks in such ventures are considerable and the resistances to change are persistent, but the promise of creative release through the constructive interplay of interests is correspondingly high. In particular, we applaud the decision of the Minister to evolve a Central Planning Commission which could be the effective embodiment and, at the same time, the apex of this participatory base.

There is, however, another level at which co-ordination is necessary. The universities cannot exist in isolation, however splendid, and planning for them cannot be complete without the support and co-operation of other government authorities and agencies. We mention two elements in the total situation to which we have earlier drawn attention: first, the regional and social disparities in the composition of the student body which cannot be removed by educational measures alone and which therefore demand close coordination with the planning objectives and mechanisms of the other Federal Ministries; secondly, and even more immediately relevant, the need to consider as a unity the whole of the post-

secondary educational sector. As we have mentioned earlier, the Austrian situation is unique in Western Europe because of the absence of non-university post-secondary technical and commercial institutions; this, in particular, makes it essential for both the Federal Ministries among whom responsibility for the education service is divided to develop planning departments and planning mechanisms of equal force and validity and to enjoy the closest possible mutual confidence and collaboration.

Part Two

THE CONFRONTATION MEETING

Between the Examiners, the Austrian Delegation
and the Education Committee of the OECD
Paris, 3rd July 1975

I. AN AGENDA WITH QUESTIONS FOR DISCUSSION PROPOSED BY THE EXAMINERS

The signal feature of Austrian higher education over the past two decades has been institutional growth in the context of a growing economy. Enrolment growth has kept pace with economic growth, and investments in buildings and equipment have expanded faster than enrolments. Even the most recent period, 1970-74, has been one of expansion. Thus, the share of higher education in the Gross National Product rose from .65 to .76%, 1970-74; and the increase in per student expenditure was almost 50%.

In reviewing Austrian higher education, at this juncture it is useful to look more closely at the nature of this growth and some of its main problems and opportunities. In the past 10-15 years it has become an accepted practice in the OECD in discussing educational policy to recognize the interdependence of the various parts of education and also its close interrelationships with society. The present review of higher education in Austria is not meant to be a departure from this established position even though the Examiners were conscious of some constraint in having to consider higher education in Austria in isolation from the other major educational sectors.

Austrian higher education today is a direct descendant of the research-oriented universities of the type that still dominated higher education in most countries in the years immediately following World War II, but which have been exposed to unprecedented pressures in the 1960's and 1970's. The watchwords of these universities were "autonomy", "academic freedom", and, particularly in the German tradition, the "unity of research and teaching". In accordance with these principles, the research function dominated higher education, and the university was to be left free to pursue research (and teaching) along those lines and in those ways that each professor thought most appropriate. The growth of recent years has brought implicit and explicit challenges to this concept of the university as it took on new tasks, new constituencies and acquired more influence, even power.

An indicator of the changes that have taken place is the fact that most of the questions raised by the Examiners would have been considered irrelevant, or might have drawn pre-emptive responses, 15-20 years ago. Now they are vexing issues for educational authorities all over the world.

Perhaps the most comprehensive expression of the issues we wish to raise can be found in the notion of institutional identity: those who deal with an institution of higher education - students, teachers, administrators, employers, and governmental and professional group policy-makers - make use of an institution's identity to orient themselves. It provides a basis for the affirmation, negation, or remaking of attitudes, motivations, and policies within and toward higher education. The existence of strong institutional identities combats feelings of alienation among students and staff and reduces levels of anomie in society. One of the most complex tasks facing university authorities in Austria, as elsewhere in the world, is the problem of going forward with necessary developments, which lead to increasing the scale and complexity of higher education institutions, while at the same time maintaining and redefining a sense of institutional identity.

We propose that discussion in the Confrontation Meeting be organised under four headings, each of which contributes directly or indirectly to a discussion of the changing identity of institutions of higher education:

1. New Students, Growth and the Structure of Higher Education;
2. Student-Faculty Relationships; the Internal Organisation of the University;
3. The Changing Orientation towards Research in Relation to Teaching;
4. Policy-making, Priorities and Planning: the Allocation of Resources.

In each section below, a summary question leads into a brief discussion of our concerns and poses more specific questions under each of the four headings. These agenda questions are based upon our report and upon the most valuable Background Report, prepared by the Statistical and Planning Division of the Austrian Ministry for Science and Research.

1. NEW STUDENTS, GROWTH AND THE STRUCTURE OF HIGHER EDUCATION

In what way could access to, and the structure of, higher education be changed in order to increase the participation of previously disadvantaged groups?

This is a key question for exploring the general problem of increasing the options for people to participate in higher education. Our report points out that with their increasing numbers, students bring to the university a wider range of social backgrounds, aptitudes, interests and study skills; yet, as we said, "like so many other countries, Austria

has provided for them a university system that is marked by a highly uniform approach to teaching and learning. Instead of the system making great allowance for the variety of its young students, the students are expected to conform to a fairly limited set of possibilities or opt out of the system." The growth projections of Austrian higher education are in striking contrast to the anticipated stability or reduction of size in many other Member countries, but previously over-represented groups (e.g. urban males) are not expected to form a major part of this growth.

The question that is therefore raised is whether or not the expected growth of the student body in Austrian higher education during the next few years will draw on reserves of new types of talent. If so, this may require some adjustments on the part of the institutions of higher education, involving particularly the opening of non-standard means of access to higher education. Access is now largely determined by the sharp selection process that takes place in the secondary schools, and innovations at this lower level would be one avenue for opening up access to post-secondary education. However, it is also possible for university authorities directly to create new forms and procedures for access; hence our specific question is, "What kinds of projections can the Austrian authorities make concerning the increased opportunities of access to higher education for previously disadvantaged groups?".

A second kind of adjustment may take the form of new lines or types of study and, possibly, new modes of teaching. Accommodation to the needs of students coming from new social groups involves particularly their demand that the university prepare them for work. In a real sense this involves a response to the changing economy which demands more manpower educated in a variety of ways beyond the standard offerings of the classical university. In many countries these demands have led to the development of non-university sectors of higher education or the incorporation of such new sectors within universities. What is the prospect for this kind of development in Austrian higher education?

In any event, is it anticipated that there will be a development within Austrian universities of special courses or studies so as to accommodate the increasing variety of needs of the new student body? What are the major hindrances to widening the options for students and how might they be overcome?

2. STUDENT-FACULTY RELATIONSHIPS; THE INTERNAL ORGANISATION OF THE UNIVERSITY

What might be appropriate targets for the next 5 to 10 years for reducing the indices of "student wastage" in Austrian universities, and what measures could contribute toward this end?

The high level of student wastage in Austrian universities is recognized in the Austrian Background Report and in our own as the key

element in any programme to "rationalize" Austrian universities - that is, to reform them so that they might be able to meet their responsibilities to vast new numbers of students within the limited resources available.

Student wastage is a broadly defined concept in which non-completion and drop-out rates, time for completion of studies, and frequency of course changing, all represent measurable indices reflecting how a university copes with the student situation - with such things as poor levels of motivation, disorientation in their careers, rejection of or alienation from the universities' established offerings. Austrian authorities have recognized that many aspects of the internal organisation of the universities are involved in measures to meet these problems. These include: reform of curriculum and the organisation and reorganisation of (a) student-faculty relationships; (b) the faculty itself; and (c) courses and the timing of credit given to students for studies performed and examinations passed.

a) Student-Faculty Relationships

In the last decade, staff numbers have grown at an even faster rate than enrolments. Nevertheless, in spite of nominally improved student/faculty ratios, the student statistics indicate that study patterns have not been materially affected. How do Austrian authorities interpret this phenomenon? Do they believe that the improvement in student/faculty ratios is not yet of an order to provide significant results? Do they believe that student/faculty ratios are not satisfactory indicators of the learning/teaching potential of an institution? Are there indicators that the newly available resources have been devoted to research rather than teaching? Do they believe that measures other than a linear improvement of student/faculty ratios promise to have an impact? Do they believe that the increased number of faculty and students in itself requires a reform of all kinds of decision making in higher education?

b) Faculty and Curriculum Reform

In the past few years, several measures have been adopted to reform the internal organisation of the universities. How do Austrian authorities evaluate the course of these reforms, and what supplementary measures are contemplated? In particular, how do they view the further development of intermediate academic teaching positions and the role of the Assistenten? Are the Austrian universities considering new and different forms of structuring courses and studies so as to increase movement of students between courses of study and facilitate a more effective use of available resources?

c) Course Organisation and the Timing of Credits

Austrian authorities have begun research into the problems of student careers, which should lead to greater understanding of student needs. It appears that the rather long periods taken by Austrian students

to complete their degrees may not be an altogether undesirable phenomenon. Many students may take the opportunity to acquire valuable practical experience; others may have a greater chance to decide which specific specialization best fits their aptitudes and interests. But the question arises whether the very loose system of student attendance and continued study are in the best interests of the majority of students. Are the universities considering ways - such as improved counselling services - which would help students to complete their studies in less extended periods?

What are the practical objections to providing all students with the opportunity to acquire transferable (and professionally worthwhile) certificates of successful study after shorter intervals of university study than is now usually the case? Could "drop-out" be converted to "success" by arranging for credit to be given for work actually completed? Could shorter units of work be planned which fit into or are built into more extended courses? Is there room for "short cycle" courses within the framework of the university?

3. THE CHANGING ORIENTATION TOWARD RESEARCH IN RELATION TO TEACHING

What changes are being made or contemplated in the orientation of research in its relationship to teaching?

Over many years, universities have struggled to define an appropriate relationship between research and teaching. The late nineteenth and early twentieth centuries witnessed a strong emphasis on research as the source of inspiration for teaching and the consequent fusing of research and teaching in universities into an inseparable unity. The many new tasks the universities have taken on seem to imply a new shift in the balance between teaching and research. In particular, do the university staffs think it necessary to reformulate the traditional emphasis on research as the basis for organising university studies? How do they view the relationship of research to the possible development of newer forms of technical short-cycle and adult education at the post-secondary level?

Moreover, there is not only the issue of the balance of teaching and research as it is traditionally defined; there is the call for new definitions of and roles for research itself, which are connected to the new teaching tasks in the area of post-secondary education. Are these trends being accommodated or encouraged?

4. POLICY-MAKING, PRIORITIES, AND PLANNING: THE ALLOCATION OF RESOURCES

What developments are contemplated in the planning process for Austrian higher education in the light of its projected growth and attendant problems?

Even in a growing system, resource allocation decisions must be made within a context of relatively scarce resources. What processes are used to determine priorities and what forms of planning are used to determine priorities and what forms of planning underlie the decisions which have been reached and are being prepared? Have the Austrian higher education authorities been able to articulate a clear set of criteria to guide choices between

- investing resources in educationally less-developed regions or where the demand for higher education is most articulated;
- strengthening present nuclei of (research and teaching) excellence or spreading provision of higher education as widely as possible;
- increasing resources for teaching activities or increasing resources for research;
- giving more support to overburdened established units or easing the load on them by supporting new or innovative ventures.

Recognizing the responsibilities established by Austrian law for different sectors of education - one ministry for science and research (universities) and a second ministry for education and culture - what is the planning mechanism which can guide the needed development of all post-secondary education?

II. AN ACCOUNT OF THE MEETING

In one sense this Confrontation marked another milestone in the development of the Country Review Policy of the OECD Education Committee in that Austria was the first Member country whose educational policy had come under review for a second time. This involved some change in the nature and scope of the examination. When the desirability of a second round was under consideration, it had been decided that, because the first round review had been concerned with the general education policy of the country (covering all aspects and sectors of the system), the second should concern itself more deeply with a number of specific or strategic parts either of the policy or of the system. In this case, therefore, within a perspective of future examination of other aspects, the Committee was being asked to consider only one major part of education in Austria, namely the university sector.

1. INTRODUCTION BY THE CHAIRMAN OF THE EXAMINERS

Mr. Embling, in his introductory remarks, explained that there were two principal reasons for the choice of this particular sector. The first was that in 1970 a new Ministry - The Federal Ministry for Science and Research - had been created in Austria. It was responsible for science policy in the broadest sense and therefore for the universities because of their close involvement in science and their high responsibilities for academic teaching and research. It was true that the Examiners would have preferred to have had under review the whole of the higher education sector and not just the universities, but it happened to be the case that in Austria the distinction was small. Slightly more than 86% of post-secondary students were in the universities; the only substantial institutions other than the universities were the Pädagogische Akademien which prepared teachers for primary schools and some secondary schools; they had about 10% of the post-secondary students and were within the responsibility of the Federal Ministry of Education.

The second reason for the choice of the university sector was that there was already in course of development a comprehensive and most valuable documentation system (particularly in the Department for Planning and Statistics under the leadership of Dr. Sigurd Höllinger), based partly on a system of Student Flow Statistics, which was

undoubtedly more highly developed than in any other Member country, and on an energetic research programme. The Committee could judge for themselves the thoroughness of this documentation from the Background Report which was before them.

In addition, the Examiners - during preliminary meetings held in Vienna in 1974 - had had two days of very intensive discussions with the Frau Minister and with senior representatives of a broad range of relevant interests - the Ministry itself, the political parties, industry, commerce, the trade unions and, of course, university management, teachers and students.

It was on the basis of these two elements - the excellent documentation and the intensive discussions in Vienna - that the Examiners had written their report and formulated the questions for discussion.

There was however one major development that had taken place since the Examiners' Report was written: the Austrian Parliament had passed a new University Organisation Law. The Government's proposals for this law had been the subject of strenuous political debate while the Examiners were in Austria and they did not feel entitled or justified therefore to consider or comment upon them. Now the Law was a fact and one of very great significance which it was hoped the Committee would discuss on the basis of information that the Austrian Delegation would now be able to lay before them.

2. INTRODUCTORY REMARKS BY THE AUSTRIAN DELEGATION

Dr. Skotton first paid tribute to the value of previous cooperation between Austria and the Organisation. It was as long ago as 1963 that preparations had begun for the first review of Austrian education policy which was held in 1966-67 and since then there had been the OECD's Review of Science Policy which has intimately concerned the universities. These were a good augury for the current review. They had provided most valuable documentation and useful guidelines for reform efforts in Austria and for the development of the new Ministry. Many of the recommendations of the earlier reports had been realized and Dr. Skotton mentioned in particular the increased expenditure on research and on the universities in general, which had doubled since 1970, the improvement in the career prospects of the younger academics, particularly through the creation of the completely new type of "Ausserordentlicher Professor", the cooperation between the universities and industry and the reversal of the Brain Drain.

Dr. Skotton drew the attention of the Committee to the Background Report which the Austrian authorities had provided. It was a very significant document; as well as giving information about the latest stage of university development it broke new ground by venturing into territory which had hitherto been little discussed; it analysed problems, it posed topics for discussion, it submitted hypotheses. Chapter 7 of the

document set out the basic lines for future development of the universities, building on the description and analysis of the earlier chapters; it did not of course as yet provide a fully worked out or binding programme of development; it was only a draft which presented the dimensions and structural interconnections of the problems. It was the starting point for future consultations and discussions.

For the convenience of the Committee, Dr. Skotton indicated briefly the most important trends in the development of the universities in recent years:

- there were 75,000 enrolled students compared with 52,000 in 1966; not less notable was the clear change in the composition of the student body: the number and proportion from the lower social classes had shown a marked increase, as had the number of women students.
- within four years university expenditures had increased from 2.4 to 5.3 billion schillings and increases in staff and accommodation had kept pace with student numbers.
- not less important was study reform: the legal changes in university courses begun in 1966 were, by now, almost complete.
- student assistance programmes, some involving substantial expenditure, had been set in motion. These included: direct grants to students, the complete abolition of tuition fees, the introduction of free travel, social security for students, the building of canteens and hostels.
- finally, legislative reform. As, for reasons already given, it had not been possible for the Examiners to make this a central feature of their report, Dr. Skotton responded to the wishes expressed and gave the Committee extensive information about the new University Law.

The main features of the University Organisation Law were as follows:

Guiding principles:
- the freedom of academic research and teaching
- the linking of research and teaching
- variety of approach and method in teaching (a new feature of Austrian legislation)
- cooperation of teachers and those being taught in study and research as well as in academic decision taking
- the social responsibility of the universities in accordance with technical development as a preparation for social development
- university development based not on tradition but on optimal efficiency
- an administrative structure satisfying the principles of economy, efficiency and economic validity

- the division of responsibility between university and society.

The principle of co-determination and co-responsibility according to qualification of all members of the university was the basis of the reform of Institutes, Faculties and the central university authority. For the Study Commissions, which had proved themselves, the tripartite parity of Professors, Assistants and Students had been kept, the Commissions being so largely concerned with the conduct of courses.

In the Institutes there would be, in addition to the Director, the Institute Conference, the task of which was to ensure the appropriate participation and co-determination, in respect of the academic work of the Institute, of all teachers and students.

In the Faculties, the Kollegium could appoint permanent or temporary Commissions (for academic disciplines, for finance and planning, for personnel) to which would be delegated decision-making power. The Kollegium could adopt its own procedures for appointment provided all groups were represented in the Commissions and no one group had a majority.

Earlier drafts envisaged a Department system for the universities: the Law retains a Faculty system but as the larger faculties will be subdivided, the difference is not great and the new arrangement for decision-making Commissions will ensure delegation.

The Senate as the highest collegial organ, and highest authority, will represent all participants in the university by means of a balanced parity system. Representatives of the non-academic staff will also participate in the university bodies thus rounding off the basic principle of participation by all engaged in university life.

The new university structure, said Dr. Skotton, has three levels of cooperation. At the lowest level, that of the Institute, comes the carrying out of all the tasks involved in teaching and research within the operative field of the Institute, together with the appropriate administration. The Institute, as the smallest independent organisational unit, has responsibility for research and teaching as well as for those other courses within which the real academic work is done, the search for scientific knowledge, scientific preparation for careers, career training and education through participation in research. Within the Institute there can be sections for special scientific projects, for special teaching objectives, for service and extension subjects, and so on, as well as Working Groups for carrying out specific research projects and courses. All the Institutes in one discipline or group of disciplines form one Faculty.

The Kollegium of the Faculty is the superior academic authority and looks after matters common to the Institutes, in so far as they are not within the competence of the central authority of the university. At the Faculty level is the focus of administrative responsibility both for

those matters in which the university has autonomy and those which lie in the field of competence of the State; hence the principle of division of labour by means of the decision-taking Commissions which ensures a rational implementation of administrative tasks. At the third and highest level comes the central leadership of the university, the Academic Senate and the Rector. Here lies immediate responsibility for the Planning, Coordination and Control of academic research and for the conduct of teaching, administration of central university facilities and university leadership. In the interests of efficient administration, the central bodies, such as the Rector's Office and the Bursar's Office, have been strengthened to accord with modern management through such facilities as computers, centralized control of large equipment, and centralized control of research.

3. NEW STUDENTS, GROWTH AND THE STRUCTURE OF HIGHER EDUCATION

The remainder of the first session of the Confrontation Meeting was concerned with the general question of options of people to participate in higher education. Professor Noah introduced the topic by drawing attention to the very impressive rate of growth in the number of university students in Austria, a rate of some 8% per annum over fifteen years, accompanied by even greater increases in the number of university staff and in national budgets for universities. What was remarkable was that, despite this very large expansion, only two new institutions had been created (at Linz and Klagenfurt). This meant that almost all the new students were going to the traditional universities. In other words there seemed to the Examiners to be a significant lack of non-university opportunities for students. This, combined with what appeared to be a narrow, highly traditional definition of what university education means, was a severe restriction of the options for students in post-secondary education as a whole. The Examiners were concerned that the Austrian university authorities seemed to interpret their task more narrowly than most. In other countries short courses and other alternatives to traditional degree courses were strongly advocated; this appeared not to be the case in Austria.

A second factor to which Professor Noah drew attention was that the Austrian university students were a highly selected group - selected not by the universities on entry but by their surviving the rigorous secondary school course and the Matura examination.

A third factor was that, even under the old law, there was abundant scope for innovation by the universities; so it was the will and not the opportunity to introduce change which seemed to be lacking.

These, said Professor Noah, were the factors which had led the Examiners to pose questions about new forms and procedures for access, the development of non-traditional sectors, either outside or inside the

universities and the hindrances to the introduction of a greater variety of courses to match the needs of new students and increase the options open to them.

Replying for the Austrian delegation, Dr. Höllinger said that the expansion in the student body had been due mainly to demographic reasons, but that there had been changes in the social composition. The representation of the lower social classes had increased but there were still difficulties that needed to be overcome. The rate of increase in the number of male students among new enrolments had declined in recent years but there had been a big increase in women students, mainly from the higher social groups.

Because the factors affecting growth were mainly demographic, it was possible, said Dr. Höllinger, to make projections for the future. The present expectation was that growth would start again in two years and reach its peak in the early 1980s when first enrolments might have doubled and the total student body increased by one third. In the mid-1980s enrolment might well be back to the level of today and remain relatively unchanged until 1990, when another rise might begin. These projections were, of course, on certain assumptions, for instance that there would be no drastic change in the economic situation. One firm assumption was that there would be no change in the right of access to higher education.

With regard to the courses provided in the universities, Dr. Höllinger said that though there was a basic unity about normal degree courses, there were also short courses which were particularly attractive to women. Even among the degree courses, there were no less than 100 different types. There was, therefore, great variation of study possibilities, even though they were based on the same legal foundation.

With regard to the students, Dr. Höllinger said that the Austrian authorities certainly agreed that they should be drawn from a wider social range and a great deal of the budget was devoted to furthering this. As Dr. Skotton had said in his opening remarks, there were direct grants, which took into account social origin, no fees, free travel, restaurants and hostels; furthermore two changes of quite a different kind were intended to widen the opportunities for working-class students. Correspondence courses, mainly with vocational objectives, would ease the position of the professorate, and improvement in the "Hochschulreifepruefung" would give greater opportunities for university study to those who did not have the secondary school leaving certificate. In his comments Dr. Höllinger was strongly supported by Dr. Brunner, who gave further specific information - both about the variety of courses provided in the universities and about the kinds of assistance given to students.

Professor Noah fully agreed that the quantitative expansion had been most impressive, as had the efforts of the Austrian Government to increase expenditures; they were certainly doing a great deal to subsidize the passage of working-class students through the universities.

What had struck the Examiners was that all this quantitative expansion had been accompanied by little change in the way in which the universities went about their business; even if growth in the future was less than in recent years, a much more ambitious programme of new courses would be necessary.

In the same context, Professor von Moltke, while acknowledging the efforts that had been made to widen the participation of lower social groups, said that experience in other countries had shown that it might be necessary to adopt more active, more direct and more positive measures in order to ensure that the assistance given to students did not prove in fact to be a regressive distribution of financial resources. Just as important were the steps taken to make access easier for those with non-traditional qualifications. Here there was the possibility of conflict between the objective of social participation and the formal procedures to achieve access. Other countries had experimented in this area, for instance by granting access on age alone or to limited groups not fulfilling formal requirements by giving precedence to social policy considerations.

Dr. Höllinger reiterated that there were a hundred different courses that students could take, and the present opportunities for freedom of choice probably gave a greater chance of equality of access than structural alterations in the courses themselves might offer -- they certainly opened up greater opportunities than formerly. It was not easy to adjust courses to social groups and in any case the labour market had to be taken into account. The regular Austrian degree courses were highly valued on the market: even drop-outs are and, will be, accepted there.

Dr. Brunner added that great efforts were made to give students all the information they needed to exercise the choices open to them; there was vocational consultation at the end of secondary education and all universities had student counselling with psychologists and psychiatrists available. But of course the standards of degree courses had to be maintained. Austria needed fully trained doctors, architects and lawyers and any idea of easy entrance and easy degrees must be rejected.

Mr. Eide (Norway) expressed some doubts arising out of Dr. Höllinger's remarks on Austrian student projections. He wondered what were the bases for the estimates for the 1980s and even the 1990s - on which few countries dared to have opinions. Were they, for instance, based on the assumption that the present Matura would remain? A reference had been made to quality; was this something that could be defined in the abstract, or did it change over time? At the same time, the needs of the economy had been referred to; but the only thing one could say with certainty was that the economy of twenty years hence was not likely to need anybody trained in the fashion of today. The vital question was how far the educational system, including the universities, could adapt to new needs.

Mr. Gass (Director, Social Affairs, Manpower and Education, OECD) said that the assumption of the Austrian authorities that open

access would remain was a courageous one. One idea that might be worth examining was whether a change in the age of entry could help to smooth out the fluctuations in demand. If it were advantageous to vary the age of entry, it would be necessary to look at entry requirements, to consider, for instance, what value should be given to working experience. It might also make necessary a change in the financial arrangements for student assistance. Mr. Gass expressed the conviction that an institution depends very much on the people who go into it, and he wondered if an approach from this angle might provide answers to many of the questions that had been raised. The question was primarily one of planning.

Professor Sette (Italy) raised a number of queries, particularly with regard to Austrian experience as to the division of responsibility for education between two ministries. He was assured by Dr. Partisch of the Austrian Ministry of Education, and by Dr. Skotton, that this gave rise to no great problem. The officials of the two ministries were in the same building and were in constant contact. No legislation proposed by one of them could be accepted without the approval of the other - if only because all laws required the approval of all members of the Ministerial Council.

Mr. Roeloffs (Federal Republic of Germany) referred to the confusion that often resulted from different interpretations of the word "drop-out", and its significance for the individual. Not infrequently, the term was taken to refer to a change of studies or even a student spending two years studying mathematics, getting a certificate and then going to work in an insurance company. Austria had the advantage of knowing the true drop-out rate. Mr. Roeloffs also expressed the view that the universities could not solve the problem of social participation by themselves; secondary schools, family background, careers all had an important role. There was the question, for instance, as to whether the 20% of students who received assistance at university level had also been helped at secondary level. A further issue was the link between the social prestige of a job and the difficulty of getting the appropriate qualifications for it; given that 50% of the students had parents who had themselves not received a substantial amount of education, the process of getting qualifications was socially selective.

Mr. Prostes da Fonseca (Portugal) strongly endorsed the view that the standard of university examinations must be maintained; one must fight against opportunism in this matter and use every opportunity to push up the level. Quality was the essence of democracy. Preference in access should be given to the underprivileged; qualifications should be taken into account, using specific criteria, though these should not necessarily be formal qualifications. He wondered to what extent the Austrian authorities believed that in the future they would be able to take concrete measures to increase the possibilities of access to university for the underprivileged.

Dr. Höllinger said in response to Mr. Eide on the subject of planning that he was basically sceptical about plans, recipes and patent solution derived from one or another discipline and also about the calls for change. In many countries there had been a kind of euphoria occasioned by the rise in student numbers; Austria was in the middle of such a phase and must learn from other countries' experience. The general wish in Austria was to be as liberal as possible, but on the quantitative side of planning, things must remain open. So far as the qualitative aspects were concerned the Austrians were also sceptical; they had read the OECD publications and other scientific documents but they had been unable to adduce any planning principles from them. In particular, the notion of education as investment had proved to be unreliable; such theoretical considerations do not provide an effective base for operations to cope with drastic changes.

As for the projections he had quoted earlier, Dr. Höllinger repeated that the figures were valid only on the basis of a large number of assumptions, including of course, that of secondary school supply. Finally, returning to the subject of study courses, Dr. Höllinger expressed his belief that in the Austrian universities they had the means to allow individual students to orientate their studies; they must of course pursue all possibilities of improvement but drastic changes at the present time were not desired.

4. STUDENT-FACULTY RELATIONSHIPS; THE INTERNAL ORGANISATION OF THE UNIVERSITY

The second item on the agenda was introduced by Professor von Moltke. He said that some of the issues involved in this area had been touched upon during the earlier discussion, the link being the question of drop-out. As Mr. Roeloffs, the German delegate, had observed, many so-called drop-outs obtained positions that were satisfactory both to themselves and in terms of the investment that had been made in them; so the problem was not quite what it seemed. This illustrated the difficulty of discussing change in the education system: there was often a disparity between what was seen to happen in an institution and the situation as one was expected to understand it from reading formal documents. The Examiners found this not infrequently to be the case in Austria.

The chances were, he continued, that countries in which the education system was derived from positive legislation or explicit direction, suffer more from problems of growth and have greater difficulty in adjusting than do countries with more informal patterns of control. When there is growth, the informal arrangements, which earlier enabled a university to work in spite of the rigid frame of reference, break down and the formal, legal, pattern takes over.

From these considerations certain special questions arise as to the actual situation in the Austrian universities. Many of those in authority

in the universities have been there for a long time - certainly well before the new University legislation came into being, and they may still be there even after the next one. It is essential therefore to look critically at the relationships and attitudes of those who will be implementing the law. Examiners had, of course, no first hand experience of how the universities would react, nevertheless there was reason for them to raise a few specific points for discussion.

As a first example, the statistics showed that the ratio of staff to students had substantially improved but there had been no visible improvement in the drop-out. What was the reason for this?

The Austrian delegation had said that one aim of the new law was greater "transparency"*; but decision-making was spread over so many levels, from the Institute Commissions to Parliament, that there was bound to be a limit to how much transparency could be achieved. How, within those limits, could the Austrian authorities succeed in devolving authority to the levels where the consequences of decisions were felt? In particular, it appeared from the University Organisation Law that there were overlaps of responsibility between the Institutes and the Study Commissions and between these Commissions and the Centres for Didactics. Could some further information be given about the levels where decisions were taken?

Thirdly, what steps were being taken to make the university staff aware of the implications of the changes introduced by the new law to improve the level of discourse between staff members? This might well become more difficult as the result of the new arrangements for Institutes and Faculties.

On the subject of courses of study, Professor von Moltke believed that there was a discrepancy between the opportunity for experimental courses and the heavily structured format under which courses were traditionally defined and maintained. This seemed to make it almost impossible for the student to exercise the right to an independent approach to these studies which, theoretically, he had. There had clearly been experimentation, but he suggested that there should be a great deal of open discussion about these at national level - and, too, about Blockunterricht, course credit systems and the like as real alternatives. In the Federal Republic there had been many experiments with the restructuring of the curriculum but, generally speaking, these had failed for lack of approval because they were departures from the accepted pattern.

Dr. Höllinger replied here that further change was envisaged, but this was not likely to be undertaken until the organisational reform was complete. On the teaching aspect, he said that improvement could not be ordered, either legally or actually, but initiatives were being taken. He instanced a project promoted by the Ministry to improve teaching

* Transparent: This term refers to a reform which would clarify the process of decision-making so that it would be more visible, "transparent", and therefore more open to deliberate influence.

methods, and the standing committee of the Conference of Deans which, in close collaboration with the Ministry, was carrying out projects, organising seminars, and generally promoting new ideas among university professors. There was also a journal to publicize innovations.

Professor von Moltke appreciated these helpful responses from the Austrian delegation but he still feared that the problems to which he had drawn attention were not soluble within the present frame of reference. More and more, as the higher education system grew, things proved other than they seemed; there tended to be an increasing difference between what had been legislated and what actually happened. This was a problem that had to be firmly tackled within the universities, within the Ministry and in the relationships of one to the other.

It had been mentioned that certain standards must be maintained but such standards, if only implicitly, had been identified with certain formal qualifications. Experience in many countries indicated that over time such formal qualifications become less and less meaningful. In planning for higher education this must be taken into account, but it was less and less easy to do this through regulations and legislation. What needed to be created was a process of democratic discussion and decision-making that might well lead to results quite different from those originally envisaged. The establishment of the Centres of University Didactics was a very interesting development; what kinds of activity did the Austrian authorities hope they would undertake, in what directions would they act, and whom would they serve?

Dr. Brunner said he would like to correct any impression there might be that the law ventured into the field of study decisions. This was not so; since 1966 there had been a three stage process:

- a law which fixed minimum academic levels and the patterns of examination for particular disciplines;
- a Study Order, promulgated by the Ministry, giving a certain breakdown;
- Study Plans decided by the appropriate Study Commission and containing all the stipulations about study conditions.

On the freedom to choose, Dr. Brunner said there were the Studien irregulare under which the student had the right and the possibility of combining parts of existing courses and so creating a new study path for himself. It was difficult to see how greater freedom than this could be given to the student. He altogether concurred with Professor von Moltke that there was an important learning process to be undertaken by the members of the university and he thought that the new Centres for Didactics would be valuable here; they had not been welcomed by all professors but he was confident that they would improve the learning process.

Professor Heitger agreed that there was a problem in that, on the one side, was the requirement of career orientation and on the other the individual requirements of the student. It must in any case be remembered

that the Study Commissions had much more to do than set up Study Plans; they had the task of investigating drop-out and it was for them to consider didactic innovation. Unfortunately, it must be admitted that the group veto had made it possible for political extremists to prevent some Study Commissions from taking any decision. Professor Heitger did not believe that the final answer had been found but said that the trend was toward more individual initiatives both for professors and for students.

Professor Noah followed up the point that had been made by Professor von Moltke about the distinction between appearance and reality. It was clear to all that there was in Austria an excellent system of legislation followed by thorough administration; this provided the legal framework within which the universities operated and the declarations of the rights of the various groups were clear evidence of this. But the question remained: was the actual operation of this system at variance with the ideals expressed in the legislative and regulatory forms? The Examiners could only judge by the information available to them. Now he must return to the question of drop-out: paragraph 25 of the Examiners' Report set out the conclusions they had drawn from the statistics. They had noted and were most favourably impressed by the efforts being made in the Ministry to trace the students through the course of their studies and to isolate the causes of delays in completion which were so marked a phenomenon of the Austrian university scene. In one sense it was perhaps reassuring to hear that drop-out was no great problem because the drop-outs had no difficulty in finding a well-paid job, but there was still this inconsistency: on the one hand, there was the picture of an articulated and well thought out system with which, it was said, one should not interfere because scientific purposes were paramount; on the other hand one was told not worry about drop-out, even though it is large, because at least for the time being there were plenty of jobs.

Dr. Skotton, in replying to some of Professor von Moltke's remarks, said they were of course in agreement about the distinction between law and reality but this was true of all sectors and not just of the universities. As for the need for discussion, he said that the new law had been discussed for six years in a Commission which included professors and students as well as members of Parliament and Ministry officials; no law in Austrian history had been prepared with so much democratic discussion. Similarly there were the discussions in the Study Commissions.

Returning to the question of drop-out, Professor Heitger said that if quality was not to be sacrificed, there was bound to be wastage but there were nonetheless problems - of long term career prospects, as Professor Noah had mentioned, and about a sense of failure. In some Study Commissions there had been discussion about the formal provision of more opportunities to leave, but this had met with resistance from students. It was a point that had to be considered in conjunction with qualifications and career prospects; one must however accept that the adjustment of economic and career prospects to study courses was a lengthy process.

Dr. Höllinger added that the drop-out rates in Austria could not fairly be compared with those in the United Kingdom or in American universities. Given open access, wastage must be high, but how high it should be allowed to be was a difficult question. Access to the universities was more equitable than in the past because of development in the secondary schools and the admission tests, but selection within the university was preferable to selection on entry. It was however important to ensure that this weeding-out in the university took place at an early stage in the course and steps were being taken by consultation, and as appropriate by prescription, to ensure this. Arrangements were being made to allow students at an early, but not too early, stage to say whether they wanted to stay, to change course or to leave.

Professor Sette (Italy) said that there was the choice between a highly selective post-secondary system geared to produce professional people of high quality and a more broadly based system to meet a wider range of needs. Austria had opted for the first alternative. A high rate of drop-out was an inevitable consequence. When the university provided the only opportunity for post-secondary study, young people would use it - but only until they could get a job. There was a vitally important issue here however; did the students leave well satisfied with what they had acquired or was there a sense of frustration? It was in the light of the answer to this question that the decision should be made either to retain the existing system or to broaden the basis of the universities to include less academic courses. What was the answer in Austria - satisfaction or frustration?

A similar thought prompted Mr. Roeloffs (Germany) to inquire if there was a close link in Austria between university qualification and income from jobs. Judging from German experience, flexibility of entry to the public service had a particular significance in view of the drop-out problem.

Mme Moraux (France) wondered if there might not be a disproportionate emphasis on quality in the demands on students, greater than was needed in the country as a whole. This was relevant to the drop-out problem, but it was of even greater significance in that it might also affect some who completed strenuous courses when they might have followed a shorter course with no loss to the nation. Why was it that shorter courses were taken mainly by women?

On a related aspect, Mme Moraux also inquired as to the possibility of transferring from one course to another without losing credit for what had been achieved so far. Were there bridges to enable a student to remedy a bad choice or to respond to new interests?

Mr. Andersson (Sweden) suggested that the high rate of drop-out might be linked to the fact that in the Austrian universities the degree course was normally one unit of four to five years and appeared to lack flexibility and to offer few alternatives. Had any consideration been given in Austria to the breaking up of the degree course into smaller units? Such a modular basis was also relevant to Recurrent Education; had there been anything about this in the new Law?

Leaving this topic, Mr. Ozdil (Turkey) raised questions that were related mainly to aspects of planning. It seemed to him that the major issue was whether the universities were to be instruments of change or primarily conveyors of experience. There had been much discussion during the meeting about detailed legislation and it almost sounded as if they were trying to solve problems through some legislative act. What he would like to know was whether the reforms had been initiated by the universities or by the Ministry and, indeed, what role the universities had in overall planning or in planning themselves.

The Austrian Delegation replied to the general discussion and to the individual questions as follows:

Dr. Skotton, in reply to the Turkish delegate, said that there had certainly been dissatisfaction in the universities, particularly among the students who wanted to have a broader education and not to become "disciplinary idiots". This might also partly answer the French and Swedish questions, for the students were interested not so much in vocational training as in breadth. Nevertheless the initiative for the reform had come from the Federal Council who had set up the Commission to which he had already referred.

Dr. Brunner, in reply to the German question about income flexibility in the public service, said that for Austria the answer was both yes and no. Posts in Grade A were for university graduates, in Grade B for Maturanten, and so on, but in addition there was a contract system under which different salaries could be paid - for instance for people for Electronic Data Processing.

As to Professor Sette's question about frustration, here too the answer was both yes and no, though it was impossible to be specific. In the field of medicine, for instance, one of the fields where there were academic training courses, the drop-out could obviously not become a doctor but there well-paid opportunities in the chemical or pharmaceutical industries. In such circumstances it was not possible to say whether or not the student felt frustrated.

Dr. Höllinger, replying to the Swedish question, said that Recurrent Education was certainly being discussed in Austria and he thought that basically the precepts were being followed. The idea had been accepted for basic studies to be as short as possible (four or five years) with further education at later stages, the latter possibly through correspondence courses, but one must not lose sight of the danger inherent in Recurrent Education of bringing about an increasing descholarisation by reducing the length of basic education.

Professor Heitger replied more specifically to the questions of Mme Moreaux by saying that it was certainly possible to transfer from one related course to another, but the carrying of a credit depended on whether the subject concerned was in the compulsory or in the optional group. One important change that had been made was the division of the normal degree course into two parts, each of four semesters and each with its own examination - though it was true that this had not yet

been implemented throughout the system. Under the new Study Orders it was also possible for the student to decide whether to take the examinations piecemeal or all together. On the didactical side there were also possibilities to follow courses and gain credits. The student can take part in seminars with continual assessment and a certificate: he had in fact a great deal of liberty. Professor Heitger was of the opinion that it was necessary to find a balance between study requirements on the one hand and basic general education on the other. Contrary to what the Examiners appeared to think, courses at the university were too specific, not too general. Recurrent Education might very well be able to help in solving this problem for each student of achieving a balance between basic requirements and individual needs and interests.

In reply to a question from Mr. Leestma (USA) about the level of drop-out in other European countries and what the Examiners would consider an acceptable level, Professor von Moltke said the information available was very scanty. Austria was in fact the only country with unambiguous figures. About Germany little was known because of the confusion Mr. Roeloffs had mentioned between drop-out and switching, though there had been one longitudinal study which suggested a figure of about 40%. He was aware of no precise information about Italian universities, but there was a figure of 52% related to non-completions in the whole education system, which included the Middle Schools.

As to what might be an "acceptable" level of drop-out, it was impossible to say for it depended on the form of selection. In Austria, after intensive selection throughout the school system, a university drop-out rate of 45% was too high. Professor von Moltke himself would postulate that a group as highly selected as the Austrian upper secondary school graduates should be able to achieve completion rates in the region of 80%, comparable to institutions with selective entry in the United Kingdom, the United States and some Scandinavian countries.

Mr. Leestma was not convinced. He suggested that the question of drop-out was a problem the Secretariat might consider for inclusion in the Education Committee's future programme of work, if only to build up adequate data and interpret them.

5. THE CHANGING ORIENTATION TOWARDS RESEARCH IN RELATION TO TEACHING

In introducing this topic, Professor Jensen said that it was a problem every country had to face, for it was one of the many awkward consequences of the expansion of post-secondary education and of the universities. The increase in the number of students and in the number of subjects made it obsolete to speak of a one-to-one correspondence between teaching and research. The situation calls for a differentiation in subjects and between people as regards the relation between research and teaching. This would not be a clear-cut division, but most university

people would have an intermittent role as researchers and as either teachers or students. As to budgetary arrangements, though this had not been done in any thorough way in any country, it was necessary to draw the distinction between learning-motivated research and society-motivated research, the latter relating either to economic or to cultural needs.

All this had been set out quite clearly by the Austrian authorities in their Background Report. The reason why the Examiners felt that they must nevertheless raise the matter was that they thought that there were special conditions in Austria that appeared to make the problem worse there or at least more pressing. One point was that the Austrian authorities did not plan to expand the non-university sector of post-secondary education, which meant that the universities would have to accept all the tasks and types of student in the future, apart from the one function for which provision already existed, namely the training of certain teachers in the Pädagogische Akademien.

Professor Jensen's second question related to the traditional research concept which was valued very highly in Austria, in normal thinking and even in law. In the new Act it is made a firm commitment for the universities to work under the concept of the unity of teaching and research. Was it possible for the Delegation to make more specific and more practical the thoughts in the Background Report about the research teaching relationship? The Examiners would ask especially about the role of the universities in this relationship in the future. Changes of the type described would have to come wholly or partly from the grass roots, as appropriate, in the universities. Was it expected that this would happen under the present system, implying as it did, in the Examiners view, a change of attitudes rather than rules? This was the gist of the Examiners' question as set out in the agenda, but Professor Jensen said he would like to make it more specific in relation to the role of the universities in the process of defining concepts in this area.

In reply, Dr. Zaruba said that in Austria they were well aware of the problem of the relationship to which Dr. Jensen had referred. It was true that the new University Organisation Law had based itself on the unity of research and teaching, but this principle should no longer be considered as something which implies that every researcher must also teach. The principle of the new law is that within the framework of the larger unity of the university Institute, there will be special facilities that will be used just for research, an infrastructure that will include, for instance, EDP and for which special personnel will be included within the normal university budget. The unity of research and teaching will be assured because these special facilities will be under the direction of the professors or other teaching staff. The law stipulates that the aim of the special facilities is to ensure flexibility within the framework of the university, and coordination with the research institutes outside. The objective of the decision in 1962 which

was incorporated in the long-term plan was that the university should have the specific function of guaranteeing the future of Austrian research. On the other hand, the totality of research - specifically where the relations between universities and industry, and even where relations within university research itself, are concerned - should be seen within the framework of overall social requirements.

In this connection, the distinction made by Professor Jensen between teaching-orientated and social-orientated research has been developed in the Conference of University Rectors. In the later semesters of their courses, students will have the opportunity to participate in research, the costs of which will be part of university recurrent expenditure. This is quite different from the special expenditure on R and D, which is subject to its own priorities.

Austria, said Dr. Zaruba, was in a relatively favourable position in dealing with the problems of R and D. For the concept and the infrastructure were comparatively recent: the Law dates back only to 1967 and the ideas were comparatively modern so it was possible a priori to set up a system in which, to a relatively large extent, they could establish links between intra and extra-university research efforts. The research institutes outside the universities, such as the Ludwig Boltmann Institute, are specifically research-orientated and deal with problems linked to the needs of society. but it is important to note that they are in the charge of professors. In other words, Austria has avoided the two extremes; there is no desire either for 100% unity of research and teaching nor for complete separation between the two.

For this mixed system to work, it is essential to have good understanding between the people involved. The procedures are very much ad hoc, the range of projects is wide and there is extensive participation in the decision-making, including participation by the potential users - industry, the professional organisations, employers and workers. The aim is to be pragmatic and avoid bureaucratic procedures and by common discussion to take into account the relevant social problems as well as the interests of the groups concerned.

In the Austrian view it was also very important to keep in close touch with, and to make results open to, the public. This was important for popular support and for securing necessary funds.

Mrs. Mela (Finland) expressed the view that all universities should do some research; otherwise there was the danger that teaching would become divorced from the latest scientific knowledge. It was impossible in any case for a small country, such as Finland, with limited resources, to have two separate systems with some institutions primarily responsible for teaching and others concerned mainly with research. It was clear that Austria attached great importance to research, and Mrs. Mela wondered whether this was due to a traditional belief in the close relation between research and teaching or whether economic considerations had played a major part in the decision to keep close links between the two.

Professor Sette (Italy) said that the decision of the Austrian Government to place responsibility for the universities within the Ministry for Science indicated clearly the belief in an important role for the universities in research - surely a correct view, for otherwise educational institutions would very quickly decay. In his view it was important for all teachers to be involved in research, though it did not matter whether the research was didactically or discipline oriented. There was also the question of free research, usually basic research which was undertaken without any particular orientation simply to see what came out. Such research was often costly and the question therefore arose, especially for a small country, of efficiency in the use of resources. This prompted him to ask the Austrian delegation whether they thought their arrangements were such as to secure this efficiency in the use of research funds. Professor Sette would also like to know if there was a minimum level of provision per teacher and how this was organised.

A further point raised by Professor Sette referred to the relationship between researchers inside and outside the university; there appeared to be a trend in many countries towards the exclusion of university professors from the non-university research and therefore to a more and more marked division between the two sectors. Did the Austrians believe that their Ministry of Science having responsibility for the universities was a guard against this?

In reply to the question from the Finnish delegate, Dr. Brunner said that the close relation of research and teaching dated back to 1849, but it was also enshrined in the new law; there was tradition but also conviction. In Austria there was a clear distinction made between basic and applied research, but no attempt was made to separate them. Professor Heitger agreed that in the universities the link between teaching and research was not only a long tradition dating back to Humboldt but also an important element within social and educational policy; though difficulties can arise, and there are some disciplines in which research is not so important, the participation of teachers and students is didactically necessary. The distinction made between intra-mural and extra-mural research, said Professor Heitger, was a sound one. The universities had no wish to control all research; their interest was in free research whereas the external institutions made possible a concentration of resources and an inter-disciplinary basis that would be impracticable within a university Institute. He realized that in some countries there were professorial chairs that were differentiated as between research and teaching; this might have some advantages, but there was the danger of the emergence of a new hierarchy.

Answering Professor Sette's question about a single ministry for research inside and outside the universities, Dr. Brunner said that there was no doubt whatsoever about the advantage; funds had increased since 1970 for both pure and applied research. Within the university, the resources for research and teaching were not separated; each professor must teach and each must do research, but it was impossible to quantify the two elements.

To Professor Seitz's question about efficiency, Dr. Zaruba replied that this issue involved the problem of evaluation in both the fields of education and research. How could one reasonably compare returns on investment in other fields or decide what resources to put into university research and what directly into social or industrial innovation?

6. CONCLUSION

Despite the strongly formalized and, in appearance, almost authoritarian basis of Austrian education with its laws and decrees and limited field of university autonomy, the basic concepts are enlightened and the changes made in recent years are markedly progressive. Some of the underlying principles are highly controversial in Austria and in other countries, notably the thorough-going principle of participation and co-determination, which in the basic Study Commissions takes the form of tripartism, the Drittelparität which has proved to be such a bone of contention in some other countries. So too the democratically based Institute. In these and other respects the Austrian concept is highly progressive.

Yet at the same time Austria is wedded to tradition: the unity of teaching and research is a cardinal principle of the new law; numerus clausus is anathema; except for the training of primary school teachers, post-secondary education is synonymous with the universities. This is the first apparent contradiction which must complicate the attempt by anyone from outside the Austrian system to assess its significance. At the same time, as the Examiners would testify, such a study has a fascination of its own.

There is a second contradiction - between the form and the reality - which may explain much of the basis for the Examiners' concern. On the surface the Austrian degree system is highly and uniformly structured, every course being governed by its Study Law, Study Order and Study Plan. Yet, to quote from the preceding record:

> "the individual student has the right and the possibility of combining parts of existing courses and so creating a new study pattern for himself."

There are over 100 different recognized courses: there are in addition - though little used - Studien irregulare, Study Experiments, Short Courses, so that, on paper at least, there is a wealth of choice open to the student. To their strong belief in the reality of this choice, the members of the Austrian delegation testified in unequivocal terms. But to the Examiners there was a major inconsistency, which they could not explain and could not allow to pass unremarked - what seemed to them a very high rate of drop-out from the universities. The Austrian universities have "open access" and according to generally accepted principles, open access always means high wastage. But, said the Examiners, there is free access only for those who have survived the

very intensive selection of the Austrian secondary school system and, given such a clientele, high wastage rates are surely a sign that not all is well. The explanation must lie within the universities.

This is the fundamental difference of view between the Austrian authorities and the Examiners which the Confrontation Meeting did not resolve, but it aroused the interest of the Committee and led to lively contributions from many delegates. What emerged from the discussion was not so much enlightenment as the recognition that the question of drop-out was a problem on which precise and reliable information, even of the basically factual kind uniquely developed in Austria, was lacking. To the United States delegate, clearly concerned at the conflict of opinion, it was a matter which deserved closer attention by the Committee.

If these problems of the meaning of "open access" and of drop-out were by far the most arresting subjects of discussion, there were other topics of importance. Most striking - though by no means novel in the experience of other Member countries or in the Committee's discussions - was the social composition of the student body. In Austria, as in other Member countries, the social background of university students continues to be heavily biased against the lower groups and though females have made great strides in catching up with males in recruitment, they have done little if anything to right the social imbalance. In Austria, as in other countries, strenuous efforts have been made to remove financial barriers but, as Professor von Moltke warned, financial incentives alone can easily have a regressive distributional effect. Nothing emerging in the meeting produced a solution for this intractable problem.

The third topic chosen by the Examiners is also of wide interest among Member countries: the position of research in the mass university and its Auswanderung into non-university institutions are topics which have aroused considerable concern and even anxiety. Here the Austrian delegation had a particularly positive position in that, since the OECD Review of Austrian Science Policy and the creation of the new Ministry, strenuous efforts have been made both on the conceptual and the operational level.

In the field of post-secondary education policy, Austria is not as far advanced as in research policy but the movement towards a similar position is impressive. As the Examiners repeatedly and emphatically applauded, the data base created by the Ministry's Department of Planning and Statistics is outstanding and is striving all the time towards new heights of excellence, the new University Organisation Law, after unprecedented consultation and participation, is on the Statute Book, the extended process of revising the Study Laws is almost complete, and Chapter 7 of the Background Report indicates clearly enough that a striking new concept is in the process of formulation. To all this the Examiners had no hesitation in subscribing; indeed, it was precisely because of their high assessment of these factors with great promise for the future that they expressed equally clearly their concern that the

distinguished efforts of Parliament and Ministry should be matched by full acceptance and operation within the universities themselves. The criticisms and anxieties set out in their Report were concerned almost entirely with the internal conduct of the academic work in the universities. Whether the Examiners' fears were fully justified or not, they provided the basis for a Confrontation discussion which aroused unusually high interest among members of the Committee. Also, this discussion offered the distinguished Austrian delegates opportunity to produce exposés and rationales for the various aspects of their country's policy of which they took full advantage, and left the Committee in no doubt that Austria had a policy for the universities, which, though admittedly capable of continuing improvement and development, was highly defensible.

Part Three

HIGHER EDUCATION AND RESEARCH IN AUSTRIA

An Abridgement of the Background Report
of the Austrian Authorities

I. EXPLANATORY NOTE

The first procedural step for all the OECD Reviews of National Policies for Education has been the production locally of a Background Report that supplies the Examiners (and, later, members of the confrontation meeting) with a full factual description of the relevant situation in the country concerned.

The need for such a report from Austria coincided with the responsible Minister's own intention to present Parliament with a comprehensive description of the overall situation and development of the Austrian institutions of higher learning, following the University Report of 1972. Happily, a single text was found to serve both these purposes. The international version was issued in 1975 by the OECD as an unpriced document entitled "Higher Education and Research in Austria". This, therefore, had a relatively small distribution and it is felt that it should be given substantial notice in the present review.

The first six chapters cover some 412 pages and deal with the current situation in the universities and they are here presented in summary. The final section, which discusses perspectives for the future of Austrian higher education in terms of problems, policies and laws that are in different stages of development, is reprinted in full.

II. FOREWORD

to the Background Report of the Austrian Authorities

by

Dr. Hertha Firnberg
Federal Minister of Science and Research

This report constitutes the first attempt after the University Report 1972 to give a comprehensive description of the overall situation and development of the Austrian institutions of higher learning. It differs from the University Reports submitted by the Federal Minister to Parliament in that it also contains a description of the major legal provisions. Such a description need not be included in the Reports to Parliament, but it is indispensable for a discussion of the problem on an international level.

For it is to be particularly noted that this report fulfils a second major function: namely, to provide the background for a policy review of Austrian higher education by the Education Committee of the OECD, meeting in Paris, 13th May, 1975. Preliminary meetings with the OECD Examiners in Vienna in November, 1974 were followed by the Examiners' Report setting out the particular agenda for the discussions in this Committee.

This is the first report to deal with the position of the institutions of higher learning in the entire educational system, particularly in the field of tertiary education.

Among other things, the use of modern data systems, which has been intensified since 1970, and the available findings of sociological investigations into questions pertaining to the development of institutions of higher learning bear fruit for the first time. In many instances the description of the situation was supplemented by attempts to analyse the respective problems. Of course, some aspects had to remain purely hypothetical.

The description and the analysis served as a basis for a first draft of the fundamental guidelines for the future development in tertiary education. These "fundamental guidelines" do not constitute a completely elaborated and binding programme; they are a first suggestion for the overall discussion of the problem.

III. THE PRESENT POSITION

(Summary of Chapters 1-6 of the Background Report)

1. STRUCTURAL FEATURES OF AUSTRIAN HIGHER EDUCATION

The following are among the major features of the structure of Austrian higher education dealt with in various parts of the Report:

i) Post-secondary education in Austria is virtually university education when measured in terms of student enrolment. The accompanying Table 1 shows that, in 1973/74, 82.4% of the Austrian students were regular degree students in the universities. Art schools and training colleges for primary school teachers enrolled another 14%.

ii) Access to university is free, unencumbered by entrance exams or numerus clausus, for all secondary school graduates. A principle of Austrian law is that everyone qualified has an unrestricted right to study in institutions of higher education.

iii) However, access to higher education in terms of age group in the population is effectively narrowed because:

a) the secondary school graduation group is small, only about 16% of the relevant age group (18-year-olds); and

b) there is little effective access to higher education by any other route than secondary school qualification. Only 2% of the entrants into higher education were not secondary school graduates, and these mostly in the non-university institutions.

iv) Courses of study and examinations are linked to a structure of legal qualifications and jobs in the public sector - the main employer of university graduates. Thus, the Report points out that:

> "This means that the completion of regular degree studies gives access to academic professions and that a further examination of acquired knowledge by the employer, be it the state or any other public corporation, will not take place." (page 40)

v) Study programmes in the university, characterized by great uniformity in organisation, are geared to the "ordinary" student. Experimental variations in programmes for both single students and

Table 1. PUPILS (STUDENTS) IN POST-SECONDARY EDUCATION IN THE SCHOOL YEAR (WINTER SEMESTER) 1973/74

(Table 1, p. 35 in the Report)

	NUMBER	IN %
University regular degree students (Austrians)	58,613	82.4
Art schools regular students (Austrians)	2,822	4.0
College for the training of primary-school teachers [1]	7,243	10.2
School for the training of vocational school teachers [1]	135	0.2
Federal seminar for agricultural training and education [2]	63 [3]	0.1
College for social workers [1]	386	0.5
Para-medical schools [1]	777 [3]	1.1
Vocational training courses for secondary-school graduates at secondary technical and vocational schools [1, 2]	1,116	1.6
Total	71,155	100.0

1. As the number of foreigners who attend such schools is extremely low, it is not taken into consideration.
2. Including 11 students in the two-year vocational course for the hotel trade for secondary-school graduates.
3. Number of pupils in 1972/73.

groups of students are possible under provisions of the university law. However, they involve rather exacting and time-consuming procedures and approval from the central ministry authorities. Therefore, very few students have, in fact, been involved in such experimental programmes.

vi) Foreign students in Austria are 13% of the total student population - a higher proportion than in any other European country. The principle of free access protects this unique foreign participation.

Table 2. FOREIGN STUDENTS AT AUSTRIAN UNIVERSITIES (GEOGRAPHIC DISTRIBUTION), REGULAR DEGREE STUDENTS; WINTER SEMESTER 1973/74
(Table 1, p. 247 in the Report)

	IN %
Highly industrialized countries of Western Europe	52.1
Eastern Europe [1]	5.6
Southern Europe [2]	15.0
Highly industrialized non-European countries	4.2
Developing countries	18.4
Stateless, unknown	4.7
Total	100.0
	(N = 8,237)

1. Including Yugoslavia.
2. Including Turkey.

2. SOCIO-DEMOGRAPHIC FEATURES OF THE POST-SECONDARY POPULATION OF AUSTRIA

Features of the structure of Austrian higher education are presented in the Report in close relationship to certain socio-demographic developments:

i) The percentage of the age group entering higher education remains low by international standards. Fifty-three per cent of all secondary school graduates enter higher education, and this constitutes only about 8% of the total appropriate age group.

ii) The more privileged sectors of the population, as measured by the educational background of their fathers, were greatly over-represented in the student body in higher education. (See Table 3)

ble 3. EDUCATIONAL BACKGROUNDS OF THE FATHERS OF STUDENTS AT TRAINING COLLEGES FOR PRIMARY SCHOOL TEACHERS AND UNIVERSITIES

(Table 5, p. 21 in the Report)

EDUCATIONAL BACKGROUND OF FATHERS	STUDENTS AT TRAINING COLLEGE FOR PRIMARY SCHOOL TEACHER (1973)	AT UNIVERSITIES (1973)	EDUCATIONAL LEVEL OF THE MALE WORKING POPULATION AGED 40 AND UNDER 65 YEARS (1971)
School without secondary school leaving exam	72.0	48.9	88
Secondary school	17.5	19.7	7
University	8.2	26.4	5
No data	2.2	5.9	
Total [1]	100	100.0	100.0

1. The columns do not always equal

Table 4. STUDENT NUMBERS BY FEDERAL PROVINCES AUSTRIAN REGULAR DEGREE STUDENTS 1970/71 1973/74

(Table 9, p. 110 in the Report)

FEDERAL PROVINCES	PROPORTION OF STUDENTS IN THE FEMALE POPULATION AGED 19 AN... PER 26 (1971)		
	WINTER 70/71	WINTER 73/74	CHANGES
Burgenland	2.9	5.9	32.0
Carinthia	4.7	8.0	3
Lower Austria	3.6	5.6	42.0
Upper Austria	1.6	6.5	41.9
Salzburg	5.7	6.8	41.1
Styria	5.0	6.7	41.7
Tyrol	5.3	5.9	0.6
Vorarlberg	4.1	4.7	0.6
Vienna	11.5	11.1	0.4
Austria total	5.6	7.2	41.6

Table 5. RE-ENROLMENT UNTIL THE SUMMER SEMESTER 1973 OF STUDENTS REGISTERING FOR THE FIRST TIME IN A STUDY PROGRAMME IN THE WINTER SEMESTER 1967/68

(in per cent)

(Table 1, p. 170 in the Report)

	WS 67/68	SS 68	WS 68/69	SS 69	WS 69/70	SS 70	WS 70/71	SS 71	WS 71/72	SS 72	WS 72/73	SS 73
male												
N 3,802	100	92	88	87	84	83	83	79	75	71	67	63
female												
N 1,572	100	90	84	81	79	77	75	73	66	60	56	51
TOTAL												
N 5,374	100	91	87	85	83	81	80	77	72	68	64	60

Thus, while only 5% of the total Austrian male working population (age 40-64) had had a university education, the corresponding figure for university students' fathers was 26.4%. However, it should be noted that almost half (48.9%) of the university student population came from families at the other end of the social scale by this measure, i.e. whose fathers were without the secondary school leaving examination. The non-university institutions were closer in social composition to the general Austrian population, but they constitute, as noted before, only a small proportion of the total post-secondary student body.

iii) Disparities continue to be reflected in the student enrolment from the various regions of Austria. Evidence for this is presented in terms of the proportion of students in the overall resident regional population of appropriate age groups registered in the university. Thus, in 1973/74 Vienna had more than 11% of the age group registered in universities compared with 4.7% from Vorarlberg. However, these percentages for some of the less favoured regions have been growing more rapidly than in Vienna in the past five years. (See Table 4)

iv) The drop-out rate is considered unacceptably high by Austrian authorities. Data presented in the Report show, for example, that 40% of the students who first registered in 1967/68 were no longer registered by 1973. (See Table 5)

v) The proportion of academically trained people in the total population is the most general result of the operation of its higher education system. Austria may be compared with the Federal Republic of Germany and Sweden as in Table 6.

Table 6. SHARE OF UNIVERSITY GRADUATES IN THE POPULATION AGED OVER 25 YEARS (1970/71) IN SELECTED COUNTRIES

(Table 3, p. 396 in the Report)

Austria	2.6%
Federal Republic of Germany [1, 2]	3.2%
Sweden [3]	3.6%

1. Statistisches Jahrbuch für die Bundesrepublik Deutschland, Statistisches Bundesamt Wiesbaden 1973; Bundesminister für Bildung und Wissenschaft (Pressereferat, Nachrichten, 1974 (February).
2. Not including graduates of specialized institutions of higher learning.
3. Statistisk Årsbok för Sverige, Årgång 58, 1971, Stockholm.
Statistiska Meddelanden 1973, Nr. 13, Population and housing census in 1970 Education.

For these three countries, figures for the growth of university students compared with the total student age population group show that the gap between Austria, on the one hand, and Sweden and Germany on the other would not be closed on the basis of current trends: Austria, despite current growth trends, would continue to have a smaller proportion of academically-trained people in the population. (See Table 7).

Table 7. INTERNATIONAL COMPARISON OF STUDENT MEMBERS IN THE ACADEMIC YEARS 1970/71 AND 1973/74

(Table 2, p. 393 in the Report)

The share of university students in the resident population (same age groups) per 1,000 persons is as follows:

	1970/71	1973/74
Austria +)	64	87
Sweden [1 +)]	137	121
Federal Republic of Germany [2, 4 +)]	84	102
Switzerland [3 ++)]	52	62

1. Office of the Chancellor of the Swedish Universities: Swedish higher education, some facts, Stockholm 1974.
   Statistiks Årsbok för Sverige, Årgang 59, 1972 Stockholm.
2. Statistisches Jahrbuch für die Bundesrepublik Deutschland 1973, Statistisches Bundesamt Wiesbaden 1973.
   Bundesminister für Bildung und Wissenschaft (Pressereferat), Nachrichten, 1974 (February).
3. Eidgenössisches Statistiches Amt, Die Studierenden an den Schweizerischen Hochschulen, Wintersemester 1972/73, Bern 1974, pp. 14, 15.
4. Without students at the specialized institutions of higher learning.
   +) 100% = resident population aged 19 to under 26 years
   ++) 100% = resident population aged 20 to under 27 years.

3. MAIN DEVELOPMENTS IN AUSTRIAN HIGHER EDUCATION

1) The main elements of quantitative institutional growth - budget, personnel and buildings - have kept pace with the striking growth in student numbers. Total enrolment rose from 13,888 in 1955/56 to 58,613 in 1973/74. Female enrolment, still only one-third of the total, rose at double the male rate. The total enrolment growth in recent years is shown in Table 8.

This enrolment growth can be related to the increase in the budget, academic personnel and building space, figures for which are presented in Tables 9-11.

Table 8. AUSTRIAN REGULAR DEGREE STUDENTS AT UNIVERSITIES (WINTER SEMESTER 1968/69 TO WINTER SEMESTER 1973/74)

(Selected from Table 7, p. 107 in the Report)

WINTER SEMESTER	TOTAL
1968/69	39,377
1969/70	40,889
1970/71	43,122
1971/72	46,950
1972/73	53,158
1973/74	58,613

ii) The reform of the content of the study programmes in the universities began in the mid-1960's and constituted the major strategy of university reform. Indeed, study reform has been seen by Austrian authorities as the primary motive for organisational and political reforms. As the Report says (pp. 34-5)

> "Changes in the composition of the academic authorities, by giving the representatives of the intermediary staff and of the students the right of co-determination, shall guarantee that all groups of persons active at the institutions of higher learning can identify themselves with the decisions concerning the execution of teaching and research tasks more than ever before. Finally, the tasks and positions of the university teachers must be adjusted to the changes in their functions. The study reform will serve as a starting point."

The underlying substantive principle for study reform has been that studies should be changed to reflect better the needs of students to fit into new roles in the economy. This has resulted in broadening the representation during inquiries that lead to changes in the study programmes so that it includes students and representatives of the employing community.

iii) Social expenditures, the provision of economic assistance to students, increased more rapidly than the total university budget, reflecting some increase in the numbers of students needing such aid (see Table 12).

iv) With the increasing student numbers and the general trend to reform the content of studies to fit economic demands external to the universities, a new, higher level of concern has been expressed for the university's teaching function as such.

Table 9. UNIVERSITY BUDGET, FEDERAL ESTIMATES (INCLUDING RESEARCH PROMOTION AND CONSTRUCTION OF UNIVERSITY FACILITIES)

(From Table 1, p. 209 and Table 1, p. 402 of the Report)

	IN MILLIONS OF SCHILLINGS	INCREASE COMPARED TO THE RESPECTIVE PREVIOUS YEAR (IN %)	SHARE IN THE TOTAL BUDGET (IN %)	SHARE IN THE GNP (IN %)
1970 ...	2,426.729	15.2	2.40	.65
1971 ...	2,770.208	14.2	2.50	.67
1972 ...	3,353.441	21.1	2.73	.70
1973 ...	3,949.936	17.8	2.84	.71
1974 ...	4,727.418	19.7	2.96	.76

Table 10. MEMBERS OF THE ACADEMIC TEACHING STAFF, 1969 TO 1973 (AS OF DECEMBER 1 OF EACH YEAR)

(Data from Table 4, p. 277 of the Report)

	1969	1970	1971	1972	1973
Total academic staff	2,864	3,111	3,344	3,757	4,277
Per cent increase over previous year		8%	7%	12%	14%

Table 11. ACTUAL USEFUL AREA AVAILABLE FROM 1969 TO 1974

(Table 13, p. 297 in the Report)

	FEDERAL PROPERTY [1]	RENTED PREMISES	TOTAL
1969	392,899	18,800	411,699
1971	448,946	28,800	477,746
1974	518,846	33,200	552,046

1. Including the School of Economics (Owners: "Verein der Freunde der Hochschule für Welthandel") as this is a permanent endowment.

Table 12. "SOCIAL EXPENDITURE" PER ENROLLED STUDENT: BY FEDERAL ESTIMATES

(Table 2, p. 210 in the Report)

	1970	1971	1972	1973	1974
"Social expenditure" on total student population in millions of schillings	160.140	169.505	204.522	248.027	316.962
Increase over previous year		+5.9%	+20.7%	+21.3%	+27.8%
"Social expenditure" per enrolled student in schillings	3,013	2,926	3,156	3,499	4,226
Increase over previous year ...		-2.9%	+7.9%	+10.9%	+20.8%

4. PERSPECTIVES FOR DEVELOPMENT

The foregoing sets of data have been selected from the total content of Chapters 1-6 of the Report for their relevance to certain future perspectives in Austrian higher education. In brief, these are as follows:

i) Austrian higher education is subject to further major expansion, responding to the pressures of individual and social demand and the needs of the economy for people with higher education. The continued growth of the Austrian economy is, of itself, generating this demand for an increase beyond the current position where the proportion of post-secondary graduates becoming free for employment is relatively low.

ii) Development of post-secondary education in Austria - given its history, structure and institutional character - is for the foreseeable future likely to take place within the framework of the universities. Hence, this development involves broadening the variety of university offerings, in terms of the content, style and procedure of studies.

Concurrently, new means for creating experimental programmes in the university would be developed and utilized, and access to university through avenues other than secondary school graduation would be significantly expanded.

iii) Further "rationalization" of Austrian higher education will be required if it is to succeed in its quantitative expansion and in meeting the new complexity of its task. The basic strategy for rationalization would involve measures which would raise the levels of student success. This would mean reducing the years of student studies and the number of failures (non-completion of studies and drop-outs, defined as students who leave the university after attending for more than one year with no recognized qualification). The fact that, even with the projected expansion of student numbers on the present base, the Austrian student group will remain a highly selected one, means that a higher success rate is a practicable goal.

Thus, this kind of rationalization, in terms of adjustment to the new student number will involve:

a) revision of the content of studies, continuing along the line of adaptation to new economic and social demands;
b) studies of shorter planned duration;
c) new types, styles and procedures of study;
d) flexibility, counselling and guidance; and
e) expansion of social aid to students.

A second general aspect of rationalization will be consolidated development of capital resources, such as buildings, libraries and laboratories and specialized use of scarce resources and personnel. A third would be the redefinition of the roles and functions of the academic staff as they participate in these new developments.

The growth of procedures for participation, administration and the mechanisms for planning would be essential elements in the development of such a programme of rationalization.

BASIC DEVELOPMENT TENDENCIES IN TERTIARY EDUCATION

(A Reprint of the Concluding Chapter (No. 7, pages 443-480) of the Background Report of the Austrian Authorities, Vienna, 1975

CONTENTS

The following section gives no general concept for the development of the universities. It deals above all with the problems of the "mass university", which occupy a prominent position in university policy today. Naturally, it is impossible either to treat or to solve all problems of university development. It is hardly possible to describe - and this is an international problem - the various functions of universities isolatedly. The complex interdependence of development tendencies cannot be analyzed on the basis of information available today.

In Austria, experts in the field of university policy have soon realized that the problems of university development can also be solved by means of qualitative measures. In particular, we should mention the reform of regular degree studies and the proposed organization reform as laid down in the government bill of the new University Organisation Act.

These achievements in the Austrian university reform form the basis for further measures. The presentation of the "basic guidelines for tertiary education" serves the purpose of continuing the discussion on the university reform and of dealing with unsolved problems.

A research plan was already submitted in 1972. The present section deals mainly with teaching at the universities. The research plan as concerns research at the universities is being concretized.

The present report also deals with topical planning tasks that must be solved within a fairly short period of time, i.e., until the beginning of the 80's.

The list of planning tasks also contains a few items which constitute the starting points for long-term planning activities.

It is the aim of this section to rationally define important topical problems, i.e., as free as possible from ideological implications. Some solutions are proposed, or at least some indication for possible solutions is given. It is obvious that political standpoints enter the discussion and elaboration of new prospectives: going back to earlier concepts is clearly rejected. The plan is based on the present situation of the Austrian educational system, and in particular on the status of secondary (II) and non-university post-secondary education. Should significant changes occur in these realms they would definitely affect the starting points for the development of tertiary education.

A great number of proposals can be realized only if the reform of the organization as envisaged in the University Organisation Act is actually carried out.

Some items are discussed in more detail than others, which does not indicate, however, a system of priorities. It is simply the case that for some items a greater number of ideas have been developed than for others; in some areas we have already reached the stage where concrete measures are just about to be undertaken, while in other fields we still have to identify and discuss the problems.

7.1. DEVELOPMENT PROBLEMS IN TERTIARY EDUCATION

7.1.1. Science at Institutions of Higher Learning

Research into scientific conditions and processes is still in its early stages of development: some theoretical starting points are being discussed, and a few empirical papers have been submitted. As concerns Austria in particular, we have only a very small amount of verified knowledge and empirically supported theses on the development of science.

Also, it is difficult to assess the contribution of universities toward scientific progress. The term "scientific progress" itself is difficult to define, and it is a rather disputed concept particularly in the pertinent technical literature.

We can, however, be sure in one respect: there is no "automatic progress" in science; in other words, "new" or "relevant" results do not come about automatically in the various fields and at various times. "Progress" will rather always depend on the predominant interests in certain scientific findings. These interests usually determine the setting of priorities as concerns equipment, promotion of young scientists, etc.

One reason why it is so difficult to bring this topic into the foreground is the fact that discussions on the efficiency of science are considered taboo. A public discussion of this question is possible only in connection with a reference to the historic achievements of great Austrian scientists. It would be a major progress to eliminate this taboo and to realize that the universities must be seen within the overall framework of national and international achievements.

The division of labour in science has reached such an extent - among others due to the high costs of scientific undertakings - that a limitation to a national scope must be regarded as anachronistic. This applies particularly to a small country like Austria, which has rather limited possibilities of playing a top role in the various disciplines of research. The same applies to the universities, which after all represent only one, yet important type of research institution. The Austrian Research Plan points out the necessity of certain national research priorities. Such national priorities will obviously have to constitute the prerequisites for the development of science at the Austrian universities. In Austria, too, the universities have to share the research tasks with non-university institutions, and the importance of extra-university science and research is steadily increasing. From an international point of view, the share of university research in the total national research activities and in the expenditure on research is disproportionately high in Austria.

Of all institutions engaged in science the universities have the greatest freedom. This freedom of science is guaranteed by law. The fundamental "functionality" of this freedom of science for the special tasks of the universities in science and research is evident, even if dysfunctionalities cannot be ruled out in every single case.

Within the overall concept of the university as the centre of scientific activities, the function of the university seems to become more and more that of training young people. This function is not only the result of the rising significance of extra-university research, but also of the increasing scope of educational and training tasks of the universities in the course of the general expansion of education, whereby the universities are entrusted more than ever before with quantitatively and qualitatively new educational and training tasks.

These considerations also determine all those plans concerning the significance of university research that start from a dominant position of teaching tasks or regard the universities as having a "residual function" in research in the sense that the universities concentrate on such areas of research where no competition is to be expected from extra-university research, while in the other areas of research the universities concentrate on the reproduction of extra-university developments.

It goes without saying that such a negative assessment of the role of the university cannot provide a sound basis for the future development of the universities.

It will be necessary to further discuss the division of labour between the university and extra-university scientific activities.

The Austrian Research Plan attempts to delineate university and extra-university research, and classifies research related to science and culture as university research, while research into socio-political and economic questions is attributed to the extra-university realm. The model of this division of labour is based on the differentiation of research into an application-oriented branch and a science-oriented one, i.e., the model rests on the classical separation into basic research and applied research.

Today, however, we can see that this model no longer suffices. On the one hand, basic research is more and more moving into the extra-university realm. On the other hand, sponsored research projects, dealing in part with highly specialized experimental developments, and applied research are increasingly carried out at the universities. Basic research can no longer be regarded as an isolated branch because of the interdependence between technological progress and scientific development or between theory and practice.

In addition, we have become increasingly aware of the causality that exists between society and the economy and the development of science, which questions the traditional concept of "pure" science.

At present, it seems to be almost impossible to develop absolutely convincing perspectives as to an independent role of the universities in the overall development of science.

New aspects of the division of labour may result if in addition to the application-orientation of research other aspects of scientific activities are used for the elaboration of a model of the division of labour.

The entire process of the acquisition and communication of scientific knowledge must be taken into consideration. Research is an integral part of science, but it does not constitute science as a whole. Various stages in the development of individual disciplines of science should be taken into consideration. The role of a university for an individual branch of science may differ at various developmental stages. This would mean that various models would be required for the individual disciplines, or, in other words, one model would not suffice for one university.

An interesting aspect is the question as to the role of the universities for the institution of new disciplines and branches of science. The universities could have an innovatory function in this field.

A model which provides for a strict division of labour between university and extra-university research cannot remain valid for a long time as it would lead to an isolation of the university. The coordination and cooperation between universities and non-university research institutions is essential for the future development, the more so as we can already observe a considerable interdependence of personnel.

The guiding principle for the definition of the tasks of the universities as institutions engaged in scientific activities will be their responsibility in society as a whole. The universities have a responsibility toward the general public and not toward individuals.

As scientific-technological progress becomes more and more problematic, the development of science - as seen from the point of view of the application and utilization of scientific findings - has become a certain problem. The universities in particular have a special role to play in this field besides seeing to a science policy of their own. This very combination of competence in the subject matter and the freedom of science that is institutionally guaranteed is the prerequisite for scientific activities at the universities in order to fulfill this task that also includes a critical approach. Therefore, a future perspective of the development of science is the development of "critical science" which exercises a "controlling function" oriented toward the interests of science as a whole.

In addition to the study of the general prerequisites of science possibly also the study of the problems of the application of science could make it possible to arrive at the unity of science.

The organisation and institutional basis of university science also permits scientists to orient themselves to long-term R and D perspectives to a greater extent than is possible in the field of extra-university research. Also, they can concentrate on those research areas and disciplines that do not constitute any immediate priority for extra-university research. In this sense, university science - but also scientific activities financed mainly by the government - might exercise a corrective function in that it corrects the development of extra-university science. The question remains whether or not this function of the universities should constitute the decisive aspect of the principle of the unity of science in the present situation.

This corrective function does not mean, however, that university science, the main criterion of which is the alienation from society, should become more and more academic. The universities will be able to exercise their scientific function only if they deal with the major problems of social, economic and technological developments in order to find solutions for them. The universities will also have to take initiatives and should not wait for orders from outside.

The universities are state institutions in which a major part of the scientific material that is available to society is collected and produced. At the universities a large part of the data are processed, and the universities have the responsibility to distribute and communicate scientific knowledge. Therefore, the universities are those scientific institutions that have to guarantee the general availability of science. Science at the universities must thus follow the postulate of being accessible to the public. This aspect results in an essential marginal prerequisite for the execution of private sponsored research at the universities. It also constitutes the decisive point of reference to "teaching", whereby the fulfillment of this task is not only limited to the organisation of regular studies.

The state does not only regard the universities as institutions that should be open to all citizens, but also as institutions that serve the administration of the state and help to solve problems of its infrastructure. Political decisions that involve considerable costs or have a great impact on the economy, need, already in the planning stage, intensive scientific consultation and innovatory stimuli. The increasing complexity of the state infrastructure renders scientific planning and scientific preparation of decisions indispensable. That leads to application-oriented research projects in the interest of the state.

This function of the university is exercised by those members of the university who already engage in consultation activities; yet, the organisation of scientific consultation for politicians and the scientific preparation of political decisions has so far not passed beyond the initial stage.

Scientific policy consultation cannot be limited to the preparation of scientific data for the decision-making process. The scientists are also called upon to publicly express their opinions on political questions on the basis of their competence in the subject matter.

7.1.2. The position of the university in the educational system

The traditional university forms the apex of the hierarchical structure of our educational system. The higher one moves up in the hierarchy the more limited is the access to the educational institutions.

Certain positions in the professional hierarchical structure, and thus also social chances, depend on the formal completion of studies within the educational system, expressed in terms of academic degrees awarded upon the completion of studies. Certain professions, particularly

the traditional academic professions, are open only to holders of academic degrees; in other areas the academic degree grants access to higher positions in the hierarchical structure although it does not exclude persons who do not have such degrees.

At the same time this system guarantees that with an increasing selection and duration of studies only the most qualified persons reach the higher levels of education. The great significance of science and its social appreciation form the background for equating the highest educational and training level with scientific education and training. University education and training is organised according to science-inherent criteria, which are expressed, for instance, in the differentiation of training programmes according to scientific disciplines, in the fixation of educational contents according to the requirements of the individual fields and in the instruction through scientists.

For university studies certain principles apply as laid down in Section 1 of the General University Studies Act.

Particularly these characteristics of university education and training are increasingly questioned as to their rationality and legitimacy and conflict with the social developments.

A number of problems are raised in connection with the "boom" in tertiary education, due to the rising demand for education and highly qualified experts. Concrete examples are capacity and cost problems, the increasing necessity of instruction through non-scientists, the tendencies toward a reduction of the duration of studies and the application of secondary-school teaching methods to the university.

Against this background we must consider, on the one hand, the criticism raised against too strict a system of qualification and, on the other, the plans that aim at a differentiated relation between educational level and social status.

The differentiation of the demand for "university graduates" increasingly raises the question whether the traditional scientific training constitutes the optimal form of education and training for all types of university graduates.

The same applies to the differentiated individual educational demands of the students. The rationality of selection criteria with regard to both educational aims and socio-political concepts (equality of opportunities) is questioned.

The institution of post-secondary training programmes outside the universities, the expansion of adult education facilities, the creation of institutions for the further training and education of secondary-school graduates pose the question as to the specific function of the universities in post-secondary education, but also in the realm of the entire education following regular compulsory education. The determination of the qualitative role of university education results in the determination of the quantitative share of universities in post-secondary education.

On the whole we have to deal with a process of transition, which is often characterized in terms of a change from the "elitist" university

to the mass university. In the course of this process the traditional university and the social change often conflict with each other and require the universities to innovate and rationalize. This is a process which has not been completed despite the strong reform efforts and frequent reform initiatives. If the development of the universities is not to fall back upon its traditional form, the university reform must be continued.

Every year a growing number of young people acquire the qualification to enter tertiary education by completing a secondary school. According to estimates of the Federal Ministry of Education and Art 30,000 young people will graduate from secondary schools in 1980. Only a small percentage of young people acquire the university entry qualification at secondary technical and vocational schools, i.e., have a professional education.

The number of young people transferring to post-secondary education is relatively high. This can be explained by the objective and subjective necessity of acquiring professional training after the secondary school leaving examination in order to obtain a job on the respective level of qualification.

This situation is bound to persist for some time, as the measures taken become effective only in the long run, despite a thorough reorganisation of post-secondary education. Despite the expansion of the non-university post-secondary school educational facilities, the increasing educational demand must still be met mainly by the institutions of higher learning. The educational possibilities in the non-university realm - particularly those above the secondary school level - are almost exclusively limited to teacher training. The expansion of educational possibilities in the non-university field is still in the experimental stage. Even if the efforts in this field were intensified enormously both with regard to an expansion of capacity and a diversification of professional areas, these measures would become effective only in several years from now. An added difficulty is the reorientation of secondary school graduates whose expectations are mainly directed toward university studies.

For the reasons stated above the universities will have to continue, at least for the prognosis period, to bear the main burden and satisfy the demands of secondary school graduates for professional training and education.

Educational demand and social advancement

The attainment of higher professional positions depends more and more upon the qualifications obtainable within the formal educational system. On the one hand, better qualifications are required for higher positions, on the other hand the educational system has come to play a very important role in the general social restructuring process: it offers possibilities of advancement particularly for the masses. More and more sections of the population want to acquire these qualifications.

As a consequence of the increased qualification demands, young people have to reach a higher level of education than their parents if they want to maintain the same social position as their fathers or mothers. Thus, university studies are no longer confined to the self-recruitment from the traditional educational strata, but are an important means for preserving a certain status.

At the same time, however, they are of great importance for the underprivileged strata of the population, as they offer the possibility of advancement via the formal educational system, including the universities. This is an essential characteristic of a democratic efficiency society.

On the one hand, this is necessary in order to be able to utilize the "talent reserves"; on the other hand, it helps to avoid a neutralization of competition for higher positions. In this sense, the social mobility is a functional necessity. The possibility of social advancement continues to be a central argument in an efficiency society in which living opportunities differ and are dependent on levels of achievement. If this possibility were eliminated this would most likely seriously challenge the legitimacy of the society, which in turn could have unforeseeable political consequences. Thus, the competition for higher education involving greater and greater sections of the population will continue to play a decisive role in our social system.

Equality of opportunity and right to education

Apart from the above phenomena, attention should be drawn to another aspect that goes beyond the present training function of the educational system and points toward a completely new educational function.

There is no doubt that the value of education goes beyond its immediate professional utilization. The right to this "excess education" (over and above the actual professional training) should not only be limited to a small group that uses it in a negative sense, i.e., as proof of its elitism. Equality of opportunities does not only apply to the economic and professional realm but also to education in general. In this sense education is an integral determinant of the quality of life. This calls for a continuous raising of the levels of education of the total population, as this is the prerequisite for the participation of larger sections of the population in the cultural traditions and the innovation as well as in the political and social determination of their future. This is the only way to realize the emancipatory and creative character of education.

In view of the varied socio-political and economic problems that go beyond the productive utilization of education, this will be an absolute necessity for the future. This "revolutionary type" of an "educated society" is a long-term perspective; it seems to be an unavoidable development and one of the most positive ones as such. An increasing portion of the wealth of society will have to be made available in order

to attain this goal. The "over-qualification" will become a constituent element of future educational policy.

In the future the link between the educational level and the social status of the graduates will not be as close as today. A university graduate will no longer be able to automatically enter upon a higher professional career. By pushing the selective function of the universities somewhat into the background it will be possible to gear the studies to a greater degree toward promotion of studies and qualifications. The universities have a dual function in this process: they have to meet the quantitative demand for education and they have to fulfil a specific task, namely "education through science". The imparting of "excess" education must not be an end in itself, but will have to be practice-oriented. Essential aspects of education through science are the ability and willingness to critically and rationally confront the problems, i.e., elements of a basic scientific attitude. Here, the central problems of the present should be dealt with. New ways of communication will have to be sought. The governing principle must not be an elitist monopolization of scientific knowledge, but the conscious communication and spreading of knowledge.

Perspectives of a labour market-oriented educational policy

A demand-oriented educational policy cannot disregard the situation on the labour market. The university development must have a quantitative dimension, i.e., demand-oriented planning, and a qualitative one, i.e., labour market-oriented planning. In addition the possibilities and conditions for realizing these dimensions must be investigated.

As concerns the short-term perspective, which corresponds to the actual quantitative demand for education, one has to look at the given situation. In Austria there are at present no signs of unemployment with regard to university graduates. Comparisons on an international level show that Austria seems to have a "deficit" in highly qualified persons compared to other highly industrialized nations. Recent investigations that were carried out by different agencies revealed deficits in the areas investigated and even showed some bottlenecks in the supply sector. In the long run the basic tendencies in the quantitative as well as qualitative demands for experts in the respective fields will have to be taken into consideration.

The progressive introduction of scientific methods in the field of production is bound up with the availability of highly qualified experts. The importance of science and scientific technical qualifications for the economic development of a country is beyond doubt. This applies also to the stages before and after the production process: planning, organization, development, control, distribution.

Also in spheres outside the economy per se (health, education, etc.) the importance of science is steadily increasing. The growing complexity of modern society necessitates to an increasing extent the employment of scientific methods. The growing need for planning

activities on the governmental level, particularly in the field of infrastructure, calls for scientifically qualified personnel. The entire realm of the "social sciences" thus becomes a new area of concentration next to the natural sciences.

In addition to the reproduction and the expansion of the "production" of the traditional type of scientific qualifications, the increasing science-orientation endows the universities with new substantive tasks in the field of training and education.

The demand investigations of the 60's were based on a relatively simple model. The essential point of reference for the determination of the expansion of the demand was assumptions on the economic growth, differentiated according to sectors of the economy. This first stage in the development of an educational economy, which is still rooted in the mind of the public, has given way to a new approach to the problem of the demand for university graduates. See University Report 1972 (Chapter 7).

The main differences are that, aside from the educational demand, the analysis also includes the structure of the university education and the qualitative changes in the demand for highly qualified experts. Any statement on the demand for university graduates implies so many political decisions - economic, social and educational ones - that an objective determination of the demand in the narrowest sense is utterly impossible.

Mass education and possibilities of realizing individual demands for education

Newly instituted study programmes constituted a "substantive" expansion of the educational possibilities; yet, apart from differentiations as to types of courses, qualification levels and the organization of studies, etc., this expansion exhibited a relatively homogeneous pattern.

Despite a wide range of reasons and motivations for studying and diverse studying patterns, a clear tendency toward standardization and homogeneity can be noted. This change is best expressed in the attitude that training and educational goals other than the completion of regular degree studies are increasingly regarded as illegitimate. It remains to be seen whether or not this tendency can be regarded as a positive one.

At present almost the total demand for university education is met by traditional, subject-oriented regular studies. The student's possibilities of choice are actually limited to "the choice of study programmes". The question arises whether the rather diverse study aims, study motivations and individual talents of the students can be fully developed in the present system of education. The differentiation in the demand for education obviously also extends to the modes of communicating knowledge and to the learning techniques. The studium irregulare, a very decisive innovation of the Austrian university reform, allows for a variation of university studies, but only with regard to the substantive dimension.

The lack of homogeneity of the student population caused by the different social backgrounds of the students has a growing impact on the traditional forms of university studies. Students who are already engaged in paid employment have a particularly difficult starting basis, which in turn causes difficulties for the universities.

The consequences of a situation where a heterogeneous demand for education is juxtaposed to a homogeneous educational system cannot be estimated as there are no possibilities of comparison.

Many investigations have revealed a high degree of dissatisfaction among the students, a phenomenon that cannot simply be explained by unwillingness to perform. A number of indicators show that the students undergo a permanent process of disillusionment in the course of their studies which destroys many of their primary motivations. Many students experience the study process as a continuous pressure to adapt; this leads to the so-called "minimum strategy", i.e., the study activities are continued only because of secondary motivations.

This does not necessarily imply the danger of the levelling effect. In addition to the general, mainly technical, aspects, the possibility of realizing also individual demands as to training and education is an integral part of an educational policy which is not exclusively directed toward the utilization of education. An optimal use of the different individual talents and demands calls for an "individualization" of education.

It will thus be necessary to investigate whether or not special modes of education should be provided for exceptionally talented students.

A higher degree of labour market orientation of university education is not necessarily in contradiction to individual demands for education. In many cases the "disappointment" of the students is due to the lack of practice- and profession-orientation of the present studies.

The counterpart of mass education at the universities will have to be individualized studies, i.e., opportunities to realize individual interests and individual abilities and talents; employment of different learning and studying techniques; a varied structure of studies; study possibilities taking into account different social backgrounds; etc. Yet, it will always be necessary to make a compromise between the different requirements of the labour market, the possibilities of the universities and the qualitatively differentiated demand for education.

University planning oriented toward the labour market and the demand for education

There is no doubt that the labour market can absorb only a limited number of the traditional type of university graduates. The qualitative aspects of demand and the structure of the university education are variables that allow for a compromise, namely the combination of demand-oriented and labour market-oriented planning.

The absorbtion capacity of the labour market for university graduates can be increased and controlled, to a certain extent, if the university

education offers a wider range of professional training. An important aspect of such a policy is the continuation of the study reform, presenting new ideas and new solutions that go beyond the reform of the traditional university studies.

Thus, we arrive at a developmental model that is oriented toward the demand for education (quantitative aspect) and toward the requirements of the labour market (qualitative aspect), in order to increase the practical applicability of university education.

This means that the training programmes will have to be organised more and more with a view to the requirements of the professional areas. Another aspect to be taken into consideration is the increasing heterogeneity of the demand for highly qualified experts: an increasing number of scientifically qualified personnel is required also for lower positions (non-executive ones) in the professional hierarchy. The demand for highly qualified persons seems to exhibit a twofold trend. On the one hand, there is need for experts who find solutions for various problems; and on the other hand, we need scientifically trained experts who implement these solutions.

Also within the traditional academic professions, which are reserved to university graduates, the need for a horizontal and vertical division of labour becomes apparent.

Two kinds of highly qualified experts are needed: experts with highly specialized knowledge and skills, and experts with a thorough knowledge in fundamentals.

Knowledge must not only be directly applicable but must be updated continuously. The rapid turnover of scientific knowledge requires permanent further education.

Thus, the university education must become highly differentiated with regard to study aims, qualification levels and subject matter, abilities and skills to be imparted as well as attitudes and general abilities that are relevant to the profession but cannot be utilized directly.

The application of scientific knowledge and methods is steadily expanding and calls for a permanent and substantive expansion of scientific training.

The increasing application of scientific knowledge and methods in various fields of activities thus becomes one of the essential tasks of the universities, i.e., fields of activities have to be integrated within the framework of scientific training.

The educational objective of the university is no longer the traditional university graduate, but a wide range of highly qualified experts who can no longer be subsumed under a uniform title.

Regular degree studies in their present form will no longer suffice to fulfill the educational tasks of the universities.

Selection- or success-orientation of the mass university

The question of selection has become a very topical one in connection with the mass university.

As concerns the selection-orientation of an educational system, we have two extreme standpoints: On the one hand the concept that any form of selection is a violation of the principle of equality of opportunity and represents as such a hidden numerus clausus or a social numerus clausus.

On the other hand, we encounter concepts that attempt to solve the problems of the mass university by simply employing selection criteria. These selection criteria are believed to present a solution for the problems of the presumed or actual deterioration of the educational level and the capacity problems.

The question remains whether or not such tendencies are inherent in a mass university, as they offer a rather simple solution for the basic problems. They possibly constitute an uncontrollable mechanism of self-protection of the institution against

- actual or expected excessive burdens (high numbers of study beginners);
- a decrease in the academic standards and achievements of the institutions through a drop in academic level and over-production of graduates;
- conflicts.

Such concepts and tendencies become problematic if they represent nothing but an attempt to escape the need for adjustment and innovation.

The rates of selection are already very high. On the basis of the drop-out rates the university is a highly inefficient institution. About 50% of the study beginners of one graduation year drop out. Drop-outs usually stay fairly long at the university without taking examinations as proof of academic performance.

Obviously the drop-out rate cannot simply be taken as a measuring rod of success. A certain percentage of secondary-school graduates register at a university without having the intention of completing a study programme. Yet it is difficult to exactly ascertain this percentage. It is not possible to clearly establish the characteristics of this group. It certainly includes the "pseudo-students" who register in order to obtain the advantages that are connected with the status of a student. Then we have those students who seriously intend to study but who do not necessarily want to complete regular degree studies.

Still, there remains a substantial percentage of students who plan to complete their studies, but fail to do so for various reasons.

The individual and social use of an incomplete university education appears to be minimal. On the other hand, drop-outs cannot simply transfer to a lower level of education due to the rather scarce offer of educational possibilities.

The increasing numbers of drop-outs - even if the drop-out rate per se does not change - will have serious social, economic and mental consequences for the individual drop-outs.

In the light of the social conditions that cause students to drop out, the plan to tighten the selection requirements is diametrically opposed

to the concept of equality of opportunity. The students who are more likely to drop out because of their social backgrounds, i.e., students from underprivileged sections of the population, will most likely be affected much more profoundly by such measures, because these groups do not have adequate means to compensate for the termination of studies.

A fixation of the selection mechanism in the study flow is only reasonable in the first few semesters. On the other hand, the academic success in the first few semesters does not allow for a proper prognosis for the student's performance in the subsequent semesters nor for the future professional abilities. The present courses of studies are not organised on a selection principle. Yet, it seems to be rather questionable to change the original function of introductory courses, and use them as selection criteria. The importance of examinations would be further enhanced, and students' studying activities would be limited to the preparation for examinations. The introduction of stricter selection criteria would not only raise the "levels" of the individual courses, but could also lead to an inadequate didactic approach and an insufficient occupation with the student.

The consequence would be considerable delays in studies for those students who do not want to give up their studies; they would pass examinations only after trying two or three times.

The common belief that the student does not work very hard is not true in every case; on the contrary, in many study programmes the student has to work very hard if he wants to complete his studies within a reasonable period of time. The tendency toward the minimizing strategy in the studying process would be further intensified. The possibilities of a reflective and intensive approach to the subject matter of a course as well as the opportunities to acquire knowledge of a more general nature would be reduced considerably.

The present standards of university pedagogics, the degree of objectivity in examinations and the importance of irrational selection criteria, etc., would frustrate many intentions of the study reformers; some of the present problems of the university would even be accentuated. One can assume that the genuine achievement in the learning process would more and more be replaced by the student's ability to adapt to the system. If this were the case the university would negate its own objective: "education through science"; the training to do independent and responsible work would become an unattainable goal.

Highly selective systems will go hand in hand with a high studying intensity of the part of successful students, in particular a considerable investment of time for the preparation for examinations; it will not necessarily guarantee high-quality training and education. This applies above all to the demand for highly qualified experts, where the ability to reproduce a great amount of knowledge seems to be of minor importance.

The selection problem which is closely bound up with the principal problems of university education is an important aspect of the university reform and does not allow for simple solutions. The regulations governing

access to the university are based on the belief that those who have acquired the university entry qualification also have the abilities to complete a study programme. Thus, at least in this respect, the selection is a function of the secondary field of education. As it will be impossible to "perfect the selection" on the secondary level, the universities will have to establish additional selection criteria.

From the point of view of both the qualitative and quantitative efficiency the university will have to become success-oriented if it is to fulfill its tasks. The training and socialization of highly qualified experts is hardly compatible with a strictly selection-oriented approach. The guiding principle should not be selection, but the promotion of talented students.

A success-oriented system is more likely to produce high quality achievements in the realm of teaching and studying than a strictly selection-oriented one. This applies particularly to the acquisition of those qualifications that essentially determine the quality of the training and education. Measures will have to be undertaken in order to solve the problems resulting from the need to preserve the educational level on the one hand and to counteract disintegration phenomena of the mass university on the other.

Access to university studies

Capacity bottlenecks and demand considerations have led to the introduction of the numerus clausus in a number of countries of Western Europe. The "import" of the awareness of a crisis has made this problem a topical issue also in Austria. Often, however, one forgets that in Austria the situation is quite different. The tremendous expansion of the universities during the past few years and the present state of the university reform have created the prerequisites for avoiding this emergency measure. In addition, a number of technical and fundamental aspects speak against the introduction of a numerus clausus. The selection of secondary school graduates poses a number of almost insoluble problems and is connected with a great amount of bureaucratic work. The feedback to the system of secondary schools interferes with the possibilities of their reform. The present structure of secondary schools - general secondary schools (which do not provide professional training) predominate - and the restricted educational possibilities in the non-university post-secondary realm would lead to almost insoluble educational problems for many secondary school graduates.

As international experiences show, the introduction of a partial numerus clausus - restriction to individual subjects and/or universities - shifts the problems to other study programmes and will sooner or later lead to a total numerus clausus for all study programmes and universities. The numerus clausus jeopardizes all the efforts to achieve the equality of opportunities. The secondary school leaving examination would practically lose its value as a university entry qualification. Demand-oriented university planning can only mean open access to universities. This

access, however, is undoubtedly connected with a continuation of the study reform. It includes, of course, the necessity for increased information of study beginners on occupational and professional opportunities and increased orientation of the beginners in the selection of the study programmes toward the occupational opportunities to be expected.

A revision of the access requirements for universities could only be meaningful if the entire system of post-compulsory school education, including the universities, were re-organised.

Research and teaching

The unity of research and teaching is, at least as a postulate, a constituent characteristic of the universities; it is an essential component of the identity of the university and, at least for part of the student population, a claim to university education.

This unity of teaching and research should be guaranteed not only in general, but also through chairs and departments. It implies that most university teachers are scientists at the same time. The decisive criterion for the selection of teachers is their contribution to research.

The postulate for the unity of teaching and research, however, is likely to conflict with certain aspects of scientific development and above all with the requirements of mass education at the universities:

- The instruction through scientists proves to be rather expensive in the case of large student figures. On the other hand, the teaching staff has constantly fewer possibilities of fulfilling research because it is overburdened with teaching responsibilities and particularly with examinations and administrative work.
- The process of shifting research to research facilities outside the universities as well as the international division of labour within research forces the universities to assume a purely receptive attitude in many research areas.
- The possibility of student participation in the research process is obviously decreasing as the student figures are growing.

Programmes that envisage such a division of labour within the university or an institutional separation of research and teaching are thus gaining in importance. However, there exists no developed formula for the solution of this problem, but prospects for solutions can be seen if one starts from the fact that different stages of the integration of research and teaching are possible within the entire institution. Especially the identity of training and research facilities would not have to be guaranteed for all educational institutions. The extent of instruction through scientists can be differentiated (unity of science and research: scientific professional training and education through science; research is only a part of the scientific activities) if the various types of studies and sections of studies are taken into consideration.

It could be possible to realize the unity of research and teaching in various degrees, i.e., according to the different educational aims of study programmes and sections of studies. The unity of research and training facilities would have to be guaranteed only on the level of the entire institution. A decisive criterion delineating scientific training and education from other educational possibilities is the following. The university is the teaching establishment that applies - with a minimum time lag - the advances in scientific knowledge to training; it imparts the fundamental knowledge concerning the prerequisites of science and scientific methods. As a minimum programme, these characteristics of university education and training would constitute the decisive criteria for the definition of the field of non-university post-secondary training. The difference between university and non-university post-secondary education will be a difference by degree rather than by principle in all the specific characteristics of university studies (General University Studies Act, Sec. 1) and in their effects on the organization of studies. The individual post-secondary educational programmes will have to be classified according to the various stages in which the general principles of university studies are realized. Also, the studies will have to be oriented more than ever before toward professional usefulness. The integration of university education into the entire educational system will be intensified by fulfilling tasks in the field of adult education and further education of secondary school graduates through new forms of studies. Thus, the problem of the institutional basis of the various training programmes will lose in importance.

On the whole, it is a process in which, on the one hand, the status dimension of university education is reduced in favour of the qualification dimension, and in which, on the other hand, non-university training programmes, too, will increasingly become scientific.

7.2 PLANNING TASKS

The development of tertiary education up to the beginning of 1980's will have to be characterized mainly by four priority items:

1) coping with the rising number of students by expansion and rationalization measures;
2) the continuation of the study reform and the introduction of an experimental phase in the fields of education and training;
3) the material execution of the organisational reform in all its aspects;
4) the beginning of planning long-term changes.

7.2.1. Demand for study places up to 1980

The aim of educational policy - which is demand-oriented from the quantitative point of view - is open access to the institutions of

higher learning. If the present form of acquiring the entitlement to attend an institution of higher learning is maintained, the training and educational possibilities offered are usually oriented to the demands of secondary-school graduates. The estimate of the educational demand on the basis of the number of secondary-school graduates and transfers to institutions of higher learning is limited only to regular degree studies.

The University Report 1972 contains estimates as to the prospective number of students registering for the first time and as to the total number of students. The first calculating method is based on those numbers of secondary school graduates which would result if the school expansion programme of the Federal Ministry of Education and Art were realized, taking into account 20% more pupils than actually envisaged.

The second method is based on a 30% margin, the third one on the 7th estimate of secondary school graduates, which was carried out by the Federal Ministry of Education and Art and mainly extrapolated the pupil numbers without taking the planned school buildings into account.

The fourth estimate was prepared by Josef Steindl, Institute of Economic Research, on the basis of various assumptions, making use mainly of extrapolations. *

Since 1967 transfer rates have been collected, broken down by types of secondary schools and by the sex of the pupils, and have been extrapolated for the prognosis. All estimates were based on the assumption that the entire school system remains unchanged. **

Unless major changes are effected in the secondary schools and if the institutions of higher learning retain their attractiveness, between 12,000 and 18,000 secondary school graduates per winter semester will embark upon university education by the beginning of the 1980's. If the study conditions do not decisively change, the total number of Austrian students will amount to approximately 80,000-90,000.

Estimate I, based on the estimate of the number of students registering for the first time (Steindl 1972), leads to the same figure for 1980 as the two space-oriented estimates, namely, about 80,000. Estimate IV yields much higher figures, i.e., as many as 91,000 Austrian degree students are assumed to study at Austrian universities in 1980/81. On the basis of an evaluation of the different estimates of students registering for the first time as contained in the University Report 1972 we may assume that the number of Austrian regular degree students will in any case rise above 80,000.

* Josef Steindl, 'Vorausschätzung der in die Hochschulen neu Eintretenden und der Studenten', Institut für Wirtschaftsforschung, manuscript; for the Federal Ministry of Education and Research, Vienna 1972; the University Report 1972 took into consideration only the computation which Steindl called "highest estimate".

** The details of the methods are described in the University Report 1972 (p. 48).

Table 1. ESTIMATE OF THE NUMBER OF STUDENTS REGISTERING FOR THE FIRST TIME UP TO 1981
(AUSTRIAN REGULAR DEGREE STUDENTS)

WINTER SEMESTER	ESTIMATE OF THE NUMBER OF STUDENTS REGISTERING FOR THE FIRST TIME									ESTIMATE ACCORDING TO STEINDL		
	ACCORDING TO SPACE-ORIENTED ESTIMATE OF SECONDARY SCHOOL GRADUATES						ACCORDING TO 7th ESTIMATE OF SECONDARY SCHOOL GRADUATES OF THE FEDERAL MINISTRY OF EDUCATION AND ART					
	WITH 20% MARGIN			WITH 30% MARGIN								
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
1974/75	5,900	3,900	9,800	5,900	3,900	9,800	3,900	3,900	9,800	6,614	3,433	10,047
1975/76	6,300	4,400	10,700	6,300	4,400	10,700	6,300	4,400	10,700	6,672	3,621	10,493
1976/77	7,000	4,900	11,900	7,000	4,900	11,900	7,000	4,900	11,900	7,341	4,102	11,443
1977/78	7,400	4,500	11,900	7,500	4,600	12,100	7,600	5,200	12,800	7,762	4,421	12,183
1978/79	7,300	4,400	11,700	7,600	4,600	12,200	8,200	5,700	13,900	8,326	4,797	13,121
1979/80	7,100	4,300	11,400	7,500	4,700	12,200	8,800	6,400	15,200	8,932	5,193	14,125
1980/81	7,000	4,400	11,400	7,500	4,800	12,300	9,500	7,400	16,900	9,466	5,560	15,026
1981/82	7,100	4,500	11,600	7,700	4,800	12,500	10,100	7,800	17,900			

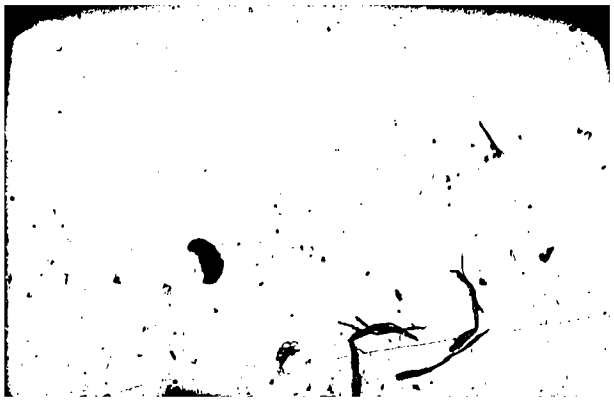


Table 2. ESTIMATE OF THE TOTAL NUMBER OF STUDENTS UP TO 1981
(AUSTRIAN REGULAR DEGREE STUDENTS)

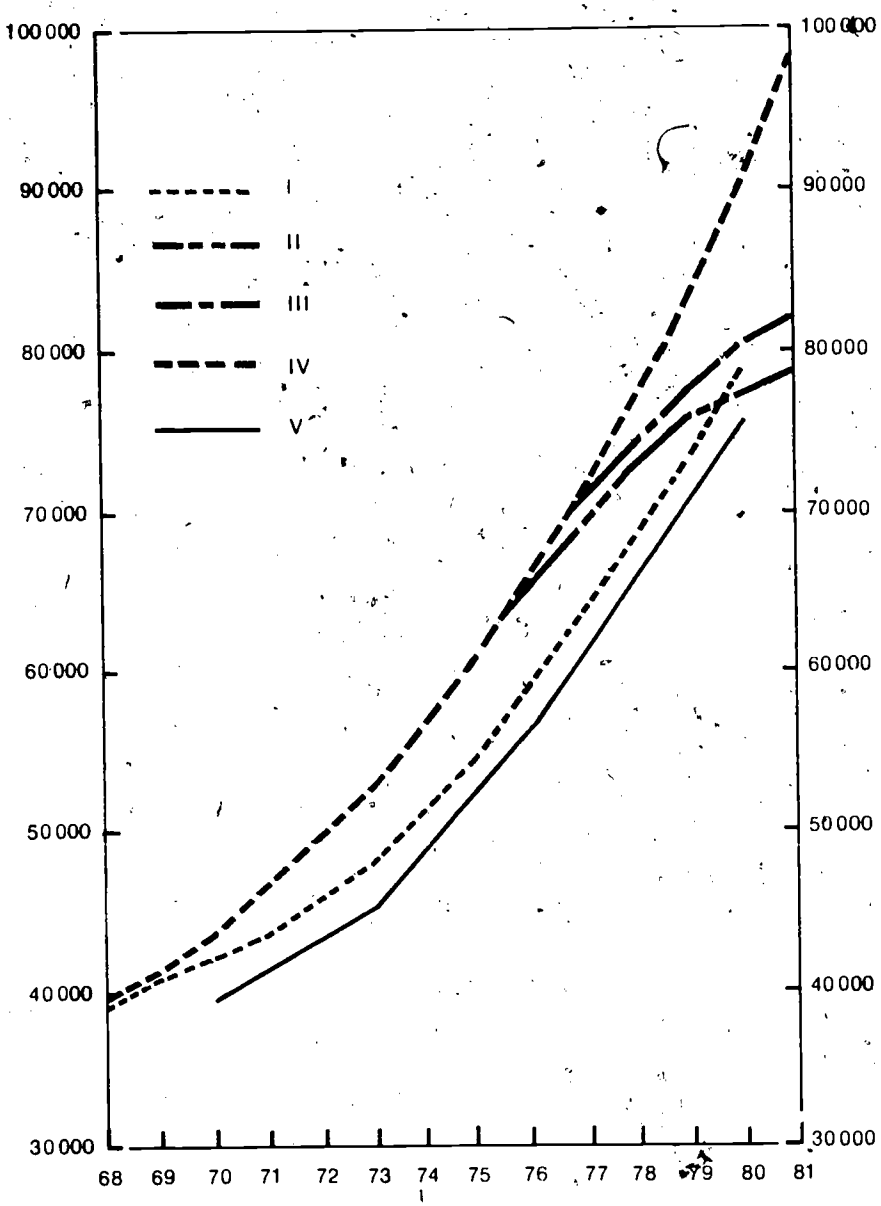
		1974	1975	1976	19	19	19	19	1981
	male	37,000	38,900	41,100	41,000	47,000	50,200	53,600	
I	female	14,700	16,200	17,800	19,500	21,300	23,200	25,200	
	total	51,700	55,100	59,200	63,500	68,300	73,400	78,800	
	male	39,600	41,600	44,000	46,600	48,900	50,500	51,700	52,800
II	female	17,100	19,300	21,700	23,300	24,500	25,200	25,800	26,000
	total	56,700	60,900	65,700	69,900	73,400	75,700	77,500	78,800
	male	39,600	41,600	44,000	46,800	49,400	51,600	53,400	55,000
III	female	17,100	19,300	21,700	23,400	24,800	25,900	26,800	27,400
	total	56,700	60,900	65,700	70,200	74,200	77,500	80,200	82,400
	male	39,600	41,600	44,000	46,900	50,200	53,900	58,000	62,300
IV	female	17,100	19,300	21,700	24,000	26,600	29,500	33,000	35,400
	total	56,700	60,900	65,700	70,900	76,800	83,400	91,000	98,700
	male	35,260	37,247	39,783	42,507	45,486	48,584	51,900	
V	female	13,982	14,958	16,842	18,428	20,116	21,861	23,608	
	total	49,242	52,199	56,625	60,935	65,602	70,445	75,508	

I: based on the estimate of secondary school graduates carried out by Steindl in 1972.
II: based on the space-oriented estimate of secondary school graduates (20% margin).
III: based on the space-oriented estimate of secondary school graduates (30% margin).
IV: based on the 7th estimate of secondary school graduates carried out by the Federal Ministry of Education and Art.
V: estimate of total number of students by Steindl 1972.

Graph 1

ESTIMATE OF THE TOTAL NUMBER OF STUDENTS UP TO 1981

(Austrian regular degree students)



The prospective number of Austrian regular degree students will be higher than 80,000 if the number of secondary school graduates keeps rising as over the past ten years - no matter how much space is offered - and if the proportions of secondary school graduates entering higher education and the staying-on rates of students at the universities remain constant.

The first OECD Country Review (1965) did not contain an estimate of the total number of students, but a preview as to the number of study beginners. The Review underestimated - for the early 1970's - the actual number by more than 30% per year.

If one looks at all the estimates one has to consider that the figures computed refer to students. The number of studies pursued is, of course, even higher, since one student may enroll in several study programmes at the same time; if the present situation remains unchanged the number of studies pursued will be about 2-3% higher than the number of students.

The prospective increase in the number of students in Austria corresponds to that assumed for a number of European countries for the 1970's. The projected growth rates in student figures for the Federal Republic of Germany, to give one example, are approximately the same as those pointed out by model IV.

The percentage of students (share of Austrian regular degree students in the entire population aged 18 to under 26 years) will amount to 7.1 in 1976 and already 8.5 in 1980 according to the lowest estimate. If the highest estimate should apply, the percentage of students would be as high as 10.3 in 1980 as opposed to 5.6 in 1971.

Any possible changes in the study flows would, of course, affect the total number of students. The statistical material available on students studying according to the new studies Acts shows that students are likely to require somewhat less time for their studies under the new regulations than under the old ones.

7.2.2. Expansion and rationalization of tertiary education

The quantitative as well as qualitative expansion of the tasks to be fulfilled by the university will require a further expansion of universities which, however, will not suffice in view of the tremendous increase in costs. In the future, rationalization measures will have to be taken more than ever before. It will no longer suffice to increase the efficiency of the universities by simply providing for more personnel and material resources... In the next few years the expansion of the universities, too, will have to be oriented to the principle of rationalization more than ever before. The guiding principle for the years to come must be first and foremost the expansion of the existing facilities. New facilities are possible only under special circumstances. If new study programmes which already exist at one or several universities are to be instituted the utilization of the available training and education capacities particularly

has to be taken into consideration. The costs of new buildings, facilities, etc., must be juxtaposed to those of an expansion of the existing capacities. Economy takes precedence over the regional supply with educational institutions.

The establishment of chairs and departments must be oriented more than ever before to the demand for training and educational facilities. The primary task will be to provide for a sufficient number of high-quality courses as prescribed for the respective study programmes. It will be necessary to examine in each individual case if new facilities are absolutely required, whereby the existing capacities have to be taken into account. Only if a decisive innovatory impulse for teaching and research can be expected will it be possible to disregard these principles.

It will be of decisive importance to optimally utilize the existing capacity. The primary task is to optimize the utilization of material resources. This concerns questions of the university organisation on the one hand, while, on the other, the traditional forms and principles of the distribution of these resources - and also of the personnel - will have to be reviewed. More than ever before the distribution of resources within the universities will have to be oriented to tasks and efficiency. This possibly also implies the reduction of allocations of resources in fields which are decreasing in importance. The prerequisite is a detailed planning at the individual universities based on priorities in the fields of research and teaching. Adequate planning contains also the possibility for a new distribution of resources; in any case, reason will have to be given for the individual requests submitted by the universities within the scope of such planning.

The evaluation and optimization of the spatial distribution will be based, for example, on the data collected on the available space, utilization and distribution, which will be continuously extrapolated from now on.

The more rational utilization of capacity will be of primary importance with a view to the teaching requirements; the aim should be an optimal utilization of training capacities. The aspect of a regional distribution will have to move to the background. An even utilization of capacities at the individual universities will be necessary. Perhaps it will no longer be possible to fully take the study applicants' preferences for certain university towns into consideration.

Regional and institutional concentration of study programmes possibly includes the discontinuation of certain study programmes.

Expansion of space

The expansion of universities is based on the "Long-term Development Programme for the Construction of Universities" of July 1972.*

* Bundesministerium für Wissenschaft und Forschung, Längerfristiges Entwicklungsprogramm für den Hochschulbau, Vienna 1972.

For 1980 the programme lists a total demand for net useful area of 925,000 m^2. This means that a further expansion by about 400,000 m^2 is required up to 1980. The programme envisages very large areas mainly for the technical universities, for the natural science departments and for the Faculty of Medicine.

DEMAND FOR NET USEFUL AREA IN 1980: BY SPECIALIZED AREAS

Humanities	80,000
Natural sciences	150,000
Technology, mining and metallurgy, agriculture	450,000
Law, social and economic sciences	80,000
Medicine, including veterinary medicine	165,000
Total	925,000

Revisions in setting priorities by specialized areas may become necessary because of changing conditions.

The values (m^2/student) for the various specialized areas will have to be constantly tested for their validity. The present building projects will completely eliminate the space deficit in the humanities and law, social and economic sciences. In the natural sciences the deficit can be reduced by approximately two-thirds; at the faculties of medicine by 50%. At the technical universities, for which a very high space demand has been computed, the deficit can be reduced by approximately one-third.

SPACE DEFICIT BY SPECIALIZED AREAS

	SPACE DEFICIT M^2 NET USEFUL AREA
Humanities	26,000
Natural sciences	62,000
Technology	326,000
Law, social and economic sciences	46,000
Medicine	98,000

Expansion in the field of personnel

If one assumes that the existing staffing ratios are maintained, the demand for posts of all categories would increase tremendously by the

beginning of 1980. It would be necessary to provide for a total of 400-600 additional professorships by 1981, including posts for associate professors under Sec. 10 of the University Organization Act. During the same period the number of assistantships would have to be increased by 2,000-3,000, that of the non-scientific personnel by 1,000-2,000.

Such an increase in the number of authorized posts is difficult to achieve. Permanent increases will be possible only if the posts are distributed in such a way that the differences in the number of personnel available for the individual specialized fields and universities can be balanced. Therefore, the allotment of posts will have to be task- and efficiency-oriented to an increasing degree. It will be possible to allot posts to individual educational and administrative institutions only after the actual and probable efficiency of the institution at a given number of personnel has been examined.

Difficulties in increasing the number of personnel result from the necessity of further utilizing the "pool" of young scientists which has already been considerably resorted to because of the tremendous expansion in the field of higher education over the past few years. Insufficient qualification might be the consequence in individual cases.

In order to relieve the teaching staff, an intensified expansion in the number of administrative personnel is envisaged. Particularly the large-scale departments provided for in the University Organisation Act will constitute a prerequisite for a rational use of better qualified administrative personnel also on the departmental level.

Expansion of libraries

The present uncoordinated system of university libraries, faculty libraries and departmental libraries at the universities is to be replaced by a coordinated and integrated library system organised according to uniform principles and on the basis of the latest findings in the field of library science. In view of the steadily increasing production of scientific literature, such a new system should help to relieve members of the teaching staff in their administrative library work; furthermore, it should guarantee, by the rational use of the limited funds available for scientific literature, that the university members be sufficiently and rapidly supplied with the literature required for teaching and research, but also for study purposes.

This objective is to be achieved by a coordinated acquisition policy and a better use of the available library holdings on the basis of central indexes and a flexible placement of books. This approach will permit fast access to topical literature. Holdings that are no longer or only rarely used can be stored in central depots, whereby teaching and research would be relieved. In this context one has to take into consideration that the book and the periodical are no longer the only means of providing scientific information. There are also a number of other, above all audio-visual, media which will play an increasingly important role in the future. In addition, it is no longer possible for the individual

scientist to survey the entire literature even of his own subject; a fact which necessitates a differentiated access to literature and a selective communication of information. These tasks, however, cannot be fulfilled without using the most up-to-date technical facilities, which can be economical only in large-scale systems.

It will be necessary to reduce or eliminate the disadvantages of uncoordinated university library systems without having to give up the advantages, namely, the proximity of special library facilities to the teaching and research facilities.

The following objectives are to be achieved in order to increase library efficiency:

a) concerning the further development of library holdings:
   - setting of priorities;
   - coordination, particularly in the acquisition of periodicals. The prerequisites are central records, which at the same time facilitate the access to certain titles. Uniform rules for the nominal cataloguing at all libraries concerned will help to achieve this task.

b) concerning the access to literature
   - expansion of central literature records;
   - specific information (e.g., through documentation services).

c) concerning the acquisition of literature
   - accelerated cataloguing of books;
   - open-shelf placement;
   - reduction of waiting time if books are ordered from the depot;
   - expansion of the lending service and telex networks of the libraries.

These objectives are to be achieved by:
- integration (within the individual universities);
- coordination and cooperation between all scientific libraries of Austria;
- description of library functions;
- utilization of outside services (at home and abroad);
- re-organisation and expansion of existing facilities such as the central catalogues;
- documentation services;
- provision of spatial prerequisites for
  i) a rational working process;
  ii) an optimal user service;
- improvement of the internal organisation;
- use of technical facilities;
- rational use of personnel;
- improvement of the training and specific further education of the library personnel;
- creation of the necessary legal bases (University Organisation Act).

Expansion of EDP in the fields of administration, research and teaching

As laid down in the law, the main tasks of the university computing centres relate to teaching, research, university administration and scientific library and documentation systems. The planning of the future development of EDP in the scientific academic realm is facilitated by the fact that at present each Austrian institution of higher learning has an inter-faculty computing centre which is responsible for the specific planning, coordination and control of all EDP matters concerning the universities. Since 1970 the main instrument for medium-term planning has been a two-year prognosis of the quantitative demand. Its main item is a trend extrapolation of the user statistics per university.

Thus, it has so far been possible to localize demand peaks and to initiate measures in time. The establishment of a computer network, consisting of two large-scale computers, in the Vienna area has, for instance, helped to improve - for the next few years - the situation in a region which comprises about 50% of all Austrian students and university departments.

Together with the advance in the hardware technology and with the development and differentiation of software products, but also because of the diversification of individual tasks, the qualitative user profiles in the scientific academic realm have developed very heterogeneously. Quantitative demand prognoses alone will thus not suffice in the future for decisions as to investments in the university EDP sector. However, according to the empirical material available, Vienna, Graz, Linz and Innsbruck, the "academic centres", will be those four main places where large-scale computers with sufficient capacity will be available for quantitative demand peaks (computing time and capacity). Thus, a large proportion of EDP activities which result from "research and development", namely about 70% of the entire volume of activities, can be fulfilled. Since research and development tasks are generally not bound to certain time limits for their completion smaller universities or institutions outside, too, can share the services of the four large-scale computing centres with reasonable response times. The situation will be improved for external users by the gradual expansion of terminal networks around the existing four junctions, whereby the possibility of data teleprocessing will be offered.

Most of the teaching tasks or activities in the field of university administration have to be fulfilled within a certain period of time. Furthermore, the respective educational aims would require that the student be guaranteed access to the computer as far as possible in EDP practicals, etc.

For EDP-intensive study programmes (e.g. informatics) a certain decentralization of EDP intelligence will be required in addition to the existing large-scale computing centres (e.g. information-science computing centres (e.g. information-science computing cores for hardware related practicals, intelligent data stations for student training, etc.).

The tasks in the fields of "university administration" and "library and documentation systems" are occasionally bound to certain time limits and also require large mass memories for the storage of the necessary data banks. This presupposes the establishment and reservation of special mass memories, which can, however, be concentrated in one university town. The Technical University of Vienna and the University of Vienna have EDP installations that are by far the largest and most efficient in the entire scientific academic realm: with due consideration of the technical and organisational possibilities it is planned to concentrate EDP activities concerning the university administration at the Technical University of Vienna and those concerning the "library and documentation systems" at the University of Vienna.

Furthermore, the access to the data banks or to programme libraries over major distances necessitates the rapid expansion of technical communication facilities between the various university computing centres. The international trend toward reduced hardware costs has enhanced the possibilities of a somewhat more generous establishment of intelligent peripheral equipment that would also meet user demands to a greater extent. This applies in particular to the field of process control computers, where already today the use of micro-process control computers permits a meaningful process-dependent real-time processing.

The medium-term aim is the establishment of an Austrian computer network which constitutes a technical and economically optimal balance between the high degree of decentralization of scientific users and the need for technical and organisational concentration in the operation of EDP installations. Especially for the field of research such a computer network will be of great importance, as this is the only guarantee for an optimal access to the entire hardware and software facilities available in Austria. The fundamentals for planning an Austrian computer network in the scientific academic realm will be elaborated by the Institute for Information Processing of the Austrian Academy of Sciences in cooperation with the International Institute for Applied System Analysis and the respective Austrian university departments.

Rationalization of teaching and instruction

The rationalization of teaching and instruction will require more attention. It remains to be reviewed which opportunities are offered. Measures will be necessary in the following areas:

- cooperation and coordination of the individual educational facilities;
- division of labour among the teaching staff;
- testing of new teaching methods that require fewer teachers;
- quantitative and qualitative increases in the teaching efficiency by removing certain administrative tasks;
- increase in the students' academic performance.

The rationalization of teaching and instruction will be an essential aspect of the continued study reform in several respects:

- testing untraditional forms of university training incurring lower costs;
- didactic innovations;
- constant review of the contents of training and education with regard to their necessity;
- evaluation of the "rationality" of qualification levels.

Finally, the academic success of students will also have to be ensured by the integration effects of an educational reform which will mainly have to concentrate on the encouragement of primary motivations.

The increase in the academic success, i.e., an increase in success rates as well as a reduction in the duration of studies, is an important responsibility. For this purpose the study flow statistics are being expanded. At present, some investigations into the reasons for study failures are being carried out which should permit the weighting of the causes.

The large percentage of study failures, as demonstrated by the drop-out rates, indicates for example - even without weighting - that the problem of study failures must be considered to be also a problem of the institutions and not only of the individual student.

In solving this issue a close interdependence between the teaching efficiency of the institutions of higher learning and the academic success of students must be assumed to exist.

Positive measures to raise the academic success of students are the following:

- facilitating the change-over from secondary schools to the requirements of university studies;
- improving academic counselling to avoid the choice of a wrong study programme and to inform about the general and specific requirements of certain studies;
- improving counselling on the requirements of talent, and
- increasing the use of learning aids.

It will be necessary to examine the extent to which the academic success of the individual student can be increased outside formalized teaching by training him in learning techniques as well as in methods of scientific work, by the promotion of new forms of learning, e.g., informal work groups, and by counselling.

7.2.3. Continuation of the study reform and expansion of the training programmes offered at institutions of higher learning

In addition to expansion and rationalization, the development of institutions of higher learning will have to centre around the continuation of the study reform and the expansion of the education offered at universities.

The programme of continuing the study reform is closely connected with the above-mentioned development perspectives and a number of other problems, namely:

1). orientation of university planning to the educational demand;
2) rationalization of teaching and instruction;
3) heterogeneity of the qualitative educational demand;
4) heterogeneity of the student population with respect to their social backgrounds;
5) differentiated requirements of the labour market;
6) partial social disintegration of certain parts of the student population;
7) high drop-out rates and long duration of studies;
8) involvement of new target groups in university education - under the aspects of equal opportunities and adult education;
9) importance of new educational objectives.

The continuation of the study reform

The legal reform of regular degree studies is virtually completed. However, the objectives of the Studies Acts and the General University Studies Act have not yet been fully implemented in all areas. The basic concept of the study reform is not that of a limited reform, but provides for a constant adaptation process to new requirements. Other aspects of the university reform, such as rationalization of teaching and instruction, are also important for the continuation of the study reform.

A reform of university studies is not a one-time event: it calls for a constant adaptation of the study regulations to changed conditions, above all, to the progress of science and new professional requirements. For this purpose we need a continuous flow of relevant information within and outside the realm of higher education. New techniques must be developed for the interpretation and continuous evaluation of such data. Specific agencies must be entrusted with these tasks in order to guarantee that the relevant conclusions will immediately lead to amendments of the study regulations and thus help to improve the actual course of studies. The collection and processing of data presupposes, however, certain administrative reforms.

As concerns diploma studies the following demands have to be made:

- continuous revision of curricula vitae to new scientific findings and methods and the requirements of the labour market;
- increased usability of education and training with regard to subject matter and the actual implementation of educational objectives.

The explanatory notes to the General University Studies Act list a number of such educational objectives.

In the future, the emphasis will have to shift from the availability of factual knowledge to the capability and readiness to learn and to apply new findings. Students have to be taught new methods and techniques

to apply scientific findings, they must learn the principles of interdisciplinary teamwork, and acquire the ability to critically formulate problems and find new solutions for them. The problems caused by the use of scientific findings extend also to the consequences of the application of science. In the future, it will be indispensable to establish a closer relation between university education and practical needs and professional requirements. This applies in particular to the introduction of new diploma studies.

These new studies will usually be characterized by a differentiation as to professional fields rather than scientific disciplines. Consequently, new study programmes will overlap to a larger degree than so far. New study programmes that develop out of the differentiation process within a discipline will have to be closely investigated as to the extent to which the educational contents of the original study programme are actually needed.

Under the General University Studies Act the scientific character of doctoral studies should be further emphasized. They are full-time studies with a high scientific standard. Their main function is the training of the young scientists for the university and for extra-university research. Doctoral studies, however, impart only to a limited extent the specialization necessary for the respective professional careers. New forms of studies, designed to further specialization as to subject matter and future professions, e.g., post-graduate studies, must be tested.

The General University Studies Act also stipulates that the university has to educate graduates in such a way that they can assume special political and social responsibility. These educational objectives imply the universities' responsibility for political education; at present, however, the university fulfills this task only to a very limited extent.

The political behaviour of the students is generally characterized by disinterest and disengagement. On the other hand, however, extreme political attitudes arise out of a polarization of students' and university teachers' attitudes. The frequently changing ideologies of the social and political student movements show how difficult it is for the students to find a standpoint that corresponds to reality.

The universities' tasks in respect of political education must not be understood in the sense of a political and ideological engagement of the universities.

Precedence must be given to discussion: with a view to their future professional and social positions the students should acquire a better understanding of socio-political events and developments. For scientific education, this means a discussion of the relation between science and politics and the economic and social utilization of science and scientific qualification. By integrating the students into decision-making processes within the university, the students should be able to develop their ability and willingness to participate and share responsibilities.

Generally speaking, the offerings in the "Hochschulkurse" and "Hochschullehrgänge" are rather limited at present. It will be an

important task of the universities to reduce this deficit in the field of adult education, post-graduate studies and further education of students and graduates.

An exchange of information between universities that have already some experience with such programmes and those that have not will play an important role.

A reform of didactics will be an important tool for the continuation of the study reform and the rationalization of teaching and instruction.

University didactics allows for a scientific approach to the reform; thus didactics plays an important role in university organisation and is essential for the self-realization of teachers and students. It should assist above all in the development of curricula and teaching methods. Furthermore, it should help prepare scientists for future teaching activities and allow for an analysis of student expectations as to subject matter. University didactics should not be understood as a metascience of teaching and the selection of subject matter. It is a field of the social sciences and deals with the cognitive process at the university level and consequently with the concept of qualification itself. This integration into the practical context of qualification objectives and study practice is essential since a reduction of university didactics to pure methodology would be senseless; it would reduce it to a hybrid control ideology of the entire teaching process. (See the planned establishment of departments for university didactics in the government bill of a University Organisation Act).

The study commissions will continue to play a decisive role in the study reform. For this purpose the commission members must receive further training. The possibility of a low-cost unbureaucratic information system of the commission members should be investigated.

7.2.4. Second phase of the study reform

The reform of the present regular studies has been concluded as concerns the legal foundations. Now the reform has to be implemented. Then, a second phase of the study reform will have to be initiated in order to expand the education offered at the universities. This expansion will have to be examined in the light of all education and training functions of the universities: professional training, recruitment of young scientists, education through science and the further education at universities.

The concrete types, the scope and institutional bases of those new educational programmes will have to be discussed within the realm of educational policy. Such a discussion will probably include all aspects of the structure of university training, i.e., access, duration of training, professional orientation of the training programmes, participation in university studies, teaching and studying techniques, degree of specialization of the training programmes, qualifications, proof of academic success, the position of research in training, etc.

It is necessary to avoid wrong investments, to be able to revise measures and to guarantee that new creative solutions can actually be realized; in order to do this we have to undertake study experiments in a broad sense and collect empirical data.

Study experiments

The university development until 1980 will be characterized by an experimental phase with new types of training programmes. The study experiments to be undertaken will have to be geared mainly to the qualitative aspects of the educational demand and the need for university graduates. These study experiments start from the assumption that all aspects of the present educational structure must be regarded as variables. These experiments, which must have highly innovatory features, must go beyond the present study experiments which permit only variations in the combination of subjects, but are otherwise integrated into the regular degree studies. The study experiments must be undertaken at institutions of higher learning; however, coordination with school experiments outside the universities will be indispensable.

These new study experiments must be supervised scientifically and subjected to a rigid control as to their success; whether or not this requires a separate institution remains to be investigated.

It should also be investigated to what extent existing models can be used for these study experiments. At the same time investigations should be made with particular reference to the qualitative aspects of the demand for university graduates. The study experiments must be based on the latest findings in didactics, educational economy and curriculum research.

The following types of studies should be taken into consideration: part-time studies for employed persons, distant studies, short-cycle studies, special job-related studies, project studies, etc.

Experiments should be made with all types of studies to the extent that they can be justified by the demand for university graduates, as such experiments render valuable empirical data.

From the point of view of feasibility and the wish to minimize negative effects study experiments should not be carried out on a large scale. Therefore, a decisive expansion of education and training by means of successful study experiments is a long-term perspective. The continuation of the study reform in the present educational structure and the reduction of educational deficits within the framework of the present supply structure becomes thus even more significant.

The problems of the innovation of university studies can be summarized as follows: Such problems must be dealt with by all groups concerned with teaching at the university (professors, academic intermediary staff, students); these joint efforts to solve the problems of the study reform can be institutionalized in an adequate manner. The formulation of study regulations should be a cooperative venture of the institutions of higher learning, the university administration and the

legislator with the participation of the social partners. The continuous adaptation of the study regulations to the rapid changes in modern society, in particular the development of science and the professional requirements, cannot be effected by empirical reports alone. Therefore, the information systems at the universities must be expanded in order to allow for a continuous observation of the study flow and the studying habits. Outside the realm of the university special importance must be attributed to the collection of sufficient information on professional requirements; these data must be gathered by scientific methods and must be subject to scientific examination. In the formulation of academic study regulations special weight must be given to didactic findings: University studies must be subject to scientific investigations to a much greater degree than to date.

Two experiments involving drastic changes have already been prepared:

a) admission to regular degree studies by the institutions of higher learning themselves through the university qualification test ("Hochschulreifeprüfung");
b) introduction of distant studies.

Access to the university through the university qualification test ("Hochschulreifeprüfung")

The Federal Ministry of Science and Research has submitted a draft of a Federal Act on the experimental introduction of preparatory courses for a university qualification test.

This experiment is designed to regulate the access to universities of applicants without secondary school leaving certificates.

"Sec. 1, subsec. 1. In agreement with the Federal Minister of Education and Art, the Federal Minister of Science and Research shall provide for the experimental introduction of preparatory courses for a university qualification test in the academic years 1974/75 to 1979/80."

Already since 1945 persons without secondary school leaving certificates have been granted access to specific university studies by a so-called "Berufsreifeprüfung", which, however, no longer meets current needs (see 2.2.5). Only a relatively small number of persons has ever utilized this opportunity; the number of those who have subsequently completed university studies is considerably smaller.

According to the Bill ten-month preparatory courses for individual study programmes are planned in which the required knowledge for said programmes is imparted. No specific prior knowledge is expected for admission to these courses; the applicants, however, must pass an aptitude test. These ten-month (full-day) preparatory courses are concluded with a university qualification test.

After passing the university qualification test the candidates as well as the persons having passed the "Berufsreifeprüfung" will be entitled to enroll as regular degree students in a specific study programme.

The aptitude test will be held before a three-member selection commission. It is hoped that the respective full professors will assume this function. Detailed provisions for the curricula of preparatory courses as well as the mode of organizing the university qualification test will have to be laid down by the Federal Ministry of Science and Research in agreement with the Federal Ministry of Education and Art.

The reorganisation of the "Berufsreifeprüfung", dating back to 1945, should, for the time being, not be affected by the present Bill. It is planned to introduce an admission restriction for this method of attaining university qualification. Under Sec. 2, subsec. 5, the total number of participants in the preparatory courses must not exceed five per cent of the Austrian study beginners of the preceding academic year.

Distant studies

An Austrian distant study plan is being prepared. A work group, consisting of representatives of the universities, labour and management and other experts, gives advice to the Federal Ministry of Science and Research.

Distant studies will have the following three main objectives:

1) relief of existing educational institutions;
2) creation of additional study possibilities;
3) increased possibilities of access to the universities.

Ad 1). It is being investigated in which regular studies and in which sections of studies the use of distant study methods should be recommended. Controlled experiments are planned for mass subjects, for studies where de facto distant study methods are being applied, and in different branches of science. A detailed cost comparison with normal studies is being carried out. The quality of studies should be improved.

Exemplary teaching material should also have a feedback effect on the normal type of studies.

Ad 2). At first the introduction of post-graduate studies is planned. Based on the new methods new study programmes should be introduced, which are not given much attention in traditional teaching.

The foremost principle is a high degree of professional orientation. These new studies are expected to be more attractive to persons already employed than traditional study programmes.

It is planned to start with specific experiments limited in scope.

Ad 3). An institution similar to the "open university" is not being discussed at present. The possibilities of preparatory courses for the admission to regular degree studies without secondary-school leaving certificates as well as the possible use of courses without admission restrictions (after the formal preparation) are being investigated. Unlike other efforts, these programmes are scientific in nature.

The activities are based on the international findings in this field. A different use of the individual media in the three fields mentioned above is most likely.

7.2.5. Organisational reform

The government Bill of a University Organisation Act is presently under parliamentary consideration.

The guiding principles of the organisational reform are:

- freedom of scientific research and teaching;
- the combination of research and teaching;
- the diversity of scientific teachings and methods;
- democratic participation and co-determination of all persons active at universities, according to qualifications (as demonstrated by equal representation of the groups concerned); i.e., democratic cooperation rather than hierarchical authority of full professors;
- the interaction of teachers and students in scientific teaching and research and in the policies of academic authorities;
- universities as socially responsible institutions in accordance with and - in the light of their importance for the scientific-technological development - as pioneers for the development of society;
- an organisation which is not guided by traditions, but by the optimal use for research and teaching in order to increase efficiency;
- an administrative structure meeting present-day requirements and guided by the principles of economy, efficiency and low-cost operations; and finally
- the division of responsibility between university and society.

Organisation and co-determination

In agreement with the official government statement of April 27, 1970, the principle of the reform of departments, faculties and top university administration was incorporated in the draft of the University Organisation Act, which is presently under parliamentary review; in the form of differentiated parities, especially in the commissions to be instituted at the faculties' discretion. This reform principle is based on an organisational principle which ensures the participation and co-determination of all those involved in the scientific process according to qualifications, and which also guarantees the transparency of the process of policy and decision-making.

In the study commissions, which have generally proved to be successful, the one-third parity has been maintained in view of the tasks which are mainly connected with the studies per se.

The departmental organisation provides that the department head - who is elected from among the full professors and who is responsible for the administration of the department - is assisted by the department conference. The department conference has to ensure the co-responsibility and co-determination of teachers and students engaged in the scientific tasks of the department, subject to their functions and qualifications. The number of assistants and students is equal to that of professors

from the department; the department conference forms a quorum if at least 50% of its members are present.

The collegiate body of a faculty may institute standing and non-standing commissions with the authority to pass decisions on all matters delegated to them. Above all, provision is made for special commissions, budget and planning, staff, habilitation and appointment commissions. Additional commissions are assigned inter-faculty and inter-university tasks. These authorized commissions are to be instituted at the discretion of the individual collegiate bodies of faculties on the condition that all groups are represented, however, without a majority of one group.

Within the planned university organisation with its special emphasis on the faculty, it will be possible to apply the principle of the division of labour. Thus, the present faculty is of an intermediary size between that existing up to now - many times considered too large - and the faculty under discussion.

At the same time, however, the principle of the division of labour by delegation is realized in the model of commissions authorized to pass decisions (even up-to-now, most collegiate bodies have worked with commissions, which, however, have had no power of decision). Thus, the collegiate body of a faculty will meet less frequently than to date; extremely long meetings of the faculty, which have been considered a burden, should be avoided. By authorized commissions, operating on the principle of the division of labour, meetings should be reduced to the necessary minimum; moreover, this should ensure that the commission members be more familiar with the respective issues. Ultimately, in the Academic Senate, the supreme collegiate body and supreme academic authority, all persons active at the university are represented in a well-balanced parity.

The bodies at the universities will also include two representatives of the non-scientific personnel. This provision meets the requirement for co-determination of all persons active at the universities.

Co-determination as provided for in the draft of a University Organisation Act reflects the appreciation for a principle of university policy, on the one hand, and a broader basis for an efficient decision-making process and the co-determination of all persons active at the universities in teaching and research, on the other.

Under the new University Organisation Act, all degree-granting institutions of higher learning should be named "universities". Thus, the University Organisation Act is not only a response to the requests of the competent academic authorities and the Conference of University Rectors, but also takes into account the progress of science, i.e., a broadening of the "universitas" of science, its diversification, differentiation and specialization. As already mentioned, the size of a faculty lies between that of the present traditional faculty, which in many cases is considered to be too large and only conditionally operational, and that of the specialized area, which is referred to as faculty

in the draft under discussion. The proposed division of the faculty was made after discussions and hearing the competent academic bodies.

The new structure of universities will be based on three cooperative levels:

On the lowest level - the department - all scientific teaching and research tasks of the respective department, and related administrative tasks in connection with them are performed. The departments are the smallest independent organisational units for teaching and research; as such they are those institutions where the actual scientific work, i.e., looking for scientific findings, teaching, i.e., scientific preparation for a profession, professional training and education through science as well as the training of young scientists are performed. According to the "detailed structure" of departments, divisions may be established for scientific priorities (specific teaching tasks, auxiliary and supplementary subjects, etc.) as well as work groups for the implementation of specific research projects, university extension courses, etc.

All departments of a specialized area or a group of specialized subjects are incorporated in a faculty. The collegiate body of a faculty is the superordinate academic authority responsible for the handling of matters that are relevant to several departments, unless central bodies are competent. Undoubtedly, in the fields of both autonomous and government spheres of competence, the administrative responsibilities of the university are concentrated on the faculty level. Therefore, as already mentioned, the principle of the division of labour is implemented by the authorized commissions. This principle offers the advantage of a more rational administration on the faculty level.

The Academic Senate as the supreme academic authority and the Rector are in charge of central university government. On this central level the planning, coordination and control of scientific research and teaching, the various activities of university institutions and university management are to be carried out.

The longer term of office of the Rector of the university is new; the direct functional term of office is two years, which are preceded by one year as pre-rector and followed by a year as pro-rector. Thus, a greater continuity of this managerial function is to be ensured in the interest of the university.

Administration

In the interest of a more efficient university administration, central institutions, such as the Rector's Office, the Bursar's Office, etc., will be structurally reinforced and adapted to modern management principles; additional central facilities, such as data centres, large equipment divisions, research institutes, etc., are planned. Especially the central facilities of data centres and large equipment divisions, which already exist at some universities (e.g., at the Linz School) and faculties, are expected to result in further rationalization and cost savings by the optimal use of devices and equipment. Above all, this holds true for

especially comprehensive and expensive technical installations, the EDP centres, which are used both for scientific research and teaching and administrative tasks as well as for the library, documentation and information systems. The above advantages also refer to the use and the administration of other expensive larger technical installations and devices which are used at modern universities. The servicing of these devices and equipment by special large equipment divisions offers the following advantages over the present administration through individual departments (clinics): a more rational use by several departments - e.g., electron microscopy -, a better servicing and maintenance of such equipment as well as a greater reliability in the operation of equipment, and finally also a more rational use of personnel.

It is the aim of the university administration reform to entrust the universities with more tasks than so far and thus to strengthen their autonomy.

The Academic Council is a real link between the universities and the economy on the one hand and the state, economy and society, on the other; in the draft of the University Organisation Act it has been structured in such a way that in addition to the groups active at universities also the major social strata are represented.

The universities are scientific institutions with a social responsibility; as such they should be integrated into society and its development and serve society as a whole.

7.2.6. Expansion of counselling services

Sections 2.3.2. and 2.5.4.* report on the facilities and activities of student counselling services. Expectations for better orientation of students and better information of the public will be closely linked to the expansion and the changes of existing facilities and their methods. Detailed cost/efficiency considerations are still necessary. It is certainly desirable to optimize the present counselling model in which various agencies give information on partial areas; it should be assimilated to the ideal type of an "integration model", in which the counselling task is efficiently fulfilled as a unit.

Practical experience has shown that no separation is possible between professional guidance and information, between academic counselling and information and between professional guidance and academic counselling.

Information and counselling activities should be gradually intensified:

1) profession and subject seen in the light of the demand for experts as opposed to individual talents and claims;
2) organisation of studies, study programmes offered, administrative conditions for studying;
3) social, economic marginal conditions of studies.

* These sections in the original report have not been reprinted in the present volume.

Counselling should not only be directed toward university students or secondary school pupils. If educational guidance should prove a suitable control instrument the social structure of the individual decision-making processes must be considered. Young people will hardly decide alone on their further course of education, but a number of opinion leaders will exercise a considerable influence. The target group of "trainees" should not be limited exclusively to pupils and students. The possibilities of using also mass media have to be investigated.

Also the value of an "orientation semester", which is sometimes discussed, should be examined. This includes:

1) the obligation to make use of the counselling services;
2) the obligation to attend courses which deal with the requirements of studies;
3) the possibility of attending courses in the entire post-secondary field for which credit will be given at a later time.

7.2.7. Institutionalization of planning

The Federal Minister of Science and Research has the political responsibility for the institutions of higher learning and thus also for university planning. The infrastructure required for the planning activities (e.g., data bank, scientific intelligence) has been developed in the Federal Ministry of Science and Research and is being further expanded.

The University Organisation Act will create the necessary prerequisites, so that decentralized planning and development activities are intensified at the universities or can be started in some fields. The right to make substantiated requests and to exercise planning functions, respectively, is envisaged for all levels.

There should be an interaction between initiatives taken in the individual fields at the universities and the overall planning activities of the Ministry.

It will be important to bring more rational elements into university development. Those who are responsible must be given more information, not only in the form of data, but also in the form of analyses. The decision aids the Ministry has at its disposal in responding to expansion proposals and other wishes will be expanded qualitatively and quantitatively. Guidelines and standards are being developed; they should become binding for the Ministry and the university in the course of time. This would bring about a situation where applications are made with the full understanding that they will be examined and evaluated on the basis of known criteria. The prestige of science and scientists will, at least to some extent, no longer constitute the only argument.

Of course, innovations will be introduced not only on the basis of guidelines and standards; rational arguments rather than the intention of arriving at a uniform set-up should be the guiding principles.

Science may prove the correctness of a policy, yet the status of a scientist is not proof of the scientific nature of his policy. Decisions

on scientific issues are only in part governed by the scientists' competence in the respective fields. Political competence results from the representation of interests. It is therefore necessary to think and act in political dimensions on all levels of university planning.

A valuable discussion of the basic development tendencies in tertiary education could develop out of the analyses and proposals contained in this report; they could also serve as starting points for various measures. The further consultations and discussions could be carried on in a joint body ("University Planning Commission") in which the Ministry, the groups at the universities, economic and social interest groups as well as other experts are represented; the Federal Minister of Science and Research would hold the chair.

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