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**WASTAGE  
IN  
COLLEGE  
EDUCATION**

# Wastage in College Education

Two studies about students  
of the University of Poona

A. R. Kamat

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Poona  
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## FOREWORD

The Institute undertook nearly twenty years ago an investigation into lapse into illiteracy. This was followed some years later by an enquiry into wastage and stagnation in Primary Education. The present publication represents results of an enquiry into some aspects, including wastage and stagnation, of higher education in India. The publication is divided into two parts. The first relates to an investigation conducted in relation to a set of students who joined the Fergusson College, Poona, between 1949 and 1951. The second part presents results of the analysis of failures in the Pre-Degree examination of the Poona University undertaken at the request of the Vice-Chancellor of the University. The first part is concerned with estimating wastage and stagnation among students joining various types of faculties and colleges. The results of the investigation are directly relevant in relation to a consideration of the organization of University teaching, the structure of courses of study, the significance of results of examinations, etc. However, they also throw light incidentally on the academic career of various groups of students as related to their socio-economic background and current economic situation. The chapters dealing with student performance and the careers of 'bright' students are specially useful in this context. The data presented in Part I also indicate some trends in relation to enlistment of students in particular directions and would have significance for man-power planning if the sample examined can be taken as representative of conditions in large parts of the country. The data would appear to indicate that those with the best results at examination tend to take chiefly to medical, engineering and natural science studies. This leaves social sciences and the humanities with relatively unpromising material; the effects of this trend are already noticeable and apparently the trend is evident even in other countries of South Asia.

The results of both the investigations have greatest relevance to the examination system and the structure and method of examination. The first part contains discussion of results of the S. S. C. examination as indicators of future performance of students and the second is very largely concerned with the possible effects in terms of student performance and future career of students, of particular structure of examinations, and modes of conducting them. It is for educationists and pedagogic experts to comment further on the results of the statistical data presented in this publication and to draw conclusions from them. It is hoped that they will consider that this preliminary essay in statistical analysis has been in the right direction and provides some useful initial material.

Gokhale Institute of  
Politics and Economics,  
January 22, 1963.  
Poona 4.

D. R. GADGIL

## PREFACE

This book consists of two studies on student performance in the University of Poona.

The first investigation by A. R. Kamat and A. G. Deshmukh considers a three-year entry of freshers to the Fergusson College, Poona, and follows them until they have taken the first degree or left education without taking it. It deals with the problem of estimating wastage and stagnation in college education. The results are also analysed by several relevant factors such as the S. S. C. examination marks, sex, age at entry and others.

The second investigation by A. R. Kamat analyses the failures at the Pre-Degree examination of the University of Poona held in the year 1961. This examination has been newly introduced by the University as a prelude to the three-year integrated degree courses. The investigation was undertaken at the desire of the former Vice-Chancellor of the University, Professor D. G. Karve. It tries to focus attention on those areas of the examination where the incidence of failures is very high. It is believed that this will be useful in dealing with the problem of the large number of failures in this examination and for devising remedial measures.

The authors are grateful to: the authorities of the Fergusson College for allowing them the use of their records; to Professor D. G. Karve for suggesting the second project and his kind interest in these problems; the authorities of the University of Poona for the use of the record of examination results; the Government of India for awarding a Senior Research Scholarship to A. G. Deshmukh for working on the first project under the guidance of A. R. Kamat; to the authorities of the Maharashtra S. S. C. Examination Board for making available the S. S. C. marks of some students for the second project; to the Statistics Department of the Poona University for the use of their equipment for a part of the processing of data of the first project; and to Shri J. K. Wani who did a major part of the processing of the data of the second project.

Poona,  
January 15, 1963.

A. R. KAMAT,  
A. G. DESHMUKH

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*Part I*

**AN INQUIRY INTO THE WASTAGE AND  
STAGNATION IN COLLEGE EDUCATION**

**A. R. KAMAT  
A. G. DESHMUKH**

## CHAPTER I

### INTRODUCTION

MUCH has been said during the last few years in the press and from the platform about wastage and stagnation in education. The comments have generally been provoked by the large number of failures in the school leaving examination and in many examinations at the University stage. In order to get some idea about the magnitude of the problem investigations were planned on a modest scale based on students of the Fergusson College, Poona. In this chapter, we describe the method of investigation followed by us and summarize the broad features of the data obtained.

A three-year entry of freshers to the Fergusson College was considered for this purpose, and the careers of all the students who joined the college in the first year class, in Arts or Science, in 1949, 1950, and 1951, were followed until they passed out after taking B.A. or B.Sc. degree, or left the Fergusson College to join some other college, course, or university, or simply dropped out. A period of eight years was thought adequate for this purpose; students who did not succeed in getting the first degree within eight years of their joining the first year class were considered to have a very remote chance of doing so after that period.

Information was collected from the college records, the main sources being the admission forms which are filled in by all students every year, the results of the Poona University examinations, and the register of leaving certificates of the college. The students who left the Fergusson College to join another local college were followed up with the help of the records of that local college and the results of the examinations held by the Poona University. In the case of those who joined colleges outside Poona but affiliated to the Poona University, attempts were made to trace them in the examination results of the University. However, we did not try to follow up students who joined other universities as that would have extended the scope of the enquiry beyond the modest scale on which it was planned, and in any case it would have been very difficult to do so. It should be emphasized that no questionnaire was issued and no interviews were taken. The relevant information available in the above-mentioned sources alone was collected and it was recorded on cards prepared for this purpose. (The design of the card is reproduced on the next page.) It was then put on punched cards for analysis.

#### *Some Explanation*

It is perhaps necessary to explain why the period 1949-51 was selected. It may be recalled that the new Secondary School Certificate (S.S.C.) Examination of the Bombay State replaced the old Matriculation Examination of the Bombay University in the year 1949. As it happened the

*Design of the card**General Information**Type :—**Serial No. :—*

- I (1) Name .....
- (2) Birth-date ..... (3) Caste, Sub-caste .....
- (4) Birth place .....
- (5) Male/Female ..... (6) Married/Unmarried .....
- (7) Address in Poona .....
- (8) Type of lodging .....
- II (9) Father's (Guardian's) Name .....
- (10) Address (Guardian's) .....
- (11) Occupation ..... (12) Annual Income .....
- III (13) *Other Information*
- (1) N.C.C. (2) Scholarship (3) Concession in fees

## IV

Year	College	Subject	Marks			Class	Remarks
			Ob- tained	Out of	Per cent		

## V S.S.C. Examination

- (1) Year .....
- (2) School .....
- (3) Marks ..... Out of ..... Percentage .....

Poona University also was established in 1948-49, and consequently, students who joined the college in 1949 or thereafter could ordinarily be followed locally in the records of the college and the University. We stopped with the 1951 entrants as this gave us the period of eight years (mentioned above) up to 1959, when the enquiry was completed.

Before presenting our results it may be desirable to describe briefly some features of the Fergusson College relevant to these investigations. This college is one of the oldest colleges in Poona, and prepares students for a degree in arts or science. For the last many years its total strength has been between 1,800 and 1,950, of which a little less than three-fourths study science. The performance of the college at the university examinations is usually higher than the average performance in the university as a whole. The examination at the end of the first year in college which was till recently conducted by the colleges concerned was said to have

been stiffer in this college than in most other colleges. Selection is exercised at the time of admitting students to the first year class, especially to the science class, with the result that students joining the Fergusson College have, on an average, a better performance at S.S.C. examination than those joining most other arts or science colleges belonging to the Poona University. (This is reflected by the figures quoted in Table 1.8.)

We are, therefore, dealing here with a subgroup which is not entirely representative of the main group of college students in the Poona University. Even so it is felt that the results of these investigations deserve a careful scrutiny and should throw much light on the problems of wastage, stagnation and the course of careers of college students in this part of the country.

It should be helpful for understanding if we briefly describe the structure of the degree course in arts or science of the Poona University during the period 1949-59. A student was eligible for admission to a college affiliated to the Poona University provided he had passed S.S.C. examination (for which the passing percentage was 35) with English as one of the subjects, or any other equivalent qualifying examination. The degree course which was of four years divided itself into two natural stages of two years each. The examination at the end of the first year was conducted by the college and at the end of the second year the first university examination, the Intermediate examination in arts or science, was held. This examination was a qualifying examination for those who wished to take law, engineering, medicine or *Ayurved*. After passing Intermediate examination, students who wanted to continue the arts or science course were given instruction for two more years at the end of which period they appeared for the degree examination, B.A. or B.Sc.

Table 1.1 gives the number of fresh entrants to the first year class of the Fergusson College during the three-year period 1949-51. As it is not our objective to study the trend, and for which in any case a three-year period would be too short, the data is pooled before analysing it. This will also smooth out any special conditions which may have been operating in any single year.

TABLE 1.1 : *Number of fresh entrants to the first year class of the college during 1949-51*

Class	Year			Total
	1949	1950	1951	
Arts	141	156	149	446
Science	529	549	556	1,634
Total	670	705	705	2,080

*Sex and Marital Status*

The distribution of the students by sex and marital status is given in Table 1.2. The number of married students is indeed very small for both sexes. Women students form more than 40 per cent of students joining the arts class and they are also greater in number than those joining the science class.

TABLE 1.2 : *Sex and marital status*

	<i>Arts</i>			<i>Science</i>		
	<i>Unmarried</i>	<i>Married</i>	<i>Total</i>	<i>Unmarried</i>	<i>Married</i>	<i>Total</i>
Men	249	6	255	1,472	9	1,481
Women	179	12	191	150	3	153
Total	428	18	446	1,622	12	1,634

*Native Place*

Where do these students come from? This question is answered by Table 1.3 which classifies them by guardian's address. More than half

TABLE 1.3 : *Classification of students by guardian's address*

<i>Guardian's address</i>	<i>Arts</i>			<i>Science</i>		
	<i>Men</i>	<i>Women</i>	<i>Total</i>	<i>Men</i>	<i>Women</i>	<i>Total</i>
1. Local (Poona City & Suburbs)	135	138	273	740	104	844
2. Poona District	14	3	17	68	2	70
3. Satara (North and South)	24	15	39	138	9	147
4. Ahmednagar, Nasik, Sholapur	32	9	41	179	8	187
5. Kolhapur, Ratnagiri, Goa	6	1	7	42	2	44
6. Bombay, Kolaba, Thana	8	7	15	60	6	66
7. Khandesh	22	1	23	115	7	122
8. Marathwada, Vidarbha	2	4	6	19	2	21
9. Gujarath	5	1	6	24	1	25
10. Karnatak	3	3	6	34	2	36
11. South India	—	1	1	10	2	12
12. North India	2	3	5	26	3	29
13. Outside India	1	4	5	21	5	26
14. Blank	1	1	2	5	—	5
Total	255	191	446	1,481	153	1,634

or them are local students. This is even much more so for arts students and for women students as a whole. Results obtained by classifying students according to schools from which they passed the S.S.C. examination confirm this conclusion. Students coming from mofussil places are spread over all districts of Maharashtra. It is interesting to see that students also come from far away regions like Gujarat and North India, and that parents living in Bombay like to send their wards to the Fergusson College. In spite of the fact that colleges have sprung up everywhere some parents prefer to see their sons (and to a lesser extent also their daughters) study in the Fergusson College. The two main reasons would be the standing and reputation of the old college and a desire to see their offsprings join the Alma Mater through whose portals they had passed a generation ago.

### Caste

The caste distribution is given in Table 1.4. More than 50 per cent of men students and more than 70 per cent of women students are

TABLE 1.4 : Caste

Caste	Arts			Science			Average age (years)	
	Men	Women	Total	Men	Women	Total	Arts	Science
1. Brahmin	124	139	263	794	113	907	17.59	16.61
2. Maratha	46	13	59	121	10	131	18.65	17.80
3. C. K. Prabhu & allied castes	11	20	31	48	13	61	17.27	16.38
4. Jain, Marwadi, Gujarathi, etc.	22	6	28	199	5	204	17.89	17.41
5. Lingayat, Lewa Patil, Sonar, Wani, etc.	21	5	26	136	2	138	18.88	17.85
6. Mali, Sutar, Parit, Kumbhar, etc.	10	1	11	36	2	38	18.82	18.21
7. Backward classes*	6	1	7	44	—	44	21.00	18.32
8. Sindhi, Punjabi, Sikh	4	1	5	55	4	59	—	—
9. Christian, Parsee, Muslim	8	5	13	31	4	35	—	—
10. Others	3	—	3	12	—	12	—	—
11. Blank	—	—	—	5	—	5	—	—
<b>Total</b>	<b>255</b>	<b>191</b>	<b>446</b>	<b>1481</b>	<b>153</b>	<b>1634</b>	<b>—</b>	<b>—</b>

\* These include scheduled castes, scheduled tribes and other castes which are entitled to certain government concessions.

Brahmins. The proportion of women students in the C.K.P. (Chandra-seniya Kayastha Prabhu and allied castes) group is also very striking. The overwhelming proportion of students from advanced communities as compared with those from backward communities is a feature of college education all over Maharashtra and, perhaps, over all parts of India; it may be more in evidence in Poona City. It is also interesting to note that the number of students whose mother tongue is other than Marathi is not negligible.

#### *Guardian's Occupation*

The social strata from which the students come are given in Table 1.5. The large number of blanks in this table is explained by the fact that this information was not asked for in the admission form of the college in 1949 and 1950. In the case of the majority of entrants for these two years this information was collected from their admission forms in their later years in the college. As there is no reason to suppose that the blanks form a special group, the actual distribution of students by occupation of their guardians should not differ much from the one obtained in the table.

TABLE 1.5 : *Guardian's occupation*

Occupation	Arts			Science		
	Men	Women	Total	Men	Women	Total
1. Service (annual income above 3,000)	13	25	38	138	27	165
2. Service (annual income less than 3,000)	46	16	62	207	12	219
3. Business (annual income above 3,000)	21	16	37	126	11	137
4. Business (annual income less than 3,000)	17	2	19	109	2	111
5. Doctor, Pleader, Engineer, Professor	30	49	79	251	45	296
6. Secondary teacher	9	15	24	60	8	68
7. Landlord	12	9	21	32	8	40
8. Primary teacher	3	—	3	26	1	27
9. Farmer (income below 5,000)	26	3	29	116	2	118
10. Pensioner	12	22	34	109	16	125
11. Priest, Goldsmith, peon, etc.	8	2	10	23	—	23
12. Blank	58	32	90	284	21	305
<b>Total</b>	<b>255</b>	<b>191</b>	<b>446</b>	<b>1481</b>	<b>153</b>	<b>1,634</b>

It is clear, however, that this classification cannot be used very much for further analysis in the following chapters because of the defect mentioned above. The income criteria used in certain categories have also to be treated with caution for reasons mentioned in the next paragraph. The most important thing about the table is the preponderance of the professional classes viz. doctors, pleaders, etc.

### *Guardian's Income*

The income distribution of guardians given in Table 1.6 should not be considered as very reliable. Those connected with college administration know that many students tend to understate this figure with a hope to improve their chances for concessions in fees. It also happens that some students do not know the exact income of their guardians. All the same it appears that guardians of women students (and more so when they belong to arts classes) have on the average a higher income.

TABLE 1-6 : *Guardian's annual income*

Annual income ( Rs. )	Arts			Science		
	Men	Women	Total	Men	Women	Total
1. Less than 1,000	45	8	53	135	7	142
2. 1,000-2,000	79	25	104	393	22	415
3. 2,000-3,000	40	30	70	318	31	349
4. 3,000-5,000	38	46	84	253	38	291
5. 5,000-10,000	30	39	69	214	33	247
6. 10,000 and above	10	25	35	113	18	131
7. Blank	13	18	31	55	4	59
Total	255	191	446	1,481	153	1,634
Average Annual Income ( Rs. )	2,814	4,877		3,576	4,657	

### *Age*

The age distribution of students is given in Table 1.7. Science students are, on the average younger than arts students as shown by their average age and also by the modal groups. This would generally be the case in all colleges as science and technology attract the better type of students, and it is an observed fact that students who show better performance in school are also on the whole younger in age. This should be more in evidence in the Fergusson College where there is a great rush for admission to science classes. Secondly, women students are younger than men students, a situation which seems to be the reverse of what prevailed a generation ago. This may be partly due to advancement in women's education and partly to a tendency among parents to marry off those girls

TABLE 1.7 : *Distribution by age*

		<i>Age in years</i>							<i>Blank</i>	<i>Total</i>	<i>Average age (years)</i>
		<i>15 and less</i>	<i>16</i>	<i>17</i>	<i>18</i>	<i>19</i>	<i>20</i>	<i>21 and above</i>			
<i>Sex</i>											
<i>Arts</i>	<i>Men</i>	12	25	44	58	39	38	35	4	255	18.54
	<i>Women</i>	25	45	54	36	15	6	9	1	191	17.19
	<i>Total</i>	37	70	98	94	54	44	44	5	446	
<i>Science</i>	<i>Men</i>	192	390	420	249	129	61	35	5	1,481	17.04
	<i>Women</i>	26	57	45	15	6	2	1	1	153	16.53
	<i>Total</i>	218	447	465	264	135	63	36	6	1,634	
<i>Birth place</i>											
<i>Arts</i>	<i>Urban</i>	24	46	59	54	25	20	15	3	246	17.60
	<i>Rural</i>	4	18	27	34	21	23	23	2	152	18.60
	<i>Total</i>	28	64	86	88	46	43	38	5	398*	
<i>Science</i>	<i>Urban</i>	120	253	217	91	28	10	10	2	731	16.62
	<i>Rural</i>	38	127	191	126	90	48	22	4	646	17.53
	<i>Total</i>	158	380	408	217	118	58	32	6	1,377*	
<i>Average S. S. C. marks percentage</i>	<i>Arts</i>	59.34	55.77	52.38	51.57	49.19	47.12	49.43			
	<i>Science</i>	60.49	59.89	57.24	56.38	54.56	52.00	52.29			

\* Cases which did not report birthplace are omitted.

who have delayed progress in school. Another reason seems to be that women students mostly come from urban families and from culturally advanced communities. The table classifies students by age and birth-place also. Although a village-born student may not always be village-bred, yet in many cases this would be so, and it is not unreasonable to classify students as coming from urban and rural areas. As expected, 'urban' students are on the average younger (by a year) than 'rural' students. Similar conclusions about age emerge when students are classified by school and by guardian's address. Table 1.4 on caste distribution also gives the average age at entry by caste for the first seven categories and this may perhaps be taken as a rough index of comparative cultural advancement among different communities. A similar analysis of age by occupations of guardians shows that (1) students whose guardians are businessmen are older on the average than those whose parents are in 'service'. (2) the lower the income of the guardian in these categories the higher generally is the average age of their wards, (3) sons and daughters of professional men and secondary teachers form the youngest group of students, and (4) students whose guardians are farmers have the highest average age. An analysis of guardian's income and average age of wards yielded that the average age generally decreases as guardian's income increases.

### *Quality*

We now turn to the quality of the freshers as indicated by the percentage marks secured by them at S.S.C. examination given in Table 1.8 which analyses S.S.C. examination marks by sex and by school (local or outside). The blanks account for (1) those who were 'exempted' in certain subjects at the time of the preceding failure at S.S.C. examination and, as a result, whose total marks were not recorded in the results; and (2) those who had taken other qualifying examinations such as the Cambridge School Certificate. The table shows that (a) science attracts (or demands?) a better type of students, (b) women students have higher average marks than men students, conclusions which were anticipated above. Students coming from outside Poona have a higher average percentage than local students, for obvious reasons. Turning back to Table 1.7 it is observed that the average marks at S.S.C. examination decrease as age increases both for arts and science students except in the group 21 and above. This is consistent with what was observed already while discussing age distributions. Analysis by caste, guardian's occupation or income did not show any significant variation in average marks at S.S.C. examination.

### *Place of Residence In Poona*

The place where the student lives in Poona when in college is given in Table 1.9. Here, in the case of men students a good proportion of blanks

TABLE 1·8 : S. S. C. marks

		S. S. C. Marks ( per cent )											Total	Average
		35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	Blank	Total	Average
<i>Sex</i>														
<i>Arts</i>	Men	9	36	69	53	29	13	8	9	2	—	27	255	51·06
	Women	1	21	39	44	27	21	10	6	2	—	20	191	53·34
	Total	10	57	108	97	56	34	18	15	4	—	47	446	52·08
<i>Science</i>	Men	3	42	226	307	277	235	179	110	37	5	60	1,481	57·70
	Women	—	3	13	40	26	27	17	10	3	1	13	153	58·18
	Total	3	45	239	347	303	262	196	120	40	6	73	1,634	57·74
<i>Schools</i>														
<i>Arts</i>	Local	7	36	62	57	32	24	8	10	2	—	21	259	51·98
	Outside	3	21	46	40	23	9	10	5	2	—	24	183	52·13
	Total	10	57	108	97	55	33	18	15	4	—	45	442*	
<i>Science</i>	Local	1	21	139	184	156	145	111	52	21	3	20	853	57·64
	Outside	2	24	98	161	145	116	85	62	19	3	33	748	57·8
	Total	3	45	237	345	301	261	196	114	40	6	53	1,601*	

\* Cases which did not report school are omitted.

may consist of students living in rented rooms other than hostels. If we take them to be roughly one half of the blanks it may be said that at least ten per cent of them have no satisfactory accommodation. Analysis by caste shows that (1) a big proportion of students belonging to Jain, Marwadi and Gujarathi communities stays in the community hostels and (2) most backward class students find accommodation in government backward class hostels.

TABLE 1·9 : *Type of lodging in Poona*

	<i>Guardian's or relative's home</i>	<i>College hostel</i>	<i>Other hostels</i>	<i>Blank</i>	<i>Total</i>
<i>Arts</i>					
Men	139	29	18	69	255
Women	148	39	—	4	191
Total	287	68	18	73	446
<i>Science</i>					
Men	809	286	75	311	1,481
Women	117	30	—	6	153
Total	926	316	75	317	1,634

N.B. In the tables of this chapter and the tables of the following chapters the category "Blank" indicates that the corresponding entry in the admission form was blank or that the relevant information was not available.

## CHAPTER II

### WASTAGE AMONG ARTS STUDENTS

#### *Definition of Wastage*

In this chapter we deal with the wastage among arts students. First, we shall define the term wastage as applied by us to college education. By wastage we shall mean all those students who joined college in the first year class but for some reason or the other could not or did not pursue college education to obtain the first degree in arts, science or a professional course. While sounding the customary warning against identifying wastage in college education with failure in life, we shall clarify by examples certain points about wastage. X who leaves college without taking a degree to join defence services but for whom the years spent in college were not necessary for getting this opportunity is considered to be a case of wastage. Y, a woman student, who joins college at the desire of her parents to pursue liberal cultural education before they find a suitable match for her, contributes to wastage if she leaves college before completing a degree course on account of marriage although her few years in college may have helped her parents to secure a good young man for her. The case of Z who could not get admission to a diploma course in engineering after S.S.C. examination but could do so after making a good grade at Intermediate Science examination or simply by marking time in college is perhaps debatable. But as it was not necessary for him to join a college to get admission to the diploma course, he is considered as a case of wastage according to the definition given above.

#### *How the Students Fared*

Table 2.1 which is the main table of the enquiry shows how the students fared, and how they left the college. The vertical classification shows how and/or when the students left the college. Categories 1, 2 and 3 are self-explanatory. Category 4 consists of students who left the college to join degree courses in law, commerce, *Ayurved* or agriculture in the colleges of the Poona University. In category 6 are included those who left the college and joined another university either to continue arts or science course or to take a professional course such as engineering, medicine or law. The students who left college without taking a degree to join non-degree courses such as diploma in engineering, etc., or to take up another career such as defence services, etc., are included in category 7. Categories 8, 9, 11, and 12 consist of students who left the Fergusson College at various stages in their college career and who did not join, at least immediately, another university as there was no record to that effect in the register of leaving certificates. Their results could not be traced in the records of examination results of the Poona University beyond the

stages mentioned. Category 14 which combines categories 10, 11 and 12 will, therefore, form the main bulk of wastage.

*Preliminary Comments on Table 2.1.*

It may perhaps be helpful to make preliminary comments on those categories in Table 2.1 which contribute to wastage, confining our observations to entries in arts. Category 4 in the case of arts students consists of those who joined law after passing Intermediate Arts examination. The criterion of getting the first degree will be applied to them. The cases under category 6, students who joined some other university, were difficult to decide. The method followed in estimating wastage amongst them will be described in the next paragraph. Students falling under the consolidated item 14 are of two kinds: (a) those who left the Fergusson College without taking a leaving certificate; and (b) those who left after taking a leaving certificate. As it is not possible for a student to join a college in this or any other university without producing a leaving certificate of the college previously attended students coming under 14(a) have been wholly considered as contributing to wastage. Students under 14(b) have not joined another university, at least in the first instance. Some of

TABLE 2.1: *How the students fared*

	Arts		Science	
	Number	Per cent	Number	Per cent
1. Completed B. A. or B.Sc. course in PU (Poona University)	203	45.5	393	24.0
2. Joined Engineering course in PU	—	—	209	12.8
3. Joined Medical course in PU	—	—	98	6.0
4. Joined other degree course in PU	12	2.7	67	4.1
5. (1) + (2) + (3) + (4)	215	48.2	767	46.9
6. Joined other universities	38	8.5	211	12.9
7. Joined other non-degree courses	—	—	43	2.6
8. Left without passing first year examination	65	14.6	235	14.4
9. Passed the first year examination but left without passing Intermediate examination.	70	15.7	169	10.3
10. Left without passing Intermediate = (8) + (9)	135	30.3	404	24.7
11. Passed Intermediate but left without joining the degree class	29	6.5	152	9.3
12. Joined the degree class but left without passing	29	6.5	57	3.5
13. (11) + (12)	58	13.0	209	12.8
14. (10) + (13)	193	43.3	613	37.5
<b>Total (5) + (6) + (7) + (14)</b>	<b>446</b>	<b>100.0</b>	<b>1,634</b>	<b>100.0</b>

them may have joined another college in the Poona University and a few of them may have then gone over to other universities but the number of such cases would be very low.

### *Estimation of Wastage*

We shall now try to build up an estimate of wastage. The second column of Table 2.1 summarizes how 446 students who joined the first year in arts during 1949-51 fared. Before considering the cases of wastage let us consider those who left the college to take up another course or to join other universities.

Out of 12 students who joined law, 11 completed the course and one failed to do so. The cards of the 38 students (category 6 of Table 2.1) who joined other universities were carefully scrutinized. Taking all the available information about each one of these cases into consideration it was thought that not more than 27 of them would be able to complete a similar arts course in their new university. From amongst 193 students (see category 14 of Table 2.1) who left the college at various stages 43 had taken their leaving certificates. They certainly did not immediately join another university as there was no record to that effect in the register of leaving certificates. Some of them joined other arts colleges in the Poona University but they did not clear B.A. examination according to the records of examination results for the subsequent years of the Poona University. As already mentioned, it is possible that a small fraction might have migrated to other universities from their new colleges. Every card was, therefore, carefully gone through and it was thought that not more than five from these 43 might have joined another university and successfully completed a similar arts course. Hence a reasonable upper estimate of those who should have obtained the first degree can be put down as  $203 + 11 + 27 + 5 = 246$ . The amount of wastage, therefore, would not be less than 200 which works out as  $200/446 = 44.8$  per cent approximately. It is necessary to allow for the factor of mortality. It is clear that the few students whose careers were snapped short on account of premature death come under the cases of students who left the college without completing the degree course, there being no evidence in the college record about their deaths. Since the college students are a selected population, the normal mortality rates would not be applicable. After consulting the usual life-tables and also the special life-tables used by insurance companies (which are perhaps more relevant in this case) it was thought that not more than 2 per cent could be accounted for by this factor. So the estimate of wastage among arts students may be taken as 42.8 per cent or as  $42.8/98 = 43.7$ , or approximately 44 per cent of those who survived.

An alternative method adopted to estimate the wastage amongst the 38 students who joined other universities proceeds on the assumption that they form a representative group from amongst the total

batch of 446. They are classified according to the stage at which they left the college to join other universities as follows :

Joined other universities ( total )	38
Left during the first year	1
Left after the first year, but before Intermediate	20
Left after Intermediate	17

The remaining 408 students fared through the corresponding stages in college as follows :

Joined F. Y.	408
Joined Intermediate	323
Joined B. A. or Law	244
Passed B. A. or Law	214

Hence another estimate of those among 38 (joining other universities) who would succeed in completing the college course would be :

$$1 \times \frac{214}{408} + 20 \times \frac{214}{323} + 17 \times \frac{214}{244} = 29$$

approximately. This figure is not very different from the one previously arrived at by the scrutiny of the cards.

#### *Analysis of Wastage*

Table 2.2 analyses wastage as it occurred at various stages. For this purpose, for simplicity, all 193 cases in category 14 have been included under wastage; all the 12 students who joined Law have been assumed to have completed their course; and the 38 cases under category 6 have been excluded altogether from all further analysis. Of the 408 students,

TABLE 2.2 : *Wastage figures by different stages (Arts students)*

<i>Stage</i>	<i>No. of drops</i>	<i>Cumulative drops</i>	<i>Left over</i>
1. Joined F. Y. class	—	—	408
2. Left during the first year in college	35	35	373
3. Left after failure at F. Y. examination	30	65	343
4. Passed F. Y. examination but left without appearing for Intermediate examination	29	94	314
5. Left after failure at Intermediate examination	41	135	273
6. Passed Intermediate examination but left without appearing for the degree examination	41	176	232
7. Joined degree course but left without passing	18	194	214
8. Passed degree examination	—	—	214

15.9 per cent were not able to proceed beyond the first year in the college and another 17.2 per cent who proceeded further gave up the course without passing Intermediate examination. In all, 135 students out of 408, i.e. 33.1 per cent of students were not able to complete the first stage of two years. From the remaining 273 who completed the first stage, 59 could not complete the second stage. The wastage in the second stage is therefore, 14.5 per cent of the original entry and it is 21.6 per cent of the students who completed the first stage. If we confine ourselves to 244 students who joined junior B.A. class (or law), the wastage at the second stage works out as 12.3 per cent.

We now proceed to classify the cases of wastage according to following factors : (1) marks at S.S.C. examination, (2) age, (3) sex, (4) caste, (5) schools (local or otherwise), (6) guardian's address, and (7) guardian's income.

#### *S.S.C. Examination Marks*

The most important factor is the marks obtained by the student at S.S.C. examination. Table 2.3 classifies these 408 students by their percentage marks at S.S.C. examination. The cases of wastage are subdivided as : (1) those who dropped before passing the first year examination; (2) those who dropped after passing this examination but before passing Intermediate examination; and (3) those who dropped after passing the latter examination. It may be observed that a big drop has taken place during the first stage and that almost 70 per cent of the wastage cases gave up before passing Intermediate examination. Their proportion to

TABLE 2.3 : *Wastage by the S.S.C. examination marks (Arts students)*

	<i>S.S.C. Marks (per cent)</i>										<i>Bl.</i>	<i>Total</i>
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79			
1. Completed the course	2	11	42	53	35	19	12	13	3	25	215	
2. Left before passing F.Y. examination	5	14	24	10	2	6	—	—	—	4	65	
3. Passed F. Y. but left without passing Intermediate examination	3	12	23	17	5	1	1	—	1	7	70	
4. Left after Intermediate examination	—	15	12	12	8	3	3	2	—	3	58	
5. Wastage (2) + (3) + (4)	8	41	59	39	15	10	4	2	1	14	193	
Total (1) + (5)	10	52	101	92	50	29	16	15	4	39	408	

total wastage is nearly the same in all groups except in the groups below 40 per cent and above 65 per cent marks at S.S.C. examination.

Viewed as a whole the cases of wastage outnumber those who completed the degree course among students scoring less than 50 per cent marks at S.S.C. examination after which the situation is reversed, and after 55 per cent marks there is considerable improvement. This can be briefly stated as follows :

<i>Marks at S. S. C. examination (per cent)</i>	<i>Wastage (per cent)</i>
Below 50	66
Between 50 and 55	42
Above 55	28

It may be noted that even among 19 students who had secured more than 70 per cent marks at S.S.C. examination there were a few students who could not (or did not) complete college education.

It may be pertinent to pose the question whether a certain minimum percentage, other than the passing percentage of 35, at S.S.C. examination could be considered essential for admission to colleges. Table 2.3 shows that the chances of a student completing the college course definitely increase with the increase in the marks obtained at S.S.C. examination. But there does not appear to be a well-defined barrier below which he cannot succeed at all. It is clear, however, that in the case of students who have obtained less than 45 per cent marks at S.S.C. examination the chances of completing the college course seem to be as low as one in five.

#### *Age at Entry*

Table 2.4 classifies the students by age at entry. This shows that wastage increases with the advance in age at entry. When the age at

TABLE 2.4 : *Wastage by age at entry (Arts students)*

	<i>Age</i>								<i>Total</i>
	15	16	17	18	19	20	21 and above	<i>Blank</i>	
1. Completed the course	26	50	53	45	14	11	16	—	215
2. Left before passing F. Y. examination	—	3	11	13	10	11	15	2	65
3. Passed F. Y. examina- tion but left without passing Intermediate examination	—	5	13	18	13	11	9	1	70
4. Left after intermediate	4	7	13	10	11	9	3	1	58
5. Wastage (2) + (3) + (4)†		15	37	41	34	31	27	4	193
Total (1) + (5)	30	65	90	86	48	42	43	4	408

entry is 19 or above wastage is as high as 70 per cent. This is, to a certain extent, accounted for by the lower marks at S.S.C. examination among students belonging to higher age groups, as shown by the following figures :

	<i>Age at entry</i>					
	15	16	17	18	19	20 and above
Average marks at S. S. C. examination ( per cent )	59.3	55.8	52.4	51.6	49.2	47.5

But even for the same percentage of marks at S.S.C. examination wastage is much higher among students belonging to higher age groups. Omitting cases of incomplete information (about age or marks, or both), we give below a short table which brings out this fact. (The figure in each cell indicates the number of students who joined college and the next figure in bracket gives the cases of wastage amongst them).

<i>Age at entry</i>	<i>Marks at S.S.C. examination ( per cent )</i>			<i>Total</i>
	35-50	50-60	60 and above	
15 to 17	56 (31)	70 (14)	49 ( 8)	175 (53)
18 and above	105 (75)	71 (39)	26 (18)	202 (132)
Total	161 (106)	141 (53)	75 (26)	377 (185)

Students with higher age at entry are generally those who are also retarded in school. Many of them have rural background and belong to backward communities and poorer social strata. These factors and the fact that those who enter college at a late age get fewer years to complete their college education, would be the underlying causes of this tendency. The last factor would also account for another tendency, observed in Table 2.4, that the wastage among higher age groups occurs at earlier stages.

### *Sex*

Table 2.5 classifies wastage by sex. This shows that the wastage among men students is remarkably higher than among women students, the wastage percentages being 51 for men and 42 for women. The performance of women at S.S.C. examination was somewhat better than that of men, their average marks being 53.4 and 51.1 per cent respectively. But this does not wholly account for the difference in wastage as shown by the following short table where students have been classified by sex and marks at S.S.C. examination. (The figure in each cell gives the number

TABLE 2.5 : *Wastage by sex (Arts students)*

	Men	Women	Total
1. Completed the course	119	96	215
2. Left before passing F. Y. examination	50	15	65
3. Passed F. Y. examination but left without passing Intermediate	41	29	70
4. Left after Intermediate	33	25	58
5. Wastage (2) + (3) + (4)	124	69	193
Total (1) + (5)	243	165	408

of students who joined college and the next figure in bracket gives the cases of wastage amongst them. Blanks are excluded.)

	<i>Marks at S. S. C. examination (per cent)</i>			
	35-50	50-60	60 and above	Total
Men	108 (71)	78 (34)	31 (10)	217 (115)
Women	55 (37)	64 (20)	33 (77)	152 (64)
Total	163 (108)	142 (54)	64 (17)	369 (179)

It seems, therefore, that women have done better than men among the higher marks groups.

Women students on an average were also younger than men students. Their average ages at entry were 17.2 and 18.5 years respectively. To these two factors, the following may be added: (1) The proportion of local students is very high — 72 per cent among women students as against 53 per cent among men students. (2) Women students mostly belong to advanced communities. It seems these factors have off-set the usually known adverse factor of early marriage so far as the overall wastage among women students is concerned. It may be that the last factor is now not so operatively effective to the extent it used to be a few decades back.

There is a comparable adverse factor for men. Many of them are subject to the pressure that they must start earning as soon as possible and those who do not show promise in college are urged by their families to go in for some vocation or job. Women students who are not subject to such pressure to the same extent can persist even after repeated failures. While the pressure of seeking employment on men would begin to operate from the early stages of education, the 'marriage' effect on women should appear more clearly in later stages (or higher ages). The classification of wastage (Table 2.5) by the stages at which students gave up college

education appears to confirm this. In the case of men students a higher proportion of wastage occurs during earlier stages, whereas the pattern of wastage among women is different and seems to be influenced by the 'marriage' effect which is submerged under other factors when total wastage alone is considered. The same effects can also be observed in the following table where wastage is analysed by sex and age at entry. (The figure in each cell gives the number of students and the next figure in bracket gives the cases of wastage. Blanks are excluded.)

<i>Age</i>	<i>Men</i>	<i>Women</i>	<i>Total</i>
15	10 (3)	20 (1)	30 (4)
16	27 (7)	38 (8)	65 (15)
17	41 (15)	49 (22)	90 (37)
18	54 (23)	32 (18)	86 (41)
19 and above	107 (72)	26 (20)	133 (92)
<b>Total</b>	<b>239 (120)</b>	<b>165 (69)</b>	<b>404 (189)</b>

Wastage figures are comparable for men and women for age groups 15 and 16, but they are higher among women for age groups 17 onwards.

#### *Caste*

The analysis by caste, given in Table 2.6 shows two clear groupings : (i) the advanced communities of Brahmins and C.K.P. where the wastage

TABLE 2.6 : *Wastage by caste (Arts students)*

<i>Caste</i>	<i>Completed the course</i>	<i>Wastage</i>		<i>Total</i>	<i>Total</i>
		<i>Before Inter-mediate</i>	<i>After Inter-mediate</i>		
1. Brahmin	141	66	36	102	243
2. Maratha	25	23	9	32	57
3. C. K. Prabhu	15	8	3	11	26
4. Jain, Marwadi, Gujarati	10	8	4	12	22
5. Lingayat, Lewa Patil, Sonar, etc.	12	12	—	12	24
6. Mali, Sutar, etc.	5	5	1	6	11
7. Backward classes	2	4	1	5	7
8. Others	5	9	4	13	18
<b>Total</b>	<b>215</b>	<b>135</b>	<b>58</b>	<b>193</b>	<b>408</b>

is about 42 per cent, and (ii) all other communities where it is 50 per cent or more. Even if we exclude the backward classes where it is the highest,

(where the figures are small), it is as high as 56 per cent among the Marathas. The analysis by S.S.C. examination marks had shown that although the average marks for the backward classes were the lowest there was not much difference in the average marks at S.S.C. examination for the other communities. But the average age at entry was definitely lower for advanced communities.

### Schools

Table 2.7 gives analysis of wastage by the schools from which the students came — Poona schools or schools in the mofussil. Wastage seems to be higher among students coming from mofussil schools although they have higher

TABLE 2.7 : *Wastage by schools (Arts students)*

	Schools			Total
	Local	Outside	Others	
1. Completed the course	130	81	4	215
2. Left before passing F. Y. examination	40	25	—	65
3. Passed F. Y. examination but left without passing Intermediate	40	30	—	70
4. Left after Intermediate	35	23	—	58
5. Wastage (2) + (3) + (4)	115	78	—	193
<b>Total (1) + (5)</b>	<b>245</b>	<b>159</b>	<b>4</b>	<b>480</b>

average marks at S.S.C. examination. Further analysis shows two other features. From the break-up by schools (local or non-local), and by the marks at S.S.C. examination, it is observed that it is in the higher marks groups that the wastage among local students is lower as compared with non-local students. Secondly, as stated above, the proportion of women students among local students is much higher, and it is the better performance of local women students which substantially contributes to the higher proportion of successful local students. This can be seen from the figures given below. (The figure in each cell denotes the number of students and the next figure in the bracket gives the wastage amongst them. Blanks are excluded.)

	Local	Non-local	Total
Men	125 ( 66)	112 (54)	237 (120)
Women	118 ( 47)	45 (22)	163 ( 69)
<b>Total</b>	<b>243 (113)</b>	<b>157 (76)</b>	<b>400 (189)</b>

*Other factors*

The analysis by guardian's address given in Table 2.8 seems to confirm the remarks made above. But it also shows that the pattern for the mofusil districts is not uniform, and that, in fact, students from some districts do much better than the local students.

TABLE 2·8 : *Wastage by guardian's address (Arts students)*

<i>Guardian's address</i>	<i>Completed the course</i>	<i>Wastage</i>			<i>Total</i>
		<i>Before Inter-mediate</i>	<i>After Inter-mediate</i>	<i>Total</i>	
1. Local ( Poona City & suburbs)	134	84	37	121	255
2. Poona district	7	7	3	10	17
3. Satara ( North & South )	14	15	6	21	35
4. Nagar, Nasik, Sholapur	21	14	3	17	38
5. Kolhapur, Ratnagiri, Goa	4	2	1	3	7
6. Khandesh	15	6	2	8	23
7. Bombay, Kolaba, Thana	6	2	3	5	11
8. Other places	14	5	3	8	22
<b>Total</b>	<b>215</b>	<b>135</b>	<b>58</b>	<b>193</b>	<b>408</b>

In Table 2.9 is given the analysis by guardian's income. Although the income figures given by students in their admission forms in the college are not always reliable, it may be permissible to draw the conclusion that the higher the income of the guardian the better is the chance for his ward to complete the college education.

TABLE 2·9 : *Wastage by guardian's income (Arts students)*

<i>Income Rs.</i>	<i>Completed the course</i>	<i>Wastage</i>			<i>Total</i>
		<i>Before Inter-mediate</i>	<i>After Inter-mediate</i>	<i>Total</i>	
1. Less than 1,000	22	23	7	30	52
2. 1,000 to 3,000	84	53	23	76	160
3. 3,000 to 10,000	82	35	20	55	137
4. 10,000 & above	19	8	3	11	30
5. Blank	8	16	5	21	29
<b>Total</b>	<b>215</b>	<b>135</b>	<b>58</b>	<b>193</b>	<b>408</b>

It would have been certainly very helpful to analyse the wastage figures by the guardian's occupation. But during the years 1949 and 1950 no record was available of this important item from the college admission form, and its absence has given rise to a disproportionate number of blanks in the wastage cases. The analysis by this factor was therefore not attempted.

*Estimating Wastage in Arts for the Poona University*

We will now make an attempt to estimate the wastage amongst arts students in the Poona University as a whole, with the help of the percentage of failures at Intermediate and B.A. examinations in the relevant periods, and with the help of the proportion of students who dropped out at each stage, as observed in the Fergusson College (see Tables 2.2 and 2.10). Let us start with 1000 students joining the first year class in

TABLE 2.10 : *Analysis of students appearing from the Fergusson College at University examinations (Arts students)*

	<i>Attempt</i>	<i>Appear- ed</i>	<i>Passed</i>	<i>Percent- age of passes</i>	<i>Failures</i>	<i>Left</i>
(A) Intermediate Arts	1	314	176	56.05	138	16
	2	122	73	59.84	49	12
	3	37	16	43.24	21	7
	4 or more	14	8	57.14	6	6
			273			41
(B) B. A.	1	220	163	74.09	57	6
	2	51	33	64.70	18	6
	3	12	3	25.00	9	4
	4 or more	5	4	80.00	1	1
			203			17

arts colleges. Then 86 ( $= 1000 \times 35/408$ ) students leave college education without appearing for the college examination at the end of the first year. As the results of this examination were very liberal in most colleges, it is not unreasonable to suppose that 90 per cent of the remaining i.e. 823 ( $= 914 \times 90/100$ ) pass and join Intermediate Arts class. From these 69 ( $= 823 \times 29/343$ ) would give up without appearing for Intermediate examination. We are, thus, left with 754 students who make one or more attempts to pass Intermediate examination. The percentage of passes at the successive Intermediate examinations will be assumed to be uniformly 50, that being approximately the University average for the four

years 1952-55. But a number of students give up after one or more attempts, and they may be estimated with the help of Table 2.10(A) constructed from the corresponding figures for the Fergusson College. The percentage of passes among the repeaters shows considerable fluctuations. It may be reasonable to suppose that it decreases with an increase in the number of attempts. However, because the numbers are small, it will be difficult to construct estimates for our purpose from these figures, and we shall assume that the percentage of passes remains the same as before, i.e. 50. Table 2.11(A) shows the estimates of passes, failures, and drops at successive attempts, the last figure being estimated from the last two columns of Table 2.10(A). Thus, we arrive at the estimated figure of 128 who leave the course without passing Intermediate examination. So, out of 1,000 students entering the arts course, 628 complete the first stage of two years.

TABLE 2-11 : *Estimated number of students appearing at University examinations, in the Poona University (Arts students)*

	<i>Attempt</i>	<i>Appeared</i>	<i>Passed</i>	<i>Percent- age of passes</i>	<i>Failures</i>	<i>Left</i>
(A) Intermediate Arts	1	754	378	50.00	376	44
	2	332	166	50.00	166	41
	3	125	63	50.00	62	21
	4	41	21	50.00	20	20
						126
			628			
(B) B. A.	1	534	361	68.00	173	18
	2	155	105	68.00	50	17
	3	33	22	68.00	11	5
	4	6	4	68.00	2	2
						42
			492			

Out of these 628, 94 ( $= 628 \times 41/273$ ) give up college education without appearing for B.A. examination leaving 534 to make one or more attempts at passing B.A. examination. As in the case of Intermediate examination, it may be assumed that the results of B.A. examination over the four years 1954-57 were uniform, i.e., equal to the four-year average of 68 per cent. Table 2.10(B) gives the figures of passes, failures, and drops, amongst the students of the Fergusson College, at B.A. examination in one or more attempts. Using its last two columns we construct, as before, Table 2.11(B). This gives us an estimate of 42 who drop out without obtaining a degree. Thus, 492 students from the initial entry of 1,000 succeed in completing their college education and 508 are not

able to do so. The wastage is almost 51 per cent. The effect of mortality can be considered in this case as well. It should be borne in mind, however, that several assumptions have been made in arriving at this figure because of the lack of relevant information. Table 2.12 summarizes the figures obtained in the last two paragraphs.

TABLE 2.12 : *Estimated wastage at successive stages, in the Poona University (Arts students)*

	<i>Drops</i>	<i>Cumulative drops</i>	<i>Remaining</i>
1. Entry into F. Y. Class	—	—	1,000
2. During first year	86	86	914
3. Failed in F. Y. examination	91	177	823
4. During Intermediate year	69	246	754
5. Failed in Intermediate examination	126	372	628
6. During B. A. class	94	466	534
7. Failed in B. A. examination	42	508	492

## CHAPTER III

### WASTAGE AMONG SCIENCE STUDENTS

In this chapter we shall deal with the wastage among science students. We start with Table 2.1, how the students fared, given in the *last* chapter.

#### *Comments on Table 2.1*

Out of 1,634 students who joined the first year science class, 393 students given under category 1 completed their education by obtaining B.Sc. or B.A. degree. (It may be observed here that 93 students from the total of 1,634 subsequently changed their course from science to arts and 53 of them succeeded in taking B.A. or LL.B. degree. We do not consider them separately but include them among the larger group to avoid complications in analysis.) Categories 2 and 3 do not need explanation. Category 4 consists of students who left the Fergusson College to join the degree course in law, commerce, *Ayurved* or agriculture in colleges of the Poona University. In category 6 are included students who left to join other universities to pursue arts, science or professional courses. Those who left college without taking a degree to join non-degree courses or other careers such as defence services are included under category 7. Categories 8, 9, 11 and 12 consist of students who left the college at various stages and who did not join, at least immediately, another university. Their careers could not be traced in the examination results of the Poona University beyond the stages mentioned.

The criterion of obtaining the first degree will be applied to students coming under categories 2, 3 and 4 to determine wastage. Category 7 wholly contributes to wastage according to our definition of wastage given in the previous chapter. Cases of wastage have to be estimated for categories 6 and 14. This is done in the next paragraph.

#### *Estimation of wastage*

From the 209 students who joined the engineering course under the Poona University, 195 have successfully completed the course. The remaining 14 cases were carefully gone through, and it was estimated that there would be seven cases of wastage, the other seven are expected to have completed the engineering or some other college course in another university. Out of 98 students, who joined the medical college in the Poona University, 75 have so far completed the medical course and 21 more are in the final year and are expected to complete it. There are, therefore, two cases of wastage. Out of 67 students who joined other degree courses in the Poona University 10 have given up their education before taking the first degree. This brings the total wastage cases under categories 2, 3 and 4 to 19, the number of those who have or would be completing their courses being 355.

The cards of the 211 students who joined other universities were care-

fully examined. In some cases there was evidence that they had joined engineering or medical courses in other universities. Taking all available information into consideration it was thought that 179 of them would be able to obtain a degree in science, engineering or medicine in their new universities. Out of 613 students, under category 14, who left the college at various stages, 411 had not taken their leaving certificates with them, and could be therefore considered as clear cases of wastage. The fate of the remaining 202 who had taken leaving certificates was more difficult to decide. They did not join another university at least immediately. Some of them joined other colleges in the Poona University but they have not passed a degree examination of the Poona University according to its records. Every card was, therefore, carefully gone through and it was felt that not more than 81 of them may have joined another university and completed a degree course. (This estimated number is rather large when compared with the number arrived at for arts students in the previous chapter because it is not usually possible for science students in the Fergusson College who have a failure at the first year or Intermediate examination to continue in the same college next year because of limited seats in science classes. Many of them joined other local colleges and have done well at Intermediate examination. Some of them may have then migrated to some other university and succeeded in obtaining a degree in sciencè or professional courses).

Taking all these figures together a reasonable estimate of those who must have obtained a degree can be put down as  $393 + 355 + 179 + 81 = 1,008$ , the remaining 626 being the cases of wastage. The wastage works out to be  $626/1634 = 38.3$  per cent or 38 per cent approximately. If we allow for the factor of mortality, as we did in the case of arts students, the wastage among the survivors would be 36 per cent approximately. It will be recalled that these figures are much smaller than the corresponding figures of 45 and 43 for arts students. The main reason for this difference is the difference in the quality of entrants as shown by S.S.C. examination marks of arts and science students given in Table 3.1.

An alternative estimate of wastage can be formed for the 211 students who left to join other universities by assuming that they form a representative group from amongst the total of 1,634 students. They are classified according to the stages at which they left as follows :

Joined other universites ( total )	211
Left during first year	16
Left after first year, but before Intermediate	32
Left after Intermediate	163

The remaining 1,423 students fared in their career as follows :

Joined first year	1,423
Joined Intermediate	1,149
Joined degree class ( in science, art or other courses )	898
Passed degree examination	829

Hence an estimate of those among 211 who succeed in completing college education would be.

$$16 \times \frac{829}{1423} + 32 \times \frac{829}{1149} + 163 \times \frac{829}{898} = 183$$

approximately. This is close to the estimate made from the scrutiny of individual cards.

TABLE 3·1 : *Marks at the S.S.C. examination*

Percentage of marks	Arts			Science		
	Men	Women	Total	Men	Women	Total
35-39	9	1	10	3	—	3
40-44	36	21	57	42	3	45
45-39	69	39	108	226	13	239
50-54	53	44	97	307	40	346
55-59	29	27	56	277	26	303
60-64	13	21	34	235	27	262
65-69	8	10	18	179	17	196
70-74	9	6	15	110	10	120
75-79	2	2	4	37	3	40
80-85	—	—	—	5	1	6
Blank	27	20	47	60	13	73
Total	255	191	446	1,481	153	1,634
Average	51.06	53.43	52.08	57.70	58.18	57.74

### *Analysis of Wastage*

For a further study of the wastage figures we have excluded the 211 students who joined other universities. But we have included the students from category 14 from which an estimated number of 81 students have completed the course. This procedure is different from the one followed for arts students where this last number was very small and could be ignored. The analysis, however, is comparable to the analysis of arts students because after excluding those who left to join other universities the batches of the remaining students are comparable.

Table 3.2, reconstituted from Table 2.1 after including the 81 students mentioned above among those who completed their courses, gives the wastage according to the stages at which it occurred in the case of these 1,423 students. The table shows that 235 (or 16.5 per cent) of them could not complete the first year course and 175 more (or 12.3 per cent) gave up before passing Intermediate examination. This means that 410 students out of 1,423 (or 28.8 per cent of them) did not complete the first stage

TABLE 3·2 : *Wastage figures by different stages (Science students)*

<i>Stage</i>	<i>No. of drops</i>	<i>Cumulative drops</i>	<i>Left over</i>
1. Joined F. Y. Science class	—	—	1423
2. Left during the first year in college	71	71	1352
3. Left after failure at F. Y. examination	164	235	1188
4. Passed F. Y. examination but left without appearing for Intermediate examination	53	288	1135
5. Left after failure at Intermediate examination	122	410	1013
6. Passed Intermediate examination but left without joining any degree course	115	525	898
7. Joined degree course but left without passing	69	594	829
8. Passed degree examination	—	—	829

of two years in college. Out of the remaining 1,013 who passed Intermediate examination 184 were not able to complete the second stage. The wastage at the second stage is 12.9 per cent of the total entry of 1,423 and is 18.2 per cent of those who completed the first stage. It may be observed that these percentages are smaller than the corresponding figures for arts students except that for the wastage before the completion of the first year in college where it is slightly higher. Again as among the arts students the big drop occurs during the first stage of two years; almost 69 per cent of the wastage cases occur during the first stage of two years.

We now analyse the cases of wastage according to different factors. For this purpose we classify the wastage cases as follows : (1) those who dropped before passing the first year examination, (2) those who dropped after passing this examination but before passing Intermediate examination, and (3) those who dropped after Intermediate examination.

#### *S.S.C. Examination Marks*

Table 3.3 classifies wastage by the dominant factor, viz., the marks obtained by students in S.S.C. examination. The figures show that in the lower marks groups more wastage occurs during the first stage of two years. Secondly, the wastage cases are more than the number of those who completed the degree course among students securing less than 55 per cent marks at S.S.C. examination. After this stage the situation improves, and after 75 per cent marks there is only a solitary case of wastage of a student who joined the medical course and could not cope up with it. The following gives a brief picture :

<i>Marks at S. S. C. examination (per cent)</i>	<i>Wastage (per cent)</i>
Below 55	61
Between 55 and 65	33
Between 65 and 75	18
Above 75	2

It may be observed that even among the 150 students getting 70 per cent marks or above there is wastage of the order of one in every ten. At the lower end it is seen that for students obtaining less than 45 per cent marks the chances of successfully completing the college education are as low as one in four. The comparison of wastage figures among science students and arts students as grouped according to marks at S.S.C. examination shows that for the same S.S.C. marks wastage is higher among science students. This suggests that the science course is perhaps more exacting than the arts course.

TABLE 3·3 : *Wastage by S.S.C. examination marks (Science students)*

	<i>S. S. C. Marks (per cent)</i>											<i>Total</i>
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	Bl.	
1. Completed the course		11	78	135	157	160	136	91	38	6	17	829
2. Left before passing F.Y. examination		19	71	64	28	16	10	2	—	—	25	235
3. Passed F.Y. but left without passing Intermediate examination	1	8	37	68	25	19	8	3	—	—	6	175
4. Left after Intermediate examination	1	3	36	45	40	28	16	9	1	—	5	184
5. Wastage (2) + (3) + (4)	2	30	144	177	93	63	34	14	1	—	36	594
Total (1) + (5)	2	41	222	312	250	223	170	105	39	6	53	1,423

#### *Age at Entry*

Table 3.4 analyses wastage by age at entry. It is clear that wastage steadily increases with age at entry until among students whose age at entry is 20 and above the wastage is more than 75 per cent. This is mainly explained by the fact that students with a lower age at entry are also on an average of better quality as evidenced by their performance at S.S.C. examination given below :

	<i>Age at entry</i>					
	15	16	17	18	19	20 and above
Average marks at S. S. C. ( per cent)	60.5	59.9	57.2	56.4	54.6	52.8

If the effect of S.S.C. marks is eliminated by considering students in different marks groups it is found that an increase in age at entry has an adverse effect on the performance of students. This is shown by the following table. (The figure in each cell indicates the number of students who joined college and the next figure in the bracket gives the wastage amongst them. Blanks are omitted.)

<i>Age at entry</i>	<i>Marks at S. S. C. examination (per cent)</i>			
	35-50	50-65	65 and above	Total
15 to 17	152 ( 89)	535 (189)	267 ( 34)	954 (312)
18 and above	110 ( 84)	248 (143)	53 ( 15)	411 (242)
Total	262 (173)	783 (332)	320 ( 49)	1,365 (554)

It may also be observed from Table 3.4 that the older students tend to drop out at earlier stages in their career. These results are similar to those

TABLE 3.4 : *Wastage by age at entry (Science students)*

	<i>Age</i>							<i>Total</i>
	15	16	17	18	19	20 and above	<i>Blank</i>	
1. Completed the course	144	271	239	107	46	21	1	829
2. Left before passing F. Y. examination	14	39	59	54	34	31	4	235
3. Passed F. Y. examination but left without passing Intermediate examination	10	33	61	30	25	15	1	175
4. Left after the Intermediate	17	38	57	37	16	19	—	184
5. Wastage (2) + (3) + (4)	41	110	177	121	75	65	5	594
Total (1) + (5)	185	381	416	228	121	86	6	1,423

obtained for arts students, and the probable underlying factors have been suggested in the previous chapter. Again if we compare the wastage in arts and science among students belonging to the same age groups and marks groups it is found that the wastage in science is higher except for marks groups above 65 per cent. This again suggests that the science course is perhaps stiffer than the arts course.

### Sex

The analysis of wastage by sex is given in Table 3.5 which shows that the wastage among women students (32 per cent) is much lower than that

TABLE 3.5 : *Wastage by sex (Science students)*

	<i>Men</i>	<i>Women</i>	<i>Total</i>
1. Completed the course	743	86	829
2. Left before passing F. Y. examination	221	14	235
3. Passed F. Y. examination but left without passing Intermediate	160	15	175
4. Left after Intermediate	172	12	184
5. Wastage (2) + (3) + (4)	553	41	594
Total (1) + (5)	1,296	127	1,423

among men students (43 per cent). It will be recalled that in the case of arts students a similar difference in wastage between men and women students was partly due to the better quality of women students as evidenced by their higher average marks at S.S.C. examination. In the case of science students the difference in wastage between the sexes is even higher than that for the arts students although there is not much difference in their average marks at S.S.C. examination which were 57.7 per cent and 58.2 per cent for men and women respectively. The wastage cases are further analysed by S.S.C. examination marks and sex as shown below. (The figure in each cell gives the number of students who joined college and the next figure in the bracket gives the cases of wastage amongst them. Blanks are excluded.)

	<i>Marks at S. S. C. examination (per cent)</i>			
	35-50	50-65	65 and above	<i>Total</i>
<b>Men</b>	250 (170)	710 (309)	292 (44)	1,253 (523)
<b>Women</b>	15 (6)	75 (24)	28 (5)	117 (35)
<b>Total</b>	265 (176)	785 (333)	320 (49)	1,370 (558)

It is clear that the wastage among women students is much lower than that among men students except in the group of 65 per cent marks and above. Again, women students have a lower average age (16.5 years) than men students (17.0 years). This difference of about half a year is, again, much less than that of 1.3 years difference for arts students. The analysis by age and sex gives the following figures. (The figure in each cell gives the number of students who joined college and the next figure in the bracket gives the cases of wastage amongst them. Blanks are excluded.)

	<i>Age</i>			<i>Total</i>
	15-16	17-18	19 and above	
Men	498 (137)	595 (278)	198 (133)	1,291 (548)
Women	68 (14)	49 (20)	9 (7)	126 (41)
Total	566 (151)	644 (298)	207 (140)	1,417 (589)

In each of the two lower age groups women have done better than men, and the slightly higher wastage in the age group 19 and above is of no particular significance because of the small number of women students in that group. As both S.S.C. marks and age do not completely explain the much lower wastage among women students, the explanation may have to be sought in other factors, e.g. advanced communities to which women students belong and consequently better cultural background at home, which were suggested when similar analysis was attempted for arts students.

### *Caste*

Table 3.6 analyses wastage by caste. As in the case of arts students, here also, it is observed that there are two clear groups : (1) the Brahmin and the C.K.P. communities where the wastage is less than 35 per cent, and (2) all other communities where it is as high as 50 per cent. To a certain extent the difference may also be due to the fact that the students from the advanced communities were younger in age than the students from the other communities.

### *Schools*

The next factor by which the wastage is analysed is the school from which the students came — Poona schools or schools outside Poona. Table 3.7 shows that there is not much difference between the wastage percentages for local schools and non-local schools, the figures for them being 41 and 42 per cent respectively. It had been observed that the averages of marks at S.S.C. examination were comparable for students from local and non-local schools and further analysis by S.S.C. examination marks showed that the wastage figures are comparable in the corresponding marks groups.

TABLE 3·6: *Wastage by caste (Science students)*

Caste	Completed the course	Wastage			Total wastage	Total
		Before F. Y.	After F. Y. but before Inter	After Inter		
1. Brahmin	526	106	94	81	281	807
2. Maratha	59	22	16	24	62	121
3. C. K. Prabhu	35	11	3	2	16	51
4. Jain Marawadi, Gujarathi	84	31	25	29	85	169
5. Lingayat, Lewa Patil, Sonar, etc.	56	20	18	27	65	121
6. Mali, Sutar, etc.	11	10	7	4	21	32
7. Backward classes	17	7	6	6	6	36
8. Others	41	28	6	11	45	86
Total	829	235	175	184	594	1,423

TABLE 3·7 : *Wastage by schools (Science students)*

	Schools			Total
	Local	Outside	Others	
1. Completed the course	459	360	10	829
2. Left before passing F. Y. examination	123	109	9	235
3. Passed F. Y. examination but left without passing Intermediate	106	68	1	175
4. Left after Intermediate	94	86	4	184
5. Wastage (2) + (3) + (4)	323	263	8	594
Total (1) + (5)	782	623	18	1,423

*Guardian's Address, Income and Occupation*

Analysis by guardian's address given in Table 3.8 does not show any definite pattern except to confirm broadly the conclusion drawn from the analysis by schools.

Table 3.9, which classifies students by guardian's annual income, suggests that the wastage is the highest (48 per cent) for the income groups below Rs. 2,000 and is the lowest (33 per cent) for the income groups between Rs. 3,000 to Rs. 5,000. It should be mentioned here, however, that, as stated in the first chapter, the income figures are not reliable.

TABLE 3-8 : *Wastage by guardian's address (Science students)*

Guardian's address	Completed the course	Wastage			Total	Total
		Before F. Y.	After F. Y. but before Intermediate	After Intermediate		
1. Local	445	124	103	91	318	763
2. Poona district	26	13	12	15	40	66
3. Satara (North & South)	74	20	13	21	54	128
4. Nagar, Nasik, Sholapur	105	36	16	16	68	173
5. Kolhapur, Ratnagiri, Goa	29	2	3	1	6	35
6. Khandesh	65	9	14	20	43	108
7. Bombay, Kolaba, Thana	27	8	4	10	22	49
8. Other places	58	23	10	10	43	101
<b>Total</b>	<b>829</b>	<b>235</b>	<b>175</b>	<b>184</b>	<b>594</b>	<b>1,423</b>

TABLE 3-9 : *Wastage by guardian's income (Science students)*

Guardian's income (Rs.)	Completed the course	Wastage			Total	Total
		Before F. Y.	After F. Y. but before Intermediate	After Intermediate		
1. Less than 2,000	262	82	82	77	241	503
2. 2,000 to 3,000	188	48	35	33	116	304
3. 3,000 to 5,000	173	40	22	25	87	260
4. 5,000 to 10,000	127	25	20	31	76	203
5. 10,000 & above	61	16	7	14	39	100
6. Blank	18	24	7	35	35	53
<b>Total</b>	<b>829</b>	<b>235</b>	<b>175</b>	<b>184</b>	<b>594</b>	<b>1,423</b>

For the reason mentioned in the previous chapter there are a large number of blanks in the classification by occupation and the corresponding table is not given here. But the available figures suggest that the wastage may be the lowest for students whose guardians belong to the professional classes — doctors, engineers, pleaders, etc.

*Type of Lodging in Poona*

Table 3.10 analyses wastage by the type of lodging in which the student lived in Poona when he was at college. (This factor was not considered for arts students because the numbers were small). Lodgings have been classified as (1) home, (2) college hostel, (3) other hostels, and (4) others; the last group covers all those for whom no definite information was available. It is believed that most of those belonging to the last group were living in rented rooms. It is seen from the table that the wastage is the least (24 per cent) among students who lived in the college hostel and it is

TABLE 3-10 : *Wastage by the type of lodging in Poona (Science students)*

	<i>Type of lodging</i>				<i>Total</i>
	<i>Home</i>	<i>College hostel</i>	<i>Other hostels</i>	<i>Others</i>	
1. Completed the course	486	188	36	119	829
2. Left before passing F. Y. examination	132	19	7	77	235
3. Passed F. Y. examination, but left without passing Intermediate	114	13	3	45	175
4. Left after Intermediate	102	27	16	39	184
5. Wastage (2) + (3) + (4)	348	59	26	161	594
Total (1) + (5)	834	247	62	280	1,423

the highest (57 per cent) for students in the fourth category. As the admissions to the college hostel mainly depend on the marks at S.S.C. examination a further analysis by marks, as shown below, has been attempted. (The figure in each cell gives the number of students and the next figure in the bracket gives the wastage amongst them. Blanks are excluded.)

<i>Type of lodging</i>	<i>Marks at S. S. C. examination (per cent)</i>			<i>Total</i>
	<i>35-50</i>	<i>50-65</i>	<i>65 and above</i>	
Home	166 (110)	463 (191)	175 (26)	804 (327)
College Hostel	12 (6)	113 (32)	106 (12)	231 (50)
Other hostels	10 (7)	40 (14)	10 (4)	60 (25)
Others	77 (53)	169 (96)	29 (7)	275 (156)
Total	265 (176)	785 (333)	320 (49)	1,370 (558)

This shows that even among the students belonging to the same marks groups the wastage may be the lowest among students living in college hostels. Younger age of the hostel student is also another contributing factor to the lower figures of wastage amongst them.

#### *Wastage among Students Joining B.Sc. Course*

For the sake of completeness we should have added to this chapter discussion of wastage among those science students who join B.Sc. course after passing Intermediate examination in science. We have not done so here firstly because it is a severely truncated batch of students and secondly because it will be partially covered in the following chapters on stagnation and student performance. The relevant figures are available in tables in chapter VI — stage II for science students — which classify the successful and unsuccessful students by various factors.

#### *Comparison with Arts Students*

In the course of the above discussion comparisons have also been made with the results obtained for arts students in the previous chapter. In this paragraph we shall mention the main points of difference which stand out. The batch of arts students differs from that of science students in many respects such as the sex composition, the relative proportion of local and non-local students, the caste distribution, and above all, the quality of students as shown by their S.S.C. examination marks. We have seen that some of these factors tend to increase wastage, while others tend to decrease it. But the dominant factor, viz. S.S.C. examination marks, is in favour of the science students as it is more difficult to get admission to science course where seats are limited. Secondly, after Intermediate examination there is a great flow of the better type of science students to the professional courses of engineering and medicine with the result that the remnant science batch becomes considerably depleted in quality while the corresponding arts batch remains comparatively unaffected. Finally, comparisons between the performances of the arts and science students in the two-year stages as well as the complete four-year degree stage appear to support the hypothesis that the science course in each of the two stages is stiffer than the corresponding arts course; this hypothesis can be put forward also otherwise on considerations of the curricula of the two courses.

It is perhaps useful to describe the important features of the big exodus of science students after Intermediate Science examination, referred to above, (as observed in the Fergusson College,) to see how it affects the batch of science students as it goes from the first stage to the second stage. From the 1,277 students who reached Intermediate examination 1,148 passed. From amongst them (information is available that) 209 joined engineering, 98 joined medicine and 43 joined other courses; and it is expected that 129 more left to join professional courses (52 engineering, 77 medicine). It is also known that 397 continued in the college to study

B.Sc. course. To compare the quality of these students we give below the average S.S.C. examination marks and average Intermediate examination marks and the number of first classes, the number of first and second classes, and the number of students obtaining more than 50 per cent marks at Intermediate Science examination, for those who are known to have joined (1) engineering, (2) medicine, (3) other courses; (4) gives the number in categories (1), (2), (3) put together and (5) gives the number of those who joined B.Sc. course.

	Total No. who joined	S. S. C. average marks	Performance at Intermediate Science examination			
			average marks	No. of I classes	No. of I and II classes	Number having marks above 50 per cent
1. Engineering	209	66.05	57.97	81	202	179
2. Medicine	98	65.23	56.48	23	97	93
3. Other courses	43	55.49	44.38	—	20	5
4. (1) + (2) + (3)	350	64.50	55.90	104	319	277
5. B. Sc.	397	57.74	47.30	11.	253	108

No comments are necessary to elaborate the point that the flow of science students after the Intermediate stage means a great qualitative change for the batch of students who continue to remain in the science college for B.Sc. course.

#### *Estimating Wastage in Science for the Poona University*

As in the case of arts students we now try to estimate the wastage among science students for the Poona University with the help of the percentages of failures in Intermediate Science and B.Sc. examinations of the university during the relevant periods, and with the help of the proportion of students who dropped out at various stages as observed in the Fergusson College. For the sake of simplicity we have ignored that some of the students who joined the first year science class later on changed to arts. Table 3.11 reconstitutes Table 2.1 by distributing over the relevant categories the estimated number of 81 students who are expected to have completed engineering, medicine or other courses including B.Sc. course. (See: Estimation of Wastage, above.)

Starting with a batch of 1,000 students who join the first year science class, it is seen from Table 3.11 that 50 ( $= 1000 \times 71/1423$ ) students leave college before appearing for the college examination at the end of the first year. Assuming, as in arts, that the percentage of passes at this examination is 90, it is evident that 855 ( $= 950 \times 90/100$ ) students pass this examination and join Intermediate Science class. From these,

TABLE 3-11 : *Progress of students through the different stages (Science students)*

<i>Stage</i>	<i>Number of drops</i>	<i>Cumulative drops</i>	<i>Left over</i>
1. Joined F. Y. Science Class			1,423
2. Left during the first year	71	71	1,352
3. Left after failure at F. Y. examination	164	235	1,188
4. Passed F. Y. examination but left without appearing for Intermediate examination	53	288	1,135
5. Left after failure at Intermediate examination	122	410	1,013
6. Joined engineering or medical course	327	737	686
7. Joined other degree courses	43	780	643
8. Left without joining any degree course	115	895	528
9. Joined the degree course in science or arts but left without appearing for examination	20	915	508
10. Left after failure at the degree examination in science or arts	37	952	471
11. Passed the degree examination in science or arts	—	—	471

*Note* : (1) Category 7 consists of students who joined law or *Ayurved*.

(2) Students who joined commerce or agriculture are combined with those who joined B. Sc. (or B. A.) in the various stages.

38 ( $= 855 \times 53/1188$ ) leave the course before appearing for Intermediate examination. The remaining 817 make one or more attempts at Intermediate examination. As before, we assume the percentage of passes at Intermediate Science examination to be uniformly 57, that being the university average for the period 1952-54. The estimates of students who give up after one or more attempts are formed from Table 3.12(A) which gives the figures for the Fergusson College. Table 3.13(A) gives the estimated number of passes, failures and drops at successive attempts for these 817 students. We thus arrive at the figure of 129 students who give up without passing Intermediate examination, and 688 who complete the first stage of two years.

In contrast to the batch of arts students a big exodus takes place at this stage, of students who leave the science college to join engineering, medicine or other professional courses. It is not easy to estimate this number. We followed two procedures for estimating the number joining engineering or medicine which gave us widely differing estimates and we have then taken a figure between them as a reasonably good estimate. The first procedure was to note the proportion of students securing first class or second class in Intermediate examination at the first attempt and the proportion from these latter students who join engineering or medicine as observed in the Fergusson College. This figure (which is expected to

TABLE 3-12 : Analysis of students from the Fergusson College appearing at University examinations (Science Students)

Attempt	Appeared	Passed	Percentage of passes	Failures	Left
<b>(A) Intermediate</b>					
1	1277	887	69.46	390	72
2	318	205	64.46	113	34
3	79	48	60.76	31	17
4 or more	14	8	57.14	6	6
		1148			129
<b>(B) B. Sc.</b>					
1	431	278	64.50	153	12
2	141	88	62.41	53	15
3	38	20	52.63	18	5
4 or more	13	7	53.85	6	6
		393			38

TABLE 3-13 : Estimated number of students appearing at University examinations in Science in the Poona University (Science students)

Attempt	Appeared	Passed	Percentage of passes	Failures	Left
<b>(A) Intermediate</b>					
1	817	466	57.00	351	65
2	286	163	57.00	123	37
3	86	49	57.00	37	20
4 or more	17	10	57.00	7	7
		688			129
<b>(B) B. Sc.</b>					
1	398	251	63.00	147	12
2	135	85	63.00	50	14
3	36	23	63.00	13	4
4 or more	9	6	63.00	3	3
		365			33

be an upper estimate) comes out to be 176 for our batch of 688 who pass Intermediate examination. The second procedure was to assume that students obtaining 50 per cent marks or above would be eligible for joining engineering or medicine. The number of students scoring 50 per cent marks or more was obtained on the hypothesis that the distribution of marks is approximately normal. This number was multiplied by the proportion of students leaving for these courses from the Fergusson College. This gives us the figure 133 which is expected to be a lower estimate. The actual figure would lie between these two figures and with no other information available we have taken 150 as the estimated number of students who join the engineering or medical courses. From the remaining 538 ( $= 688 - 150$ ) students, another 34 ( $= 538 \times 43/686$ ) join other professional degree courses such as law, *Ayurved*, etc., and a further 90 ( $= 538 \times 115/686$ ) leave college without joining any degree course, either B.Sc. or professional.

Thus we are left with 414 students who join the second stage of the degree course in science (or arts), out of whom 16 ( $= 414 \times 20/528$ ) give up before appearing for the degree examination. The remaining 398 students make one or more attempts to pass the degree examination. Assuming that the percentage of passes at B.Sc. examination was uniformly 63, that being the university average for 1954-56, the number of passes, failures, and drops at one or more attempts are calculated by using the figures for the Fergusson College given in Table 3.12(B). They are shown in Table 3.13(B), yielding the figure 365, of students who succeed in completing the course in a science college.

TABLE 3.14 : *Estimated wastage at successive stages in the Poona University (Science students)*

	<i>Drops</i>	<i>Cumulative drops</i>	<i>Remaining</i>
1. Entry into F. Y. class			1,000
2. During first year	50	50	950
3. Failed in F. Y. examination	95	145	855
4. During Intermediate year	38	183	817
5. Failed in Intermediate examination	129	312	688
6. Joined engineering or medical course	150	462	538
7. Joined other degree courses	34	496	504
8. Left without joining any degree course	90	586	414
9. During B. Sc. class	16	602	398
10. Failed in B. Sc. examination	33	635	365

Assuming further that 85 per cent of those who join engineering, medicine or other professional courses succeed in obtaining a degree, it is estimated that 156 from amongst the 184 ( $= 150 + 34$ ) mentioned above will do so. Therefore, out of the initial batch of 1,000 joining the science course,  $365 + 156 = 521$  complete their college education successfully and 479 form the wastage. The estimated wastage for science students for the Poona University is, therefore, 48 per cent approximately. (The corresponding figure estimated for arts students was 51 per cent.) The effect of mortality can also be taken into consideration. It should be remembered, however, that several assumptions have been made while arriving at these figures. Table 3.14 summarizes the figures obtained in this section.

## CHAPTER IV STAGNATION

In two previous chapters we discussed the problem of wastage in college education among arts and science students with reference to the Fergusson College. In this chapter we deal with stagnation in college education among arts and science students on the basis of the same enquiry.

### *Definition of Stagnation*

By stagnation we cover the cases of those students who complete the prescribed course but only after a delayed progress; they take a longer time to complete the course than the prescribed minimum period.

### *Description of Problem*

It is convenient for this purpose to divide the four-year degree course in arts or science into its two natural stages: (1) the first stage of two years from the time of entry to the first year class in college to the time of passing Intermediate examination; and (2) the second stage of two years from the time of joining Junior B.A. or B.Sc. class to the completion of the degree course in arts or science. This division is necessary because Intermediate examination is a qualifying examination for students taking degree courses in law, *Ayurved*, engineering or medicine. If we do not consider the two stages separately and consider only the four-year degree course in arts or science as a whole it would make a qualitative difference, especially for the analysis of science students, as more than one-third of those who passed Intermediate Science examination from the Fergusson College left it to join engineering or medicine where admission is competitive and as we have seen this took away the greater portion of the top layer of the science students. After analysing stagnation in these two stages separately, we also analyse it for the four-year degree course as a whole for those students who have ultimately obtained B.A. or B.Sc. degree. It should be mentioned, therefore, even at the risk of repetition, that in the analysis of stagnation for the second stage as well as for the four-year course as a whole in arts or science we have omitted students who joined professional courses after passing Intermediate examination. The discussion of wastage and stagnation of these latter students is no doubt both interesting and important but that forms a separate issue, and is not attempted here.

### *Some Observations*

It is also pertinent to make a few other observations in connection with B.A. or B.Sc. courses as they were during the relevant period, 1949-1959, in the Poona University. In the first stage of two years there used to be at the end of the first year in arts or science a qualifying examination

which was conducted by the college, and the first university examination, i.e. Intermediate examination was held at the end of the second year. In the first year examination the percentage of passes in the Fergusson College was about 80 per cent. For the purposes of analysis we have ignored this examination. During the second stage of two years there was no rigorous qualifying test. The university examination i.e., the degree examination was held at the end of the two-year period of the second stage. Thirdly, it should be mentioned here that students who fail in a university examination can appear again, without joining college, on the strength of the terms they have kept before. Lastly, there is a provision in the Poona University to appear for some of its examinations, without joining a college for a part or whole of the course, as 'external' students. In our enquiry it was found that a few students who had joined the Fergusson College for a part of their career had later on passed university examinations as external students. We have included these cases in considering wastage but will exclude them while considering stagnation as they are not comparable with other cases in the minimum periods prescribed.

#### *Analysis of Stagnation: Arts Students*

From the three-year entry of 446 students to the first year arts class in the Fergusson College, 290 passed Intermediate Arts examination of the Poona University. If we exclude three students who passed the examination as external students, and four more who had a gap of several years between their passing the old Matriculation examination and their joining the college, we are left with 283, who took from two years to seven years to clear the first stage. (Table 4.3, column 5). Out of these 283 students, 168 (or 59 per cent) completed this stage in the prescribed minimum period of two years, and the remaining 115 showed a delayed progress, taking an average period of 3.63 years to complete the stage. For the total 283 students the average period works out to 2.66 years.

Out of the 283 who completed the first stage, 203 cleared the second stage and thus completed the four-year degree course in arts. Here also we shall exclude 16 external students and two others who showed big unaccounted-for gaps in their career. This leaves us 185 students who cleared the second stage in a period of two years to five years. One hundred and sixty-one (or 87 per cent) from them completed the stage in the minimum period of two years and the remaining 24 with a delayed progress required an average period of 3.46 years to do so. The average period for the second stage for the full batch of 185 is 2.19 years.

Considering the two stages together for these 185 students, it is found that 117 (or 63 per cent) could obtain the degree in the minimum period of four years, and the remaining 68 took from five years to nine years to do so. The average period for the delayed students is 5.81 years while that for the whole batch works to 4.66 years.

*Stagnation by Factors : Arts Students*

We now classify the delayed cases by (1) marks at S.S.C. examination, (2) age, (3) sex and (4) schools (local or mofussil). Other factors considered while discussing wastage do not show any definite patterns for stagnation.

Table 4.1 classifies delay in progress by S.S.C. examination marks. It shows that in all stages (pre-Intermediate, post-Intermediate and the four-year degree course) the average period for completing the course for delayed and undelayed cases together decreases with increase in S.S.C. examination marks. The pattern is not so consistent if one considers only the delayed cases. The two students who had less than 40 per cent marks at S.S.C. examination and who continued after the first year, took more than four years to complete the first stage, and seven years to complete the four-year B.A. course. From amongst the students who had obtained less than 45 per cent marks at S.S.C. examination, 28 completed the first stage. Only five could do so in the prescribed minimum period of two years; others delayed in their progress. And from the 10 who succeeded in getting B.A. degree, only one could get it in four years. Moving up the S.S.C. examination marks one finds that there is no 'safe' S.S.C. examination percentage against delay in progress until the 70 per cent stage is crossed.

The analysis of stagnation in the second stage by the marks obtained at Intermediate examination is given in Table 4.7. The association is evident and is in fact closer than in the case of the marks at S.S.C. examination.

Analysing the delay in progress by age at entry (Table 4.2), it is found that (although the pattern is not uniform) the average period is generally longer for higher age groups. This is to be expected since we have seen previously that students belonging to higher age groups had on an average less marks at S.S.C. examination, and that they found it more difficult to complete the course as shown by higher wastage figures among them. What is striking is that the lowest age group (15 years and below), which had the highest average at S.S.C. examination, has taken a longer average period than the next two age groups. Perhaps this reflects the immaturity of the very young students which is a handicap to them in the initial period of adjustment in college.

Table 4.3 shows the classification of delay in progress by sex. Sixty-nine per cent of women students completed the first stage in the prescribed minimum period of two years as against only 51 per cent of men. For the complete four-year course also this percentage is higher for women (65 per cent) than for men (62 per cent), although the difference is smaller. But for the second stage the pattern is reversed; only 82 per cent of women completed the second stage in the minimum period of two years as against 91 per cent of men. This is probably due to the 'marriage' effect referred to in the second chapter. In the delayed cases the average

TABLE 4.1 : Stagnation by S.S.C. examination marks (Arts students)

		S.S.C. examination marks										
Years		35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	Blank	Total
I	2	—	5	31	38	30	17	12	14	3	18	168
	3	—	12	17	16	11	4	4	1	—	9	74
	4	1	3	5	4	3	2	—	—	—	1	19
	5	5	6	3	3	1	—	—	—	—	—	14
	6	—	—	3	—	1	1	—	—	—	1	6
	7	—	—	—	2	—	—	—	—	—	—	2
	Total		2	26	59	63	46	24	16	15	3	29
Average A			3.38	2.81	2.68	2.52	2.50	2.25	2.06	2.00	2.52	2.66
Average B		4.50	3.71	3.71	3.72	3.50	3.71	3.00	3.00	—	3.36	3.63
II	2	1	7	33	37	24	17	9	13	3	17	161
	3	1	2	4	5	3	—	1	—	—	1	17
	4	—	—	1	—	—	—	—	—	—	2	3
	5	—	1	1	2	—	—	—	—	—	—	4
Total		2	10	39	44	27	17	10	13	3	20	185
Average A		2.50	2.50	2.23	2.25	2.11	2.00	2.10	2.00	2.00	2.25	2.19
Average B		3.00	3.67	3.50	3.57	3.00	—	3.00	—	—	3.57	3.46
III	4	—	1	20	28	18	15	7	13	3	12	117
	5	—	4	9	7	7	1	2	—	—	4	34
	6	—	1	6	4	2	1	1	—	—	3	18
	7	2	2	4	3	—	—	—	—	—	1	12
	8	—	2	—	1	—	—	—	—	—	—	3
9	—	—	—	1	—	—	—	—	—	—	1	
Total		2	10	39	44	27	17	10	13	3	20	185
Average A		—	6.00	4.84	4.75	4.41	4.17	4.40	4.00	4.00	4.65	4.66
Average B		7.00	6.22	5.73	6.06	5.22	5.50	5.33	—	—	5.62	5.81

For explanation of parts I, II, III of tables in Chapter IV, see note on p. 55.

TABLE 4-2 : *Stagnation by age at entry (Arts students)*

	Years	Age							Blank	Total
		15	16	17	18	19	20	21 and above		
I	2	18	48	49	31	31	6	4	—	168
	3	10	8	10	22	10	8	4	2	74
	4	3	4	5	2	3	2	—	—	19
	5	1	—	5	—	3	1	4	—	14
	6	—	—	—	1	—	3	2	—	6
	7	—	—	—	1	—	—	1	—	2
	<b>Total</b>		32	60	69	57	28	20	15	2
<b>Average A</b>		2.59	2.26	2.51	2.61	2.89	3.35	3.93	—	
<b>Average B</b>		3.35	3.33	3.75	3.35	3.56	3.93	4.63	3.00	
II	2	23	42	46	27	11	6	6	—	161
	3	3	4	2	5	—	2	1	—	17
	4	—	—	—	2	—	—	1	—	3
	5	—	1	1	2	—	—	—	—	4
	<b>Total</b>		26	47	49	36	11	8	8	—
<b>Average A</b>		2.11	2.15	2.10	2.42	2.00	2.25	2.37	—	
<b>Average B</b>		3.00	3.40	3.67	3.66	—	3.00	3.50	—	
III	4	14	35	36	19	6	4	3	—	117
	5	8	6	6	10	2	1	1	—	34
	6	2	4	2	4	2	3	1	—	18
	7	2	2	5	1	1	—	1	—	12
	8	—	—	—	2	—	—	1	—	3
	9	—	—	—	—	—	—	1	—	1
<b>Total</b>		26	47	49	36	11	8	8	—	185
<b>Average A</b>		4.69	4.42	4.51	4.80	4.82	4.87	5.87	—	
<b>Average B</b>		5.50	5.67	5.92	5.70	5.80	5.75	7.00	—	

period is always longer for women than for men. This confirms the tendency, referred to in the first chapter, amongst women, who are mostly local and from advanced communities, to persist after failure. The table also shows that if we take delayed and undelayed cases together, the average periods for the second stage, as well as for the complete course, is longer for women than for men. For the first stage, however, it is shorter which is mainly due to the higher proportion amongst women of those who pass in the minimum period.

Finally, Table 4.3 also classifies them by school, local or non-local. Here, one finds that there are more delayed cases among local students than among those coming from non-local schools, at every stage, and the average period for completing a stage is longer for the local students. Apart from the fact that local students are somewhat lower in quality as indicated by the lower S.S.C. examination marks, perhaps another important factor may be that, being local students, they can persist in their attempts with less difficulty than the non-local students, especially in arts course.

TABLE 4.3 : Stagnation by sex and schools (Arts students)

	Years	Sex				Schools		
		Men	Women	Total	Per cent	Local	Non-local	Others
I	2	81	87	168	59.4	93	72	3
	3	51	23	74	26.1	47	26	1
	4	10	9	19	6.7	15	4	—
	5	11	3	14	4.9	10	4	—
	6	3	3	6	2.1	2	4	—
	7	1	1	2	0.7	2	—	—
	Total		157	126	283		169	110
Average A		2.77	2.53	2.66		2.74	2.56	2.25
Average B		3.59	3.72	3.63		3.64	3.63	3.00
II	2	86	75	161	87.0	97	62	2
	3	6	11	17	9.2	11	6	—
	4	1	2	3	1.6	2	1	—
	5	1	3	4	2.2	4	—	—
	Total		94	91	185		114	69
Average A		2.12	2.26	2.19		2.24	2.11	2.00
Average B		3.37	3.50	3.46		3.59	3.14	—
III	4	58	59	117	63.2	69	46	2
	5	19	15	34	18.4	22	12	—
	6	11	7	18	9.7	9	9	—
	7	5	7	12	6.5	11	1	—
	8	1	2	3	1.6	2	1	—
	9	—	1	1	0.5	1	—	—
Total		94	91	185		114	69	2
Average A		4.64	4.69	4.66		4.75	4.54	4.00
Average B		5.67	5.97	5.81		5.91	5.61	—

*Analysis of Stagnation : Science Students*

From the three-year entry of 1,634 students to the first year science class in the Fergusson College, 1,148 students passed Intermediate examination of the Poona University. While 1,077 passed Intermediate Science examination, 71 passed Intermediate Arts examination after having changed the course to arts. Since the two courses are comparable in their length all these students are considered together. Out of these 1,148 students, 783 (or 68 per cent) completed this first stage in two years, and the remaining 365 delayed in their progress, taking an average period of 3.43 years to complete the stage. For the whole batch of 1,148 students the average period is 2.45 years (Table 4.6, column 5).

Out of the 1,148 students who completed the first stage, a very large number, 351, joined professional courses such as engineering and medicine in the Poona University. One hundred and sixty-three migrated to other universities, many of them to join similar professional courses there. About 200 students left to take up either non-degree courses or simply dropped out. From those 451 who continued in the college to join the degree course, 393 passed B.Sc. or B.A. degree examination (344 B.Sc. and 49 B.A.; see paragraph above). Seventy-one per cent (278) of them completed this second stage in the minimum period of two years and the remaining 115 took from three to six years to complete it. The average period taken by the latter to complete the course is 3.30 years while it is 2.38 years for the whole batch of 393.

Considering the four-year degree course as a whole, out of the 393 students who completed it, 152 (or 39 per cent) did so in the prescribed period and the remaining 241 took from five to eight years to do so. While the average period for the delayed students is 5.54 years that for the whole batch works out to 4.94 years.

If the figures for stagnation for the science students are compared with those for the arts students two things are clearly seen : (1) the extent of stagnation is less for science students than for arts students during the first stage; (2) but it is appreciably greater for the second stage and more so for the four-year course as a whole. The figures will be examined further in the next section when they are classified by the marks at S.S.C. examination.

*Stagnation by Factors : Science Students*

We now proceed to analyse the delayed students by the same factors as in the case of arts students.

Table 4.4 analyses stagnation by S.S.C. examination marks. It is clear that, in general, the average period for completing a stage decreases with increase in S.S.C. examination marks. Of the 16 students with less than 45 per cent marks at S.S.C. examination who cleared the first stage, only four could do so in two years; and of the 56 with less than 50 per cent marks who ultimately obtained a degree, only seven could do so in the

TABLE 4.4 : Stagnation by S.S.C. examination marks (Science students)

	Years	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	Blank	Total	
I	2	—	4	40	88	159	174	150	101	37	6	24	783	
	3	—	6	49	67	60	30	24	7	2	—	6	251	
	4	1	5	21	27	15	7	1	—	—	—	5	82	
	5	—	—	8	12	4	—	1	—	—	—	—	25	
	6	—	—	3	1	—	—	—	—	—	—	1	5	
	7	—	—	—	—	1	—	—	—	—	—	—	1	
	8	—	—	—	—	—	—	—	—	—	—	—	—	
	9	—	—	1	—	—	—	—	—	—	—	—	—	1
	Total		1	15	122	195	239	211	176	108	39	6	36	1,148
Average A		4.00	3.07	3.10	2.83	2.45	2.21	2.16	2.06	2.05	2.00	2.55	2.45	
Average B		4.00	3.45	3.63	3.50	3.34	3.19	3.11	3.00	3.00	—	3.67	3.43	
II	2	—	5	29	60	69	58	30	16	5	1	5	278	
	3	—	1	15	13	26	19	8	4	1	—	1	88	
	4	—	—	5	4	3	1	5	2	—	—	—	20	
	5	—	—	1	3	—	2	—	—	—	—	—	6	
	6	—	—	—	—	—	1	—	—	—	—	—	1	
	Total		—	6	50	80	98	81	43	22	6	1	6	393
Average A		—	2.17	2.56	2.37	2.33	2.38	2.42	2.36	2.17	2.00	2.17	2.38	
Average B		—	3.00	3.33	3.50	3.10	3.35	3.38	3.33	3.00	3	3.00	3.30	
III	4	—	—	7	25	35	42	21	13	4	1	4	152	
	5	—	3	17	30	41	29	17	4	2	—	1	144	
	6	—	3	17	17	17	5	3	5	—	—	—	67	
	7	—	—	8	7	5	4	2	—	—	—	1	27	
	8	—	—	1	1	—	1	—	—	—	—	—	3	
Total		—	6	50	80	98	81	43	22	6	1	6	393	
Average A		—	5.50	5.58	5.11	4.92	4.68	4.67	4.64	4.33	4.00	4.66	4.94	
Average B		—	5.50	5.84	5.62	5.43	5.41	5.32	5.55	5.00	—	6.00	5.54	

minimum period of four years, and more than half (29) took six years or more. Again, as in the case of arts students there is no 'safe' S.S.C. examination percentage against delay in progress until one crosses the 75 per cent stage.

Table 4.7 which classifies stagnation at the second stage by the marks at Intermediate examination confirms what has been observed above : (1) the close association of stagnation period with marks (which is even closer in this case than in the case of S.S.C. examination marks), and (2) the relatively worse stagnation of the science students as compared with the arts students.

Some comments may be helpful in this connection. It should first be recalled that the batch of science students was of a much better quality (as determined by S.S.C. examination marks) than the batch of arts students when they both entered the college in the first year class. But after Intermediate examination the cream of science students left for engineering and medicine. Thus at the beginning of the second stage the difference in quality between the arts and the science students becomes much less pronounced. (This is brought out very clearly by the figures given in the next two chapters which we do not repeat here for considerations of space. See Table 5.1 and Table 6.2. The apparent discrepancy in the total number of students considered in this chapter and the next two chapters is explained by the manner in which the total batch is defined in each chapter and it does not affect the present reasoning.) This partly accounts for the relatively higher figures of wastage and stagnation among science students in B.Sc. stage. It can be verified from the same figures, however, that the batch of science students as it enters B.Sc. stage, although depleted considerably in quality on account of the exodus of brighter students to professional courses, is still better in quality than the corresponding batch of arts students. Thus the higher figures of wastage and stagnation among science students at B.Sc. stage appear to support the belief that the degree course in science is more difficult than that in arts. This is also borne out in greater detail if we compare wastage and stagnation in arts and science at the second stage for the same S.S.C. examination marks. (See tables in this chapter and Table 6.2.)

The second factor by which we classify the delayed cases is age at entry (Table 4.5). It is clear that the average period for completing a stage becomes longer with increase in age at entry. The observations made above in the case of arts students are generally applicable to science students also, although the remarks about the immaturity of very young students (of age 15 at entry) do not find as much evidence here as in the case of arts students.

The classification of delay in progress by sex is given in Table 4.6. This table shows that women students are less delayed in progress than men students in all stages both because more of them (women students) have been able to complete the stages, in the minimum prescribed period and

TABLE 4.5 : Stagnation by age at entry (Science students)

	Years	Age						Blank	Total
		15	16	17	18	19	20 and above		
I	2	139	266	221	98	39	20	—	783
	3	27	71	78	40	20	14	1	251
	4	11	14	19	23	6	9	—	82
	5	4	3	8	4	3	3	—	25
	6	—	1	2	1	—	1	—	51
	7	—	—	—	—	—	1	—	1
	8	—	—	—	—	—	—	—	—
	9	—	1	—	—	—	—	—	—
	<b>Total</b>		181	356	328	166	68	48	1
<b>Average A</b>		2.34	2.33	2.45	2.61	2.60	3.04	3.00	
<b>Average B</b>		3.45	3.32	3.38	3.50	3.41	3.78	3.00	
II	2	52	102	71	35	9	8	1	278
	3	9	26	33	16	2	2	—	88
	4	2	9	4	1	3	1	—	20
	5	—	3	2	—	1	—	—	6
	6	—	1	—	—	—	—	—	1
	<b>Total</b>		63	141	110	52	15	11	1
<b>Average A</b>		2.21	2.40	2.43	2.35	2.73	2.36	2.00	
<b>Average B</b>		3.18	3.46	3.21	3.06	3.83	3.33	—	
III	4	35	61	33	19	2	2	—	152
	5	19	48	51	17	5	3	1	144
	6	6	22	16	12	6	5	—	67
	7	3	8	9	4	2	1	—	27
	8	—	2	1	—	—	—	—	3
<b>Total</b>		63	141	110	52	15	11	1	393
<b>Average A</b>		4.63	4.88	5.04	5.02	5.53	5.45	5.00	
<b>Average B</b>		5.43	5.55	5.48	5.61	5.77	5.78	5.00	

because the average period taken by them is shorter. Thus 71 per cent of women students cleared the first stage in two years as against 68 per cent men and the average periods for women and men students are 3.33 and 3.44 years respectively. In the second stage the percentages of those who clear it in the minimum period are 92 and 68 for women and men and the average periods are 3.00 and 3.31 years. For the complete four-year stage the figures are 60 per cent and 34 per cent and 5.14 years and

TABLE 4.6 : Stagnation by sex and schools (Science students)

	Years	Sex			Per cent	Schools		
		Men	Women	Total		Local	Non-local	Others
I	2	700	83	783	68.2	406	361	16
	3	228	23	251	21.9	124	121	6
	4	73	9	82	7.1	52	29	1
	5	24	1	25	2.2	15	10	—
	6	5	—	5	0.4	3	2	—
	7	1	—	1	0.1	—	1	—
	8	—	—	—	—	—	—	—
	9	1	—	1	0.1	1	—	—
	Total		1,032	116	1148		601	524
Average A		2.46	2.38	2.45		2.49	2.42	2.35
Average B		3.44	3.33	3.43		3.50	3.36	3.14
II	2	229	49	278	70.7	177	99	2
	3	84	4	88	22.4	58	29	1
	4	20	—	20	5.1	8	12	—
	5	6	—	6	1.5	3	3	—
	6	1	—	1	0.3	1	—	—
	Total		340	53	393		247	143
Average A		2.43	2.08	2.38		2.35	2.43	2.33
Average B		3.31	3.00	3.30		3.24	3.41	3.00
III	4	120	32	152	38.7	105	46	1
	5	126	18	144	36.6	87	56	1
	6	64	3	67	17.0	40	26	1
	7	27	—	27	6.9	13	14	—
	8	3	—	3	0.8	2	1	—
	Total		340	53	393		247	143
Average A		5.02	4.45	4.94		4.87	5.08	5.00
Average B		5.58	5.14	5.54		5.51	5.59	5.50

5.58 years respectively. This difference between men and women and in favour of women is not so appreciable in the first stage but it is quite considerable in the second stage and still more so for the complete four-year course. This pattern is quite different from the one observed for arts students. The reasons may be : (1) the number of women students joining science was much smaller as compared with men students and formed a select group; (2) their performance at S.S.C. examination was

better; (3) as the science course is supposed to be more strenuous than the arts course, women students who decide to join it mostly consist of the more determined type of students with scholastic ambition; and (4) because of (1) and (3) the 'marriage' effect may be much less operative in the case of women students joining science than in the case of those joining arts.

TABLE 4.7 : Stagnation by marks at the Intermediate examination

<i>Arts Students</i>		<i>Marks at the Intermediate examination</i>							
		<i>Year</i>	<i>30-34</i>	<i>35-39</i>	<i>40-44</i>	<i>45-49</i>	<i>50-54</i>	<i>Exempt</i>	<i>Total</i>
<i>Arts</i>	<i>II</i>	2	8	36	49	31	16	21	161
		3	3	4	2	2	—	6	17
		4	1	1	1	—	—	—	3
		5	1	2	—	—	—	1	4
<i>Total</i>			13	43	52	33	16	28	185
<i>Average A</i>			2.61	2.28	2.08	2.06	2.00	2.32	
<i>Average B</i>			3.60	3.71	3.33	3.00	—	3.29	

*Science students*

<i>Years</i>		<i>Marks at the Intermediate examination</i>											<i>Total</i>	
		<i>30-34</i>	<i>35-39</i>	<i>40-44</i>	<i>45-49</i>	<i>50-54</i>	<i>55-59</i>	<i>60-64</i>	<i>65-69</i>	<i>70-74</i>	<i>75-79</i>	<i>Ex-empt</i>		
<i>Science</i>	<i>II</i>	2	2	16	72	95	59	9	3	4	1	1	16	278
		3	1	4	26	27	20	3	1	—	—	—	6	88
		4	—	2	4	11	2	—	—	—	—	—	1	20
		5	—	1	1	4	—	—	—	—	—	—	—	6
		6	—	—	—	1	—	—	—	—	—	—	—	1
			3	23	103	138	81	12	4	4	1	1	23	393
<i>Average A</i>		2.33	2.48	2.36	2.47	2.30	2.25	2.25	2.00	2.00	2.00	2.35		
<i>Average B</i>		3.00	3.57	3.19	3.51	3.09	3.00	3.00	—	—	—	3.14		

Finally, we take up the analysis of stagnation by schools from which the students came, (local or non-local), given in Table 4.6. It is observed that there is less stagnation among students from non-local schools than among those from local schools in the first stage. This is comparable to what was observed for arts students and is probably explained by a similar reason, viz. students from non-local schools had better S.S.C. marks. But the situation is reversed for the second stage and for the complete four-

year course where stagnation is worse among non-local students than among local students. It was observed that even after the great exodus after Intermediate examination the batch of non-local students who join B.Sc. course is comparable in quality (in fact is slightly superior) to the batch of local students. The factor suggested in the case of arts students that local students find it easier to persist in their attempt to complete a course is not applicable to science students who have to join college for laboratory practice if they want to repeat an examination. This perhaps accounts for a part of the difference in the stagnation patterns of local and non-local students in arts and science.

#### NOTE ON TABLES

Each table is divided into three parts :

*PART I gives the number of years taken to pass Intermediate examination after joining college in the First Year.*

*PART II gives the number of years taken to pass B.A. or B.Sc. examination after Intermediate examination.*

*PART III gives the number of years taken to pass B.A. or B.Sc. examination after joining college in the First Year.*

*AVERAGE A gives the average duration for all the students in that group.*

*AVERAGE B gives the average duration for those students in that group who required more than the prescribed minimum period to pass the examination.*

## CHAPTER V

### WASTAGE AND STAGNATION AMONG STUDENTS JOINING PROFESSIONAL COURSES

In this chapter, we study in detail the students who left the Fergusson College after passing Intermediate examination to take up professional degree courses in the Poona University, e.g. engineering, medicine, law etc. It will be recalled that while 12 students from the batch of arts students left after Intermediate to take up law, from among the science students as many as 365 left after Intermediate examination to join the professional courses. The break-down is as follows :

Engineering	209
Medicine	98
<i>Ayurved</i>	21
Law	22
Agriculture	15 ( See the relevant paragraph below )

In addition to this number, nine left science course to join commerce, 93 changed from science to arts, and 38 left to take up the non-degree course of Diploma in Engineering. We had also estimated that from the students who joined other universities 52 are expected to have taken engineering and all the three examinations were conducted by the university.

#### I. *Engineering*

The admission to the engineering course is competitive and it depends mainly on the marks at Intermediate Science examination. During the relevant period admissions to the Government Engineering Colleges (at Poona, Bombay, Baroda, and Ahmedabad) were decided by a joint board set up for this purpose by the Bombay Government; in other colleges, admissions were granted by the principal of the college concerned. The duration of the course was three years after the Intermediate Science stage. There was an examination at the end of each of the three years, and all the three examinations were conducted by the university.

There were two engineering colleges in the Poona University during this period. The College of Engineering, Poona, is an old and reputed college run by the Government. Another college is at Sangli, a place to the south of Poona at a distance of about 150 miles. The first choice of students desiring admission to the engineering degree course was the college at Poona. Because of this competition, students securing a first class or higher second class at Intermediate Science examination can alone get admission to the college at Poona. The only exceptions are admissions to the seats which are reserved for backward class students who are admitted to these seats even though they have secured lower marks. Students securing comparatively less marks can often get admission to the college

at Sangli (see Table 5.2). Students who are unable to get admission to any of these colleges try to get admission in engineering colleges of other universities. The number of such students was also large.

From the students under consideration 116 joined the college at Poona (115 students joined after passing Intermediate Science examination and one student joined after completing Junior B.Sc.) and 93 students joined the college at Sangli (86 after Intermediate Science and seven after Junior B.Sc.). One hundred and eleven students out of these 116 who joined the college at Poona, and 84 out of the 93 students who joined the college at Sangli have so far (up to the end of the academic year 1959) completed the engineering course of the Poona University.

From the students (1) who left the Fergusson College to join another university after passing Intermediate Science examination and (2) from those who passed Intermediate Science examination after migrating to other colleges in the Poona University and who were not traced in B.Sc. examination results of the Poona University (the information whether they have joined other universities was not available) we estimated, after carefully scrutinizing all the available information of these students, that about 40 students from the first group and 12 students from the second group, might have taken the engineering course at some other university. Out of the 40 students from the first group, for 16 students, the information, that they have joined the engineering course in other universities, was available. We have included all these 52 students in the further analysis of students joining the engineering course. There is no woman student who has joined the engineering course during the three-year period although a solitary woman student does occasionally join the engineering course.

Tables 5.1 and 5.2 give the distribution of these students by the percentage marks at S.S.C. and Intermediate Science examinations respectively. These students are divided into three groups: (1) those who joined the college at Poona; (2) those who joined the college at Sangli; and (3) those who, we expect, have joined the engineering course in other universities, as mentioned earlier. It is clear that engineering attracts the talented boys and the engineering college at Poona attracts the best students among them as seen from the marks of these students at both S.S.C. and Intermediate Science examinations. This is also seen from the summary table given below.

<i>Those who joined</i>	<i>Average marks at</i>	
	<i>S. S. C. examination</i>	<i>Intermediate Science examination</i>
Engineering college in Poona	69.14	62.21
Engineering college in Sangli	62.32	52.55
Engineering colleges in other Universities	61.60	53.35
B. Sc. course in Poona University	57.73	47.31

TABLE 5.1 : Performance of students at S. S. C. examination

Students joining	Marks at S.S.C. examination ( per cent )								Blank	Total	Average marks
	Below 45	45-50	50-55	55-60	60-65	65-70	70-75	Above 75			
<b>Engineering course</b>											
(a) Poona college	—	—	1	7	18	30	33	23	4	116	69.14
(b) Sangli college	1	2	10	19	24	23	10	4	—	93	62.32
(c) Other universities (estimated)	—	3	5	12	12	11	5	2	2	52	61.60
<b>Medical course</b>											
(a) Poona college	—	2	9	10	17	30	19	9	2	98	65.23
(b) Other universities (estimated)	—	5	9	21	16	11	6	—	9	77	59.72
Ayurvedic college	1	5	7	3	3	2	—	—	—	21	53.90
<b>Law college</b>											
(a) Science students	—	—	—	—	—	—	—	—	—	—	—
(b) Arts students	1	1	6	6	5	3	—	—	—	22	57.00
	—	2	3	2	1	1	—	—	3	12	54.78
Commerce college	1	2	2	1	—	—	1	—	2	9	52.71
Agricultural college	—	3	5	3	1	—	2	—	1	15	51.87
Engineering Diploma course	3	3	9	9	9	4	1	—	—	38	56.34
B.Sc. course	5	53	82	100	80	38	25	7	7	397	57.73

TABLE 5-2 : Performance of students at Intermediate Science examination

Students joining	Marks at Intermediate Science examination (per cent)								Ex.	Total	Average marks
	Below 40	40-45	45-50	50-55	55-60	60-65	65-70	Above 70			
<b>Engineering course</b>											
(a) Poona college	—	3	2	2	31	42	20	16	—	116	62.21
(b) Sangli college	—	2	21	36	29	3	—	—	2	93	52.55
(c) Other Universities (estimated)	—	5	7	21	9	8	2	—	—	52	53.35
<b>Medical course</b>											
(a) Poona college	—	—	4	31	39	18	4	1	1	98	56.48
(b) Other Universities (estimated)	2	3	19	32	18	3	—	—	—	77	51.54
<i>Ayurvedic</i> college	1	9	8	2	1	—	—	—	—	21	45.33
<b>Law college</b>											
(a) Science students	5	7	7	2	—	—	—	—	1	22	43.43
(b) Arts students	4	3	2	—	—	—	—	—	3	12	40.33
Engineering Diploma course	2	5	10	9	1	—	—	—	3	30	47.37
B.Sc. course	16	97	145	83	14	5	4	2	31	397	47.31

WASTAGE IN PROFESSIONAL COURSES

At the same time it should be noted that there were 18 students (three at Poona and 15 at Sangli) who had taken three years to complete the two-year Intermediate Science course (Table 5.3).

TABLE 5.3 : Number of years required to complete the course

I — FROM S.S.C. TO INTERMEDIATE SCIENCE					
Students joining	Years				Total
	2	3	4	5	
Engineering college at Poona	113	3	—	—	116
Engineering college at Sangli	77	15	1	—	93
Medical college	85	11	1	1	98
Ayurvedic college	14	5	2	—	21
Law college	24	9	1	—	34

II — FROM INTERMEDIATE SCIENCE TO DEGREE														
Students joining	Years												Total	
	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½		8
Engineering college at Poona	—	—	54	3	36	—	11	1	4	1	1	—	—	111
Engineering college at Sangli	—	—	16	—	36	4	13	6	5	2	2	—	—	84
Medical college	—	—	—	—	—	—	34	19	14	4	3	—	1	75
Ayurvedic college	—	—	—	—	1	2	4	6	2	—	—	—	—	15
Law college	11	5	8	3	5	—	—	—	—	—	—	—	—	32

III — FROM S. S. C. TO DEGREE														
Students joining	Years												Total	
	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½		10
Engineering college at Poona	—	—	53	2	37	1	11	1	4	1	1	—	—	111
Engineering college at Sangli	—	—	15	—	31	4	17	4	6	4	3	—	—	84
Medical college	—	—	—	—	—	—	33	17	13	5	5	—	1	75
Ayurvedic college	—	—	—	—	1	2	4	3	1	2	1	1	—	15
Law college	10	4	6	4	3	—	4	—	1	—	—	—	—	32
Commerce college	—	—	1	—	1	2	—	1	—	—	—	—	—	5
Agricultural college	5	—	3	—	1	1	1	—	—	—	—	—	—	11

All the five students who had secured less than 50 per cent marks at Intermediate Science examination and joined the college at Poona belong to the backward classes. The number of students who secured first class at Intermediate science and joined the engineering course in colleges at Poona, Sangli, and in other universities, is 78, 3 and 10 respectively. There were, in all, 103 students who had secured first class at Intermediate Science examination with A-group and 91 out of these have joined the engineering course. This clearly brings out the overwhelming preference of the science students for engineering (also medicine as seen below) and the keen competition to get admitted to this course. The comparative distribution of these students by age when they joined the Fergusson College is as follows :

<i>Those who joined</i>	<i>Age</i>					<i>Total</i>	<i>Average age</i>
	15	16	17	18	19 and above		
Engineering College in Poona	33	40	31	8	4	116	16.24
Engineering College in Sangli	15	32	30	9	7	93	16.61
Engineering in other Universities	6	16	13	6	11	52	17.00
Those who joined B. Sc. course	63	139	109	57	29	397	16.66

Students who joined the college at Poona were on the average younger than those who joined the college at Sangli. Comparing these figures with the age distribution of the students who joined B.Sc. course, we observe that the proportion of younger students is higher among the engineering students than that among the students who joined B.Sc. course. This is due, to some extent, to the fact that the average marks secured in examination decrease as the age increases. It is also observed from the following table that for the same interval of S.S.C. marks students joining the engineering course are younger on the average. (The first figure gives total number of students in that group and the next figure in the bracket gives the number of students who joined the engineering course).

<i>Age</i>	<i>S. S. C. examination marks</i>					<i>Total</i>
	<i>Below 55</i>	<i>55-65</i>	<i>65-75</i>	<i>75 and above</i>	<i>Blank</i>	
15 and 16	184 ( 7)	259 (46)	167 (61)	35 (24)	20 ( 4)	665 (142)
17 and above	446 (15)	305 (46)	149 (51)	11 ( 5)	52 ( 2)	963 (119)

This is accounted by the fact that younger age is a favourable factor for admission to engineering.

The distribution of these students by their guardian's address is given below.

<i>Those who joined</i>	<i>Guardian's address</i>		
	<i>Local</i>	<i>Outside</i>	<i>Total</i>
Poona Engineering College	61	55	116
Sangli Engineering College	40	53	93
Poona University engineering colleges	101	108	209
Engineering colleges in other Universities	18	34	52
B. Sc. course	245	152	397

Here the proportion of the local students among engineering students is lower than that for the students who joined B.Sc. course. We have seen that the average marks at S.S.C. and Intermediate Science examinations were higher for the non-local students than those for the local students. But this does not fully explain the above observation, for in each group of marks, except the group having 75 per cent marks and above, the proportion of the local students joining the engineering course to the total local students is less than the corresponding proportion for the non-local students.

<i>Address</i>	<i>S. S. C. examination marks</i>					<i>Total</i>
	<i>Below 55</i>	<i>55-65</i>	<i>65-75</i>	<i>75 and above</i>	<i>Blank</i>	
Local	339 (10)	296 (40)	165 (52)	24 (17)	20 (—)	844 (119)
Outside	295 (12)	269 (52)	151 (60)	22 (12)	53 (6)	790 (142)

(The first figure gives total number of students in that group and the next figure in the bracket gives the number of students who joined the engineering course). This probably suggests the difference in the financial status of the guardians about which, however, the data with us are inadequate and not very reliable.

Comparing the distribution of these students by caste and by guardian's occupation it is observed that the proportion of students from advanced communities (Brahmins and C. K. Prabhu) is less among those who joined engineering than that among the students who joined the B.Sc. course and the proportion of students whose guardians are professional men (doctors, engineers, pleaders, etc.) is larger.

#### *Wastage and Stagnation (Engineering Students)*

While considering wastage and stagnation we confine ourselves to students who are known to have joined the engineering colleges in the Poona University. From the 14 students who did not complete the course four

<i>Those who joined Engineering course in</i>			
	<i>Poona University</i>	<i>Other Universities</i>	<i>B. Sc. course</i>
<i>Caste</i>			
Advanced communities	143	20	280
Others	66	32	117
<i>Guardian's occupation</i>			
Doctors, pleaders, etc.	51	11	65
Others	142	30	306
Blanks	16	11	26

students were still continuing the course, and we expect that two out of these four would be able to complete their present course. From the remaining 10 students we estimated that five students might be able to get some degree in this or in another university (if they have migrated). Thus, there remain only seven students who may have really dropped out. The wastage is, therefore, three per cent to six per cent for this batch of 209 students. It should be noted, however, that this wastage is for students who have gone from the Fergusson College and the corresponding figure for all engineering students of the Poona University may be different.

For further discussion we shall base our analysis on the actual data, viz. 111 and 84 students who passed the degree examination in engineering from the Poona and Sangli colleges respectively. About 50 per cent of the students from those who joined the college at Poona and about 20 per cent from those who joined the college at Sangli completed the course in the prescribed minimum period of three years. Others required from 3½ years to seven years after Intermediate Science to complete the course. The average durations to get the degree are 3.73 and 4.34 years after Intermediate Science for the students who joined the colleges at Poona and Sangli respectively. The average durations to get the engineering degree after S.S.C. are 5.75 and 6.49 years for the students joining the colleges at Poona and Sangli respectively.

Now we will try to analyse stagnation among these students by different factors. Out of the total 195 students who completed the course, 70 students completed the course in three years, three students in three-and-half years and 72 students in four years. The engineering course is a technical course and quite an exacting one. We may, therefore, make some allowance for the initial period of adjustment. If all the students who completed the three-year engineering course within four years of passing the Intermediate Science examination are considered to have done so in a 'normal' manner, only those students who required more than 4 years would come under the category of real stagnation or delay in progress.

(A similar procedure is also used for arts and science students in chapter VII. For engineering students we shall discuss in more detail stagnation defined in this way only.)

For this purpose we shall pool the students at Poona and Sangli. It is observed that out of the 195 students who have cleared the course 70 (or 36 per cent) have done so in the minimum period, 145 (or 74 per cent) have taken the 'normal' period of four years and the rest have stagnated. We now analyse stagnation by the performance in S.S.C. and Intermediate Science examinations.

	<i>Marks at S. S. C. examination</i>					<i>Total</i>
	<i>Below</i>	50-60	60-70	<i>Above</i>	<i>Blank</i>	
	50			70		
Completed the course in 'normal' period	1	18	65	58	3	145
Stagnated students	1	12	27	9	1	50
Left	1	7	3	3	—	14
<b>Total</b>	<b>3</b>	<b>37</b>	<b>95</b>	<b>70</b>	<b>4</b>	<b>209</b>

	<i>Marks at Intermediate Science examination</i>					<i>Total</i>
	<i>Below</i>	50-60	60-70	<i>Above</i>	<i>Exempted</i>	
	50			70		
Completed the course in 'normal' period	9	66	55	15	—	145
Stagnated students	14	28	7	1	—	50
Left	5	4	3	—	2	14
<b>Total</b>	<b>28</b>	<b>98</b>	<b>65</b>	<b>16</b>	<b>2</b>	<b>209</b>

The proportion of students completing the course in the 'normal' period increases as the marks increase. This association is far more close with Intermediate Science marks than with S.S.C. marks. Two students exempted at Intermediate Science (who passed Intermediate Science in more than one attempt) did not complete the course.

The proportion of students making 'normal' progress decreases as the age at initial entry in college increases as shown by the table below.

	<i>Age when entering the college</i>					<i>Total</i>
	15	16	17	18	19 and above	
Normal progress	39	54	38	9	5	145
Delayed progress	7	15	18	6	4	50
Left	2	3	5	2	2	14
<b>Total</b>	<b>48</b>	<b>72</b>	<b>61</b>	<b>17</b>	<b>11</b>	<b>209</b>

When we further split up the above table by Intermediate Science marks, it was found that in each marks group the proportion of students making normal progress decreases as the age increases, thus, bringing out once more the importance of this factor of age when separated from the factor of marks. (See table below).

	<i>Intermediate Science examination marks</i>					<i>Total</i>
	<i>Below 50</i>	<i>50-60</i>	<i>60-70</i>	<i>70 and above</i>	<i>Exempted</i>	
<i>Age</i>						
15 and 16	9 (5)	57 (41)	42 (36)	12 (11)	—	120 (93)
17 and above	19 (4)	41 (25)	23 (19)	4 (4)	2 (—)	89 (52)
<i>Address</i>						
Local	10 (5)	52 (37)	31 (26)	7 (7)	1 (—)	101 (75)
Non-local	18 (4)	46 (29)	34 (29)	9 (8)	1 (—)	108 (70)

(The first figure gives the total number of students in that group and the next figure in the bracket gives the number of students who made normal progress).

The performance of the local students is better than the non-local students and this is also observed for all the Intermediate Science marks groups, as shown from the preceding table.

It was also observed that performance of students from the Brahmin and C.K.P. communities was better than that of the other communities irrespective of marks at Intermediate Science examination. Another important fact observed was the better performance of wards of professional men as compared to that of the others.

## II *Medicine*

Admission to this course is also competitive depending mainly on the marks obtained by the student at the Intermediate Science examination. As in the case of engineering course, here also, admissions to the Government medical colleges in the Bombay State were given by a joint admission board. The duration of the degree course in medicine is five years after the Intermediate Science examination. The first university examination is at the end of two years in medical college, the second at the end of four years, and the final examination (M.B.B.S.) is held at the end of five years. The B.J. Medical College at Poona, is the only medical college in the Poona University. As the older and more reputed medical colleges (e.g. Grant Medical College) are in Bombay, a number of students from the Poona University prefer to go to Bombay as well.

From the students under consideration, 98 joined the B.J. Medical College at Poona of whom only one did so after completing the Junior B.Sc. year. Seventy-five students out of these 98 had so far completed the

M.B.B.S. course, taking a period of five years (the prescribed minimum period) to eight years after Intermediate Science to complete it; 21 students were still continuing; one student expired; and one student had to leave the course after three failures at the first university (first M.B.B.S.) examination of the medical course.

As in the case of the engineering course, here also, we shall first consider the students (1) who left the Fergusson College to join another university after passing Intermediate Science examination, and (2) who passed Intermediate Science examination from other colleges and who were not traced in B.Sc. examination results of the Poona University. It is estimated that 69 students from the first group and eight students from the second group might have taken the medical course at some other university. For 15 students from the first group information was available that they had joined the medical course. We have included these 77 students in the further analysis of students joining the medical course.

Tables 5.1 and 5.2 give respectively the distribution of these students by the marks at S.S.C. and Intermediate Science examinations. We have divided these students into two groups: (1) those who joined the medical college at Poona; and (2) those who, we expect, have taken the medical course elsewhere. All these students have secured more than 45 per cent marks at S.S.C. examination. There were in all 27 students who had secured first class at Intermediate Science examination with B-group, and out of these, 26 have joined medical course. It is clear that there is a very keen competition for admission to the degree course in medicine.

The distribution of these students by the age at entry in the Fergusson College is as follows:

<i>Those who joined</i>	<i>Age</i>					<i>Total</i>	<i>Average age</i>
	15	16	17	18	19 and above		
Medical college in Poona University	21	27	31	10	9	98	16.58
Medical college in other universities	10	28	19	12	8	77	16.74
B. Sc. course	63	139	109	57	29	397	16.66

The average age of these students and of students who joined B.Sc. course is nearly the same. As in the case of students joining engineering course, for the same S.S.C. marks, the proportion of students taking this course decreases as the age increases, as seen in the table below.

	<i>S. S. C. examination marks</i>					<i>Total</i>
	<i>Below 50</i>	<i>50-60</i>	<i>60-70</i>	<i>70 and above</i>	<i>Blank</i>	
15 and 16	79 (2)	236 (24)	226 (40)	104 (18)	20 (2)	665 (86)
17 and above	205 (5)	412 (25)	232 (34)	62 (16)	52 (9)	963 (89)

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(The first figure gives the total number of students in that group and the next figure in the bracket gives the number of students who joined the medical course.)

The distribution of these students by their guardian's address is given below.

<i>Guardian's address</i>	<i>Those who joined medical course in</i>	
	<i>Poona University</i>	<i>Other universities</i>
Local	51	24
Other places	47	53
Total	98	77

Further, as compared to the students who joined B.Sc. course, the proportion of the local students joining this course is lower than that among the students who joined B.Sc. course. This difference is observed for all the groups of S.S.C. marks, as seen from the figures given below.

<i>Guardian's address</i>	<i>S. S. C. examination marks</i>					<i>Total</i>
	<i>Below 50</i>	<i>50-60</i>	<i>60-70</i>	<i>70 and above</i>	<i>Blank</i>	
Local	159 (3)	334 (20)	252 (36)	80 (16)	19 (—)	844 (75)
Others	128 (4)	316 (29)	206 (38)	86 (18)	54 (11)	790 (100)

(The first figure gives the total number of students in that group and the next figure in the bracket gives the number of students who joined the medical course.)

There were 23 women students among those who joined the medical college at Poona and 13 among those who may have joined other universities. It was also found that the proportion of students from Jain, Marwadi etc. communities was higher among these students than among the students who joined the B.Sc. course. Also the proportion of wards of professional men was observed to be higher as compared to that of others.

#### *Wastage and Stagnation (Medical Students)*

For this purpose we consider only those students who joined the medical college at Poona. There are only two cases of wastage. Twenty-one students who were still continuing were all in the final year, and it is expected that they would complete the course eventually. Thirty-four students completed the course in the prescribed minimum period of five years, 19 students completed it in five and half years, and 14 students in six years. As in the case of engineering course, all students who completed the course within six years of their passing Intermediate Science examination may be considered to have completed the course in a 'normal'

period. There remain 29 cases of stagnated students, and we now proceed to analyse these cases by different factors.

The following tables give the distribution of these students by the marks at S.S.C. and Intermediate Science examinations.

	<i>S. S. C. examination marks</i>					<i>Total</i>
	<i>Below 50</i>	<i>50-60</i>	<i>60-70</i>	<i>Above 70</i>	<i>Blank</i>	
'Normal' progress	2	11	33	21	—	67
Delayed progress	—	8	13	6	2	29
Left	—	—	1	1	—	2
<b>Total</b>	<b>2</b>	<b>19</b>	<b>47</b>	<b>28</b>	<b>2</b>	<b>98</b>

	<i>Intermediate Science examination marks</i>					<i>Total</i>
	<i>Below 50</i>	<i>50-60</i>	<i>60-70</i>	<i>Above 70</i>	<i>Blank</i>	
'Normal' progress	3	45	18	1	—	67
Delayed progress	1	24	3	—	1	29
Left	—	1	1	—	—	2
<b>Total</b>	<b>4</b>	<b>70</b>	<b>22</b>	<b>1</b>	<b>1</b>	<b>98</b>

The proportion of students completing the course in the 'normal' period increases as the marks increase and this increase is more rapid with Intermediate Science marks than with S.S.C. marks.

The proportion of students making 'normal' progress is higher for students whose ages at entry in the Fergusson College were less than 18 years than that for students whose ages at entry were 18 and above, as shown by the figures given below.

	<i>Age</i>	
	<i>15 to 17</i>	<i>18 and above</i>
'Normal' progress	58	9
Delayed progress	20	9
Left	1	1
<b>Total</b>	<b>79</b>	<b>19</b>

The proportion of local students who showed 'normal' progress is higher than that of the non-local students, and the proportion of students from the advanced communities (Brahmins and C.K.P.) who showed 'normal' progress is also higher than that of the other students, as shown from the following figures.

	<i>Guardian's address</i>	
	<i>Local</i>	<i>Other places</i>
'Normal' progress	37	30
Delayed progress	13	16
Left	1	1
<b>Total</b>	<b>51</b>	<b>47</b>

  

	<i>Caste</i>	
	<i>Advanced</i>	<i>Others</i>
'Normal' progress	48	19
Delayed progress	10	19
Left	—	2
<b>Total</b>	<b>58</b>	<b>40</b>

### III Other Degree Courses

(a) *Ayurvedic course.* Some of the students desirous of taking a course in medicine but who are not admitted to M.B.B.S. course join the four-year course in *Ayurved*. We have considered only those students who joined the College of *Ayurved* at Poona; information about students joining other *Ayurvedic* colleges was not available. In all, 21 students joined this course in the Poona college, all of them after passing the Intermediate Science examination. (The degree course in *Ayurved* was instituted from 1952, replacing the diploma in *Ayurved* which was run in that college till then. In 1951, only one student joined this college for the diploma course, but we have included this student as having joined the degree course). Compared to students who had joined other courses these students had lower marks in S.S.C. and Intermediate Science examinations as seen from Tables 5.1 and 5.2 respectively. This is to be expected as the *Ayurvedic* degree is lower down in the scale of preference of students. There were eight women students among these 21. The guardians of only four of these students are in the medical profession. Sixteen of the 21 students belonged to the advanced communities.

Out of these 21 students, 15 completed the course taking from four to six years after Intermediate Science to do so. Three students were still studying in the final year; one student left the course; two students left to join other colleges elsewhere. We expect that one of them may have completed the course. This gives the number of wastage cases as two out of 21.

(b) *Law.* There are two law colleges in the Poona University; one is at Poona and the other at Kolhapur. Twenty-two students from the science batch joined the Law College at Poona; eighteen students joined after passing Intermediate Science examination and four students joined after changing the course to arts and passing Intermediate Arts exami-

nation. Twenty-one of these 22 completed the course. It will be remembered that from the students who joined the Fergusson College in F.Y. Arts class, 12 students joined the law college after passing Intermediate Arts examination. Eleven out of these 12 completed the course. Marks secured by these students at S.S.C. and Intermediate examinations are given in Tables 5.1 and 5.2. There were only two students who had secured more than 50 per cent marks in Intermediate examination. This suggests that the law course is also lower down in the scale of preference of students. There were three women students among these students.

(c) *Agriculture.* The College of Agriculture at Poona is the only agricultural college in the Poona University. Up to 1951, F.Y. Science examination was the qualifying examination for admission to this course, which was of three years' duration after joining the Agricultural College. Now, the course is of four years' duration after S.S.C. examination which is the qualifying examination. Fifteen students joined the course in agriculture, four students without passing F.Y. Science examination and 11 students after passing this examination. Eleven students completed the course, and they required from four to seven years after S.S.C. examination to complete it. Five students completed the course in the prescribed minimum period of four years. Table 5.1 gives the marks secured by these students at S.S.C. examination. If S.S.C. marks are any indication, the degree in agriculture seems to be higher in the scale of preference than the law degree or the *Ayurvedic* degree but lower than the engineering degree or the M.B.B.S. Among these who joined agriculture there were two students who had secured more than 70 per cent marks at S.S.C. examination.

#### IV *Change of Course*

(a) *From Science to Commerce.* Nine students changed from the science course to commerce and joined the commerce college at Poona. Seven students changed the course without passing F.Y. Science examination and two students changed after passing it. Five students passed the degree examination in commerce, two students left the course, and one was still appearing for Intermediate Commerce examination (but his academic record suggests that it is very unlikely that he will complete the course). One student left the course after passing Intermediate Commerce examination. (It is very likely that he joined another university and completed the commerce course there.)

(b) *From Science to Arts.* Ninety-three students changed the course from science to arts; 43 of them changed before passing F.Y. Science examination, 49 after passing it, and one student after passing Intermediate examination in science. It may be observed here that according to the university regulations a student who changed the course after passing F.Y. Science examination was not required to join the first year class in arts but could join the Intermediate Arts class and thus save one year in

the arts course. In other words, 50 students out of 93 joined the arts course in the second (Intermediate) year and 43 joined it in the first year, that is, they had to start from the beginning.

Out of these 93 students three left the Poona University to join another university, and we leave them out for all ensuing discussion. Out of the remaining 90 students, 53 passed the degree examination in arts or law — 49 passed B.A. examination and four passed the LL.B. As in the case of other students we examined each one of the remaining 37 cases carefully, and it was felt that there were good grounds to suppose that six out of them, who had migrated to other colleges, might have gone over afterwards to other universities and might have succeeded in getting a degree in arts. We are thus left with 31 cases of wastage. Out of these 31, one left the course without passing F.Y. Arts examination, 18 after passing it but without passing Intermediate Arts examination, and 12 after passing the latter examination.

The following table compares wastage among these students who changed from science to arts with that among the remaining science students and arts students. They are classified by S.S.C. examination marks. Students who left the college to join other universities have been omitted from all these figures. The figure in each cell gives the total number of students and the next figure in bracket gives the number of wastage cases amongst them. Blanks account for students whose S.S.C. marks were not available. They are mostly 'exempted' students and could very well be grouped in the group below 50.

*Comparison with science and arts students*

	<i>S. S. C. examination marks</i>				<i>Total</i>
	<i>Below 50</i>	<i>50-60</i>	<i>60 and above</i>	<i>Blank</i>	
Science to Arts	25 ( 14)	41 ( 14)	21 ( 2)	3 ( 1)	90 ( 31)
Remaining Science	240 (162)	522 (254)	521 (107)	50 (34)	1333 (557)
Arts	163 (108)	142 ( 54)	64 ( 17)	39 (14)	408 (193)

It may be first observed that this batch of 90 students is inferior in quality (as indicated by S.S.C. marks) when compared with the science students who include a greater proportion of students with higher marks. This is of course to be expected since these are the students who could not cope up with the science course. But it is also clear that both in the total as well as in each column the performance of these students who have changed from science to arts is better than that of both the remaining science students and the batch of arts students. This is, to a certain extent, to be expected as these students have survived one year in college. They should really be compared with students in arts or science who have

put in at least one year in college. These figures were, however, not easily available, and we therefore compare them with those students in science or arts who have passed first year examination. We also add a sub-category 'Science to Arts - 1' of those students who have changed to arts after passing first year science examination. The layout of the table is the same as the preceding one.

*Comparison with science and arts students who passed the first year examination*

	<i>S. S. C. examination marks</i>				<i>Total</i>
	<i>Below 50</i>	<i>50-60</i>	<i>60 and above</i>	<i>Blank</i>	
Science to Arts	25 (14)	41 (14)	21 (2)	3 (1)	90 (31)
Science to Arts -1	10 (6)	22 (6)	18 (1)	2 (1)	52 (14)
Science	147 (71)	429 (164)	494 (82)	28 (11)	1098 (328)
Arts	120 (65)	130 (42)	58 (11)	35 (10)	343 (128)

The performance of the complete batch of 90 students is somewhat inferior to that of science students who have passed the first year examination, which is understandable because the batch of 90 students consists of both those who have passed and those who have failed the first year examination of the science course which they had chosen in the first instance. But the figures for 52 students who changed the course to arts after passing the first year science examination compare favourably with those for the corresponding science students. They could even be described as somewhat better especially for S.S.C. marks '50 and above'. And there is no doubt that these students show better performance than arts students in the total number of students as well as in the higher mark groups.

Confining ourselves to the 84 students for whom we have definite records about their career it is found that out of the 83 who cleared the first year course in arts, 67 passed the Intermediate examination with 14 of them in second class; and out of these 67, as many as 53 passed the degree examination with 16 of them in second class. Two students scored more than 55 per cent marks in the degree examination. Altogether, one feels that it was a wise move on the part of these students to change over to arts after the experience they had with the science course.

Let us now classify these 90 students by other factors. There were 15 women students amongst them which shows their proportion (17 per cent) is higher than the proportion (8 per cent) of women students among the remaining batch of science students (112 out of 1,333). Again there were 59 local students and 31 non-local students as against 723 and 592 respectively in the remaining batch of science students, which shows the preponderance of local students (66 per cent as against 55 per cent)

amongst those who changed from science to arts. There is not much difference in the age distributions of the two groups. The distribution by caste is as follows:

	<i>Advanced communities (Brahmins, C.K.P., etc.)</i>	<i>Others</i>	<i>Total</i>
Science to Arts	60	30	90
Remaining Science	798	535	1,333

Thus, there is a greater proportion (67 per cent as against 60) of students belonging to advanced communities.

Considering all this information together, one may remark that the general social and cultural background of the student must have played an important part in arriving at the decision of changing the course from science to arts.

#### V *Non-degree Courses*

(a) *Diploma in engineering.* We may as well make a brief mention of science students who left for non-degree careers. Students who are keen on joining engineering but who do not get admission to the degree course, often prefer to take the diploma course rather than take a degree in pure science (B.Sc.). Thirty-eight students joined the diploma course in engineering at the two technical institutions in Poona. The information about students joining this course in institutions outside Poona was not available. Thirty out of these 38 had joined after passing Intermediate Science examination, six students after passing F.Y. Science examination. As compared to the students joining the engineering degree-course these students have secured considerably less marks in S.S.C. and Intermediate Science examinations as seen from Tables 5.1 and 5.2 respectively. Since this course does not lead to a university degree, (nor is attendance in F.Y. Science or Intermediate Science class a requisite condition) the cases of these students are included under wastage.

(b) *Defence Academy.* Five students joined the defence academy, three without passing F.Y. Science examination and two after passing Intermediate Science examination. According to our definition of wastage, these cases also come under that category.

## CHAPTER VI

### STUDENT PERFORMANCE

#### *Introduction*

So far we discussed the problems of wastage and stagnation. In this chapter, we consider the performance of students in the university examinations, (not merely their success or failure at these examinations,) as judged by the class obtained by them in the examinations.

As mentioned earlier there are two university examinations: (1) Intermediate examination in Arts (or Science) at the end of two years in college, and (2) the (B.A. or B.Sc.) degree examination after two more years, the complete degree course in arts or science being a four-year course. Accordingly our analysis of performance will be presented in two stages, for both arts and science students. For arts students it is possible to analyse the figures for the complete four-year degree course as well. This has been done for arts students classified by sex. But we have not continued the analysis for the four-year arts course by other factors to save space and to avoid repetition. The analysis of four-year course is not appropriate for science students because a very large number of students leave college at the end of the first stage to join professional courses such as medicine and engineering leaving the science batch severely truncated.

During the period concerned students passing the university examinations mentioned above were awarded classes as follows: First class (I) to those who scored 60 per cent marks or more; second class (II) to those who scored 45 per cent marks or more but less than 60 per cent; and pass class to remaining candidates who passed the examination. Among those who were declared to have passed in the pass class were also included the so-called 'exempted' students who had failed in the previous attempt but who were exempted from appearing again in subjects in which they had secured 45 per cent marks or more at the previous attempt.

For this analysis the following categories of students have been excluded from the total three-year entry in arts and science in the two stages because they were not comparable with others. For science students at the second

	<i>I stage</i>	<i>II stage</i>	<i>Four-year course</i>
<i>Arts</i>			
Appeared as 'external' students	4	15	17
Long gaps in careers	12	7	12
Joined other universities	21	4	38
Left with 'Leaving Certificates'	4	4	19
	<hr/> 41	<hr/> 30	<hr/> 86

*Contd. on next page*

	<i>I Stage</i>	<i>II Stage</i>
<i>Science</i>		
Changed to Arts	93	54
Joined other (professional) courses	24	9
Joined other universities	46	10
Left with 'Leaving Certificates'	44	1
	207	74

stage we confined ourselves to those students who joined Junior B.Sc. class. This leaves us batches of strength given below for analysis of their performance :

	<i>I stage</i>	<i>II stage</i>	<i>4-year course</i>
Arts	405	206	360
Science	1427	397	—

#### *Analysis of Performance*

Tables 6.1 to 6.6 classify the performance in the two stages in arts and science by different factors. The figures in certain columns need explanation. Under the column heading 'left' are included those students who left the course without taking the relevant university examination. The last column corresponds to the percentage wastage in the particular class of students. This has been discussed in great detail before, and although the total entry is modified and reduced for the purpose of this chapter the pattern of wastage will be seen to be the same as before. It is given here in this manner to make the tables complete. In this analysis we shall confine our comments mostly to the distribution of the successful students by the class they obtained.

Table 6.1 classifies the performance by sex. To start with, it is observed that while there are no students in first class in the first stage in arts there are only two such students in the second stage. In science, however, there are 130 first classes from 1,427 entrants in the first stage, and 25 from 397 entrants in the second stage. Although it is known that those who joined science were qualitatively better than those who joined arts, it does not explain this overwhelming difference. It has to be explained in terms of the nature of the courses in arts and science and the traditional nature of the examinations. Science courses consist of what are described as 'scoring' subjects like physics, chemistry, mathematics, etc., as compared to the arts courses which consist of 'non-scoring' subjects like languages and the social sciences. Again, B.A. examination, where the majority of papers are voluntary, is said to be better for scoring than Intermediate examination in arts. This is reflected in the number of first and second classes in the two examinations. In the case of science, however, it is B.Sc.

TABLE 6.1 : Student performance by sex

Sex	Total entrants	I class	II class	Pass class	Total pass	Failed	Left	Total wastage	Wastage percentage
<i>Arts</i>									
<i>I Stage</i>									
Men	235	—	27	126	153	23	59	82	34.9
Women	170	—	29	95	124	18	28	46	27.0
Total	405	—	56	221	277	41	87	128	31.6
<i>II Stage</i>									
Men	108	—	36	58	94	9	5	14	13.0
Women	98	2	47	41	90	5	3	8	8.2
Total	206	2	83	99	184	14	8	22	10.7
<i>Four-year Course</i>									
Men	203	—	36	58	94	9	100	109	53.4
Women	157	2	47	41	90	5	62	67	42.7
Total	360	2	83	99	184	14	162	176	48.9
<i>Science</i>									
<i>I Stage</i>									
Men	1,299	124	592	257	973	94	232	236	25.1
Women	128	6	69	28	103	8	17	25	19.5
Total	1,427	130	661	285	1,076	102	249	351	24.6
<i>II Stage</i>									
Men	352	24	193	86	303	35	14	49	13.9
Women	45	1	32	8	41	2	2	4	8.9
Total	397	25	225	94	344	37	16	53	13.3

examination (where one has to study three branches of science simultaneously,) which is supposed to be more difficult than Intermediate examination in science. All this is clearly reflected in the number of first and second classes in the two stages in the two courses.

Judging by the number of first and second classes in arts and in science it is observed that women students have done better both in arts and science and distinctively so in arts. The percentages to the total entrants are :

	<i>Arts</i>		<i>Science</i>	
	<i>I stage</i>	<i>II stage</i>	<i>I stage</i>	<i>II stage</i>
Men	11	33	55	62
Women	17	50	58	73

TABL 6-2 : Student performance by S.S.C. examination marks

<i>S. S. C. marks</i>	<i>Total entrants</i>	<i>I class</i>	<i>II class</i>	<i>Pass class</i>	<i>Total pass</i>	<i>Failed</i>	<i>Left</i>	<i>Total wastage</i>	<i>Wastage percentage</i>
<i>Arts</i>									
<i>I Stage</i>									
35-44	57	—	2	25	27	12	18	30	52.6
45-54	193	—	9	111	120	23	50	73	37.8
55-64	82	—	21	47	68	2	12	14	17.1
65 & above	36	—	22	12	34	1	1	2	5.5
Blank	37	—	2	26	28	3	6	9	—
<b>Total</b>	<b>405</b>		<b>56</b>	<b>221</b>	<b>277</b>	<b>41</b>	<b>87</b>	<b>128</b>	<b>31.6</b>
<i>II Stage</i>									
35-44	19	—	1	11	12	5	2	7	36.8
45-54	93	—	26	56	82	6	5	11	11.8
55-64	46	1	30	13	44	2	—	2	4.3
65 & above	28	1	19	6	26	1	1	2	7.1
Blank	20	—	7	13	20	—	—	—	—
<b>Total</b>	<b>206</b>	<b>2</b>	<b>83</b>	<b>99</b>	<b>184</b>	<b>14</b>	<b>8</b>	<b>22</b>	<b>10.7</b>
<i>Science</i>									
<i>I Stage</i>									
35-44	35	—	2	11	13	5	17	22	62.8
45-54	488	1	134	145	280	73	135	218	42.6
55-64	506	18	318	97	433	17	56	73	14.4
65 & above	340	109	183	24	316	5	19	24	7.0
Blank	58	2	24	8	34	2	22	24	—
<b>Total</b>	<b>1,427</b>	<b>130</b>	<b>661</b>	<b>285</b>	<b>1076</b>	<b>102</b>	<b>249</b>	<b>351</b>	<b>24.6</b>
<i>II Stage</i>									
35-44	5	—	2	2	4	1	—	1	20.0
45-54	135	3	65	38	106	23	6	29	21.5
55-64	180	13	114	39	166	10	4	14	7.8
65 & above	70	9	40	14	63	2	5	7	10.0
Blank	7	—	4	1	5	1	1	2	—
<b>Total</b>	<b>397</b>	<b>25</b>	<b>225</b>	<b>94</b>	<b>344</b>	<b>37</b>	<b>16</b>	<b>53</b>	<b>13.3</b>

TABLE 6.2 (a) : Student performance by Intermediate examination marks

Inter- mediate marks	Total entrants	I class	II class	Pass class	Total pass	Failed	Left	Total wast- age	Wast- age percent- age <sup>2</sup>
<i>Arts</i>									
<i>II Stage</i>									
Below 45	124	—	39	69	108	13	3	16	12.9
45-54	49	2	36	10	48	—	1	1	2.0
Blank	33	—	8	20	28	1	4	5	—
Total	206	2	83	99	184	14	8	22	10.7
<i>Science</i>									
<i>II Stage</i>									
Below 45	113	3	56	34	93	18	2	20	17.7
45-54	228	12	152	45	209	9	10	19	8.3
55-64	19	5	8	3	16	1	2	3	15.8
65 & above	6	5	1	—	6	—	—	—	—
Blank	31	—	8	12	20	9	2	11	—
Total	397	25	225	94	344	37	16	53	13.3

The better performance of women in arts is to a certain extent, but not wholly, accounted for by their better quality as evidenced by their S.S.C. examination results (which was noted in earlier chapters). Among science students women, relatively to men, have less number of first classes. The reasons may be: (1) men students are more numerous among the top quality of science students, (2) women students tend to take relatively 'non-scoring' subjects like biology. It should also be mentioned that the cell frequencies are small.

Two observations can be made on the figures given for the four-year stage in arts. The difference in the performance of men and women students appears in this part of the table in an accentuated form. Secondly, the wastage figures are comparable to those obtained in chapter II as they should be.

Table 6.2 classifies the performance by S.S.C. examination marks. While we find fairly close association between the performance in both stages and S.S.C. examination marks, the following additional observations may be made: (1) the observations made above about the 'scoring' nature of science subjects are confirmed; (2) quite a sizeable fraction of those who had obtained more than 65 per cent marks at S.S.C. slide down the scale in their college career; and (3) this tendency is more in evidence at Intermediate Arts examination and at B.Sc. examination, indicating indirectly the relative stiffness of these examinations. (This also raises two other questions which we do not propose to discuss here but only mention, viz. the continuity between school and college courses, and the reliability of school results as indicators of abilities necessary for university education.)

TABLE 6-3 : Student performance by age at entry

Age years	Total entrants	I class	II class	Pass class	Total pass	Failed	Left	Total wastage	Wastage percentage
<i>Arts</i>									
<i>I Stage</i>									
15	32	—	14	18	32	—	—	—	—
16	68	—	19	41	60	3	5	8	11.8
17	92	—	15	54	69	7	16	23	25.0
18	86	—	5	51	56	8	22	30	34.9
19	50	—	—	28	28	9	13	22	44.0
20	37	—	2	16	18	6	13	19	51.3
21 & above	35	—	1	11	12	7	16	23	65.7
Blank	5	—	—	2	2	1	2	3	—
Total	405	—	56	221	277	41	87	128	31.6
<i>II Stage</i>									
15	27	2	15	9	26	1	—	1	3.7
16	49	—	27	20	47	1	1	2	4.1
17	55	—	22	27	49	5	1	6	10.9
18	42	—	14	22	36	2	4	6	14.3
19	16	—	3	8	11	3	2	5	31.2
20	9	—	1	7	8	1	—	1	11.1
21 & above	8	—	1	6	7	1	—	1	12.5
Blank	—	—	—	—	—	—	—	—	—
Total	206	2	83	99	184	14	8	22	10.7
<i>Science</i>									
<i>I Stage</i>									
15	192	40	108	25	173	6	13	19	9.9
16	399	45	213	80	338	12	49	61	15.3
17	408	32	194	78	304	42	62	104	25.5
18	226	5	94	54	153	18	55	73	32.3
19	110	7	34	22	63	13	34	47	42.7
20	57	1	11	20	32	7	18	25	43.9
21 & above	30	—	7	6	13	3	14	17	56.8
Blank	5	—	—	—	—	1	4	5	—
Total	1,427	130	661	285	1076	102	249	351	24.6
<i>II Stage</i>									
15	63	9	35	13	57	2	4	6	9.5
16	139	9	80	37	126	7	6	13	9.3
17	109	4	74	17	95	10	4	14	12.8
18	57	2	27	16	45	11	1	12	21.0
19	15	—	5	8	13	1	1	2	13.3
20	13	1	4	3	8	5	—	5	38.5
21 & above	1	—	—	—	—	1	—	1	100.0
Blank	—	—	—	—	—	—	—	—	—
Total	397	25	225	94	344	37	16	53	13.3

TABLE 6.4 Student performance by caste

Caste	Total entrants	I class	II class	Pass class	Total pass	Failed	Left	Total wastage	Wastage percentage
<b>I Stage</b>					<b>Arts</b>				
Brahmin	237	—	41	135	176	21	40	61	25.7
Maratha	55	—	5	29	34	8	13	21	38.2
C. K. Prabhu	27	—	3	16	19	2	6	8	29.6
Jain etc.	27	—	1	18	19	1	7	8	29.6
Lingayat etc.	24	—	4	8	12	2	10	12	50.0
Mali etc.	11	—	—	6	6	—	5	5	45.4
Backward class	7	—	—	3	3	3	1	4	57.1
Others	17	—	2	6	8	4	5	9	52.9
<b>Total</b>	<b>405</b>	<b>—</b>	<b>56</b>	<b>221</b>	<b>277</b>	<b>41</b>	<b>87</b>	<b>128</b>	<b>31.6</b>
<b>II Stage</b>									
Brahmin	134	2	57	61	120	8	6	14	10.4
Maratha	25	—	7	14	21	4	—	4	16.0
C. K. Prabhu	14	—	8	6	14	—	—	—	—
Jain etc.	10	—	3	5	8	1	1	2	20.0
Lingayat etc.	12	—	5	7	12	—	—	—	—
Mali etc.	4	—	—	3	3	—	1	1	25.0
Backward class	2	—	—	2	2	—	—	—	—
Others	5	—	3	1	4	1	—	1	20.0
<b>Total</b>	<b>206</b>	<b>2</b>	<b>83</b>	<b>99</b>	<b>184</b>	<b>14</b>	<b>822</b>	<b>22</b>	<b>10.7</b>
<b>I Stage</b>					<b>Science</b>				
Brahmin	796	92	381	147	620	54	122	176	22.1
Maratha	113	5	48	29	82	9	22	31	27.4
C. K. Prabhu	52	5	26	12	43	—	9	9	17.3
Jain etc.	183	8	90	35	133	15	35	50	27.3
Lingayat etc.	124	13	56	23	92	10	22	32	25.8
Mali etc.	28	1	7	6	14	6	8	14	50.0
Backward class	41	1	14	14	29	5	7	12	29.3
Others	90	5	39	19	63	3	24	27	30.0
<b>Total</b>	<b>1,427</b>	<b>130</b>	<b>661</b>	<b>285</b>	<b>1076</b>	<b>102</b>	<b>249</b>	<b>351</b>	<b>24.6</b>
<b>II Stage</b>									
Brahmin	262	15	163	59	237	17	8	25	9.5
Maratha	35	2	16	9	27	4	4	8	22.8
C. K. Prabhu	18	2	8	6	16	1	1	2	11.1
Jain etc.	29	1	11	10	22	6	1	7	24.1
Lingayat etc.	23	3	12	3	18	4	1	5	21.7
Mali etc.	3	1	2	—	3	—	—	—	—
Backward class	7	—	2	3	5	2	—	2	28.6
Others	20	1	11	4	16	3	1	4	20.0
<b>Total</b>	<b>397</b>	<b>25</b>	<b>225</b>	<b>94</b>	<b>344</b>	<b>37</b>	<b>16</b>	<b>53</b>	<b>13.3</b>

TABLE 6.5 : Student performance by schools

<i>Schools</i>	<i>Total entrants</i>	<i>I class</i>	<i>II class</i>	<i>Pass class</i>	<i>Total pass</i>	<i>Failed</i>	<i>Left</i>	<i>Total wastage percentage</i>	<i>Wastage percentage</i>
<i>Arts</i>									
<i>I Stage</i>									
Local	244	—	36	130	166	22	56	78	32.0
Non-local	157	—	18	89	107	19	31	50	31.8
Others	4	—	2	2	4	—	—	—	—
<b>Total</b>	<b>405</b>	<b>—</b>	<b>56</b>	<b>221</b>	<b>277</b>	<b>41</b>	<b>87</b>	<b>128</b>	<b>31.6</b>
<i>II Stage</i>									
Local	129	1	54	58	113	12	4	16	12.4
Non-local	75	—	28	41	69	2	4	6	8.0
Others	2	1	1	—	2	—	—	—	—
<b>Total</b>	<b>206</b>	<b>2</b>	<b>83</b>	<b>99</b>	<b>184</b>	<b>14</b>	<b>8</b>	<b>22</b>	<b>10.7</b>
<i>Science</i>									
<i>I Stage</i>									
Local	757	66	324	166	556	62	139	201	26.5
Non-local	645	62	320	115	497	40	108	148	22.9
Others	25	2	17	4	23	—	2	2	8.0
<b>Total</b>	<b>1,427</b>	<b>130</b>	<b>661</b>	<b>285</b>	<b>1076</b>	<b>102</b>	<b>249</b>	<b>351</b>	<b>24.6</b>
<i>II Stage</i>									
Local	245	14	147	55	216	20	9	29	11.8
Non-local	147	10	77	38	125	16	6	22	15.0
Others	5	1	1	1	3	1	1	2	—
<b>Total</b>	<b>397</b>	<b>25</b>	<b>225</b>	<b>94</b>	<b>344</b>	<b>37</b>	<b>16</b>	<b>53</b>	<b>13.3</b>

TABLE 6.6 : Student performance by type of lodging

Type of lodging	Total entrants	I class	II class	Pass class	Total pass	Failed	Left	Total wastage	Wastage percentage
<i>Arts</i>									
<i>I Stage</i>									
Home	264	—	38	141	179	21	64	85	32.2
College hostel	63	—	14	34	48	10	5	15	23.8
Other hostels	18	—	—	12	12	1	5	6	33.3
Blank	60	—	4	34	38	9	13	22	36.7
<b>Total</b>	<b>405</b>	<b>—</b>	<b>56</b>	<b>221</b>	<b>277</b>	<b>41</b>	<b>87</b>	<b>128</b>	<b>31.6</b>
<i>II Stage</i>									
Home	136	2	55	63	120	11	5	16	11.8
College hostel	37	—	19	16	35	1	1	2	5.4
Other hostels	7	—	2	4	6	1	—	1	14.3
Blank	26	—	7	16	23	1	2	3	11.5
<b>Total</b>	<b>206</b>	<b>2</b>	<b>83</b>	<b>99</b>	<b>184</b>	<b>14</b>	<b>8</b>	<b>22</b>	<b>10.7</b>
<i>Science</i>									
<i>I Stage</i>									
Home	809	68	350	177	595	62	152	214	26.4
College hostel	285	51	178	27	256	8	21	29	10.2
Other hostels	69	4	36	22	62	3	4	7	10.1
Blank	264	7	97	59	163	29	72	101	38.2
<b>Total</b>	<b>1,427</b>	<b>130</b>	<b>661</b>	<b>285</b>	<b>1076</b>	<b>102</b>	<b>249</b>	<b>351</b>	<b>24.6</b>
<i>II Stage</i>									
Home	273	16	168	58	242	21	10	31	11.3
College hostel	56	7	31	12	50	4	2	6	10.7
Other hostels	14	—	3	5	8	5	1	6	42.8
Blank	54	2	23	19	44	7	3	10	18.5
<b>Total</b>	<b>397</b>	<b>25</b>	<b>225</b>	<b>94</b>	<b>344</b>	<b>37</b>	<b>16</b>	<b>53</b>	<b>13.3</b>

Table 6.2(a) which analyses the performance of students in the second stage by their marks at Intermediate examination shows a closer association than that seen in Table 6.2, especially for arts students.

Table 6.3 which analyses the performance of students by age shows the close relation with the age at entry at both stages and especially in the first stage. It may be recalled that age is very closely associated with the quality of students as evidenced in their S.S.C. marks. The only two first classes in B.A. examination belong to the lowest age group and the percentage of first and second classes in general decreases with increase in age. In B.Sc. examination, however, the proportion of first and second classes to the total entry is nearly the same for the three lowest age groups. (It may be observed that wastage also is of the same order for these three age groups.)

Table 6.4 analyses the performance by caste. It yields the same broad conclusions as were noticed when discussing wastage. Brahmins and C.K.P.s show the best performance in terms of first and second classes, then come the other communities like Jains, Lingayats, etc., then Marathas and last, the Backward class communities. It may be noted that both first classes in the B.A. examination belong to the Brahmin community and it also claims relatively many more first classes in the Intermediate examination in Science. As remarked earlier when discussing wastage these differences are not wholly explained by the higher S.S.C. percentage or the lower age of students belonging to the advanced communities (Brahmins and the C.K.P.)

The analysis by the schools (local or non-local) from which the students came is given in Table 6.5. In arts, in both stages, and more so in the second stage, local students claim more first and second classes. In science, however, it is the non-local students who have a greater proportion of first and second classes than the local students at the first stage and almost the same proportion at the second stage. We had observed that non-local students in science had a somewhat better performance at S.S.C. examination.

Finally, Table 6.6 classifies the performance by the place of residence in Poona. In a sense this classifies the non-local students further by their place of residence in Poona since local students will mostly coincide with those living in 'homes'. The performance of those living in the college hostels (measured in terms of the proportion of first and second classes) is the best; then ranks the performance of those living in homes and in other hostels. Admissions to college hostels is mostly dependent on the marks at S.S.C. examination, and this explains why those living in college hostels claim a greater proportion of first and second classes.

## CHAPTER VII

### FURTHER-ANALYSIS OF WASTAGE AND STAGNATION

#### *Progress in a "Permissible" Period*

In Chapter IV, we have discussed in some detail stagnation or delay in progress. In this section we discuss the delay in progress from a somewhat different angle. The prescribed minimum period (of two or four years) for a stage will be called the 'minimum' period. Many students are not able to complete a stage in the 'minimum' period but take a longer time to do so. It is perhaps not unreasonable to allow one additional year for the two-year stage and two additional years for the four-year course. In other words a student will be allowed to take a university examination again only once after a failure. (This practice is followed in some of the universities in the West.) We may, therefore, accept three years as a 'permissible' period for the two-year stage and six years 'permissible' for the four-year course.\*

On this assumption students who take more than the permissible period to complete a stage (or a course) may be considered ill-equipped or ill-adjusted, and therefore unsuitable for a college career. In any programme of improving the efficiency of college education it is not unreasonable to treat students who are unable to complete their courses within a 'permissible' period (except due to unavoidable physical or domestic difficulties) on par with those who give up the course before or after failures. In fact the combined figure may be treated as the 'effective' wastage. Whether we adopt screening or rigorous selection for admission to college courses or we adopt measures to provide additional coaching and guidance it is these students constituting the 'effective' wastage whom these measures will have to consider and deal with. It is not proposed to discuss this problem further here.

The rest of the section will be devoted to the discussion of the figures of delayed progress presented according to this plan. It should be mentioned that in this analysis we consider the same number of students which were considered in Chapter VI and for the same reasons. Many conclusions have already been pointed out in the chapters on wastage and delayed progress (or stagnation); and repetition will be avoided. The figures used in this chapter correspond to those used in Chapter VI on Student Performance.

#### *Brief Comments*

Tables 7.1 and 7.2 give these figures for arts and science students classified by sex. About nine per cent students have taken more than the 'per-

\* The reader should note the difference in procedure and terminology used in this chapter and those used in Chapter V where we considered students joining engineering and medical courses.

TABLE 7-1 : Delay in progress by sex (Arts students)

	Sex	Total entry	Completed the course				Failed or left	Percentage of those who completed the course			
			Minimum period	1 year delay	2 years delay	3 or more years delay		Total	In minimum period	In permissible period	Total
I Stage	Men	235	81	50	10	12	153	82	34.5	55.7	65.1
	Women	170	87	23	9	5	124	46	51.2	64.7	73.0
	Total	405	168	73	19	17	277	128	41.5	59.5	68.4
II Stage	Men	108	86	6	1	1	94	14	79.6	85.2	87.0
	Women	98	74	11	2	3	90	8	75.5	86.7	91.8
	Total	206	160	17	3	4	184	22	77.7	85.9	89.3
Four-year Course	Men	203	58	19	11	6	94	109	28.6	43.3	46.3
	Women	157	59	15	7	9	90	67	37.6	51.6	57.3
	Total	360	117	34	18	15	184	176	32.5	46.9	51.1

TABLE 7-2 : Delay in progress by sex (Science students)

Sex	Total entry	Completed the course					Total	Failed or left	Percentage of those who completed the course		
		minimum period	1 year delay	2 years delay	3 or more years delay	In minimum period			In permissible period	Total	
I Stage	Men	1,299	689	200	61	23	973	326	53.0	68.4	74.9
	Women	128	80	15	7	1	103	25	62.5	74.2	80.5
	Total	1,427	769	215	68	24	1,076	351	53.9	68.9	75.4
II Stage	Men	352	200	76	20	7	303	49	56.8	78.4	86.1
	Women	45	37	4	—	—	41	4	82.2	91.1	91.1
	Total	397	237	80	20	7	344	53	59.7	79.8	86.7

missible' period to complete the first stage in arts and this figure is four per cent for the second stage. For the complete four-year course eight per cent students take an unreasonably long period. The corresponding figures for science are about seven per cent at both the first and second stages. The 'effective' wastage is therefore greater to this extent than the figures of wastage given earlier for various stages. Comments on the differences between the two sexes are similar to those given under wastage and stagnation in earlier chapters.

Tables 7.3 and 7.4 analyse the data by the S.S.C. examination marks and Tables 7.3(A) and 7.4(A) analyse the data for the second stage by the marks at the Intermediate examination. Comparisons between figures for those who have completed the course at all and those who have done so in the 'minimum' period and the 'permissible' period suggest conclusions which have already been given under wastage and stagnation. The additional comments are : (1) the proportion of students who take an unreasonably long period to complete a stage (or a course) is much greater for the lower mark groups and is almost negligible for the group above 65 per cent marks. This is as it should be. Table 7.3(A) also supports this conclusion. But the pattern at the second stage in science (Table 7.4(A)) is not very regular.

These figures were also analysed by the other factors. (Tables are not given for considerations of space.) The analysis by age at entry led us to the same conclusions, as those given in earlier chapters, including the difference between the figures for ages 15 years and 16 years for arts students which perhaps is due to the lack of adjustment experienced by the very young students (of age 15 years or below at entry). The analysis by caste yielded conclusions similar to those given earlier when we analysed wastage and stagnation by this factor. The analysis by schools (local or non-local) from which the students came, did not bring out anything more than confirming the comments, (including the one on the persistence of local students in arts), made earlier while analysing by this factor.

Finally, Table 7.5 classifies the successful students by their performance and the number of years taken to complete the course. Here we find, (especially in science), that there is an appreciable number of students who have scored first or second class with delayed progress. Some of them have even taken a longer period than the 'permissible' one. Those who have taken longer than the 'minimum' period but not longer than the 'permissible' period may have done so due to unavoidable non-academic difficulties such as illness, or avoidable academic 'difficulties' such as a desire to score better by taking a longer period (or in popular parlance by taking a 'drop'.) But the cases of those who have taken an unreasonably longer period and yet have secured a class are worth investigating further for causes. Unfortunately, within the scope and limits of our inquiry, this is not possible.

TABLE : 7.3 : Delay in progress by S.S.C. examination marks ( Arts Students )

	S. S. C. examination marks (per cent)	Total entry	Completed the course				Total	Failed or left	Percentage of those who completed the course		Total
			minimum period	1 year delay	2 years delay	3 or more years delay			In minimum period	In permissible period	
I Stage	35-44	57	5	11	4	7	27	30	8.8	28.1	47.4
	45-54	193	69	33	9	9	120	73	35.7	52.8	62.2
	55-64	82	47	15	5	1	68	14	57.3	75.6	82.9
	65 & above	36	29	5	—	—	34	2	80.5	94.5	94.5
	Blank	37	18	9	1	—	28	9			
	Total	405	168	73	19	17	277	128			
II Stage	35-44	19	8	3	—	1	12	7	42.1	57.9	63.2
	45-54	93	69	9	1	3	82	11	74.2	83.9	88.2
	55-64	46	41	3	—	—	44	2	89.1	95.7	95.7
	65 & above	28	25	1	—	—	26	2	89.3	92.9	92.9
	Blank	20	17	1	2	—	20	—			
	Total	206	160	17	3	4	184	22			
Four-year Course	35-44	55	1	4	1	6	15	43	1.8	10.9	21.8
	45-54	174	48	16	10	8	82	92	27.6	42.5	47.1
	55-64	69	33	8	3	—	44	25	47.8	63.8	63.8
	65 & above	31	23	2	1	—	26	5	74.2	83.9	83.9
	Blank	31	12	4	3	1	20	11			
	Total	360	117	34	18	15	184	146			

TABLE 7-3 (A) : Delay in progress by Intermediate Arts examination marks (percentage)

	Inter Arts marks (per cent)	Total entry	Completed the course				Total	Failed or left	Percentage of those who completed the course		
			minimum period	1 year delay	2 years delay	3 or more years delay			In minimum period	In permissible period	Total
	Below 45	124	93	9	3	3	108	16	75.0	82.2	18.7
II Stage	45 — 54	49	46	2	—	—	48	1	93.9	98.0	98.0
	Blank	33	21	6	—	1	28	5			
	Total	206	160	17	3	4	184	22			

TABLE 7.4 : Delay in progress by S. S. C. examination marks (Science students)

	S. S. C. examination marks (per cent)	Total entry	Completed the course				Total	Failed or left	Percentage of those who completed the course		
			minimum period	1 year delay	2 years delay	3 or more years delay			In minimum period	In permis- sible period	Total
I Stage	35 — 44	35	4	4	5	—	13	22	11.4	22.8	37.2
	45 — 54	488	127	96	39	18	280	208	26.0	45.7	57.4
	55 — 64	506	326	83	19	5	433	73	64.4	80.8	85.6
	65 & above	340	288	26	1	1	316	24	84.7	92.3	93.0
	Blank	58	24	6	4	—	34	24			
	<b>Total</b>	<b>1,427</b>	<b>769</b>	<b>215</b>	<b>68</b>	<b>24</b>	<b>1,076</b>	<b>351</b>			
II Stage	35 — 44	5	3	1	—	—	4	1	60.0	80.0	80.0
	45 — 54	135	68	25	9	4	106	29	50.4	68.9	78.5
	55 — 64	180	118	41	4	3	166	14	65.5	88.3	92.2
	65 & above	70	43	13	7	—	63	7	61.4	80.0	90.0
	Blank	7	5	—	—	—	5	2			
	<b>Total</b>	<b>397</b>	<b>237</b>	<b>80</b>	<b>20</b>	<b>7</b>	<b>344</b>	<b>53</b>			

TABLE 7.4 (A) : Delay in progress by Intermediate Science examination marks

	Inter Science marks (per cent)	Total entry	Completed the course				Total	Failed or left	Percentage of those who completed the course		
			minimum period	1 year delay	2 years delay	3 or more years delay			In minimum period	In permissible period	Total
II Stage	Below 45	113	60	25	6	2	93	20	53.1	75.2	82.3
	45 — 54	228	145	46	13	5	209	19	63.6	83.8	91.7
	55 — 64	19	12	4	—	—	16	3	63.1	84.2	84.2
	65 & above	6	6	—	—	—	6	—	100.0	100.0	100.0
	Blank	31	14	5	1	—	20	11			
	<b>Total</b>	<b>397</b>	<b>237</b>	<b>80</b>	<b>20</b>	<b>7</b>	<b>344</b>	<b>53</b>			

TABLE 7-5 : Performance in examination

Class		Completed the course				Total delayed
		minimum period	1 year delay	2 years delay	3 or more years delay	
<i>Arts</i>						
I Stage	I	—	—	—	—	—
	II	49	5	—	2	7
	Pass	119	68	19	15	102
	Total	168	73	19	17	109
II Stage	I	2	—	—	—	—
	II	81	1	—	1	2
	Pass	77	16	3	3	22
	Total	160	17	3	4	24
Four-year Course	I	2	—	—	—	—
	II	69	7	5	2	14
	Pass	46	27	13	13	53
	Total	117	34	18	15	67
<i>Science</i>						
I Stage	I	120	10	—	—	10
	II	503	132	21	5	158
	Pass	146	73	47	19	139
	Total	769	215	68	24	307
II Stage	I	20	5	—	—	5
	II	168	46	10	1	57
	Pass	49	29	10	6	45
	Total	237	80	20	7	107

*Analysis of Wastage by the Number of Years Spent in College*

We now propose to analyse the wastage cases (i.e. those who left the course with or without a failure at the university examination) in each stage according to the number of years spent by them in college before they finally decided to give up college education. The figures used in this analysis correspond to those used in Chapter VI on Student Performance; which means that the cases omitted from consideration in that chapter are also omitted here. In a sense, this analysis describes in further detail the efforts wasted, and thus supplements our analysis of wastage presented

in earlier chapters. (It should be noted that the first two columns in tables for the second stage are blank because students who have travelled up to this stage have necessarily put in two years in college if not more.)

Tables 7.6 and 7.7 classify the figures by sex. About 50 per cent of those who left in the first stage in arts did so within or at the end of the first year in college; another 25 per cent left after two years. These proportions are even higher for science students. In the case of the four-year course in arts most of the students who leave (85 per cent) take the decision within four years of their joining college. There is not much difference between men and women in this respect. But the 'trial' period for the second stage seems to drag on a little longer, both for arts and science, than for the first stage. This is understandable because the successful completion of the second stage implies fulfilment of the objective, viz. the acquisition of a university degree.

TABLE 7.6 : *Wastage by sex and number of years spent in college (Arts Students)*

Sex	Years spent in college									Total
	1 or less	2	3	4	5	6	7	8	9	
<b>I Stage</b>										
Men	43	19	5	8	6	—	—	1	—	82
Women	23	11	9	1	1	—	—	1	—	46
Total	66	30	14	9	7	—	—	2	—	128
<b>II Stage</b>										
Men	—	—	2	—	4	3	4	—	1	14
Women	—	—	2	1	1	1	1	2	—	8
Total	—	—	4	1	5	4	5	2	1	22
<b>Four-year Course</b>										
Men	43	23	13	9	11	3	5	1	1	109
Women	23	17	16	4	2	1	1	3	—	67
Total	66	40	29	13	13	4	6	4	1	176

The analysis by the S.S.C. examination marks is given in Tables 7.8 and 7.9, and a similar analysis by the Intermediate examination marks for the second stage is given in Tables 7.8(A) and 7.9(A). We find that the higher marks groups take the decision about leaving the courses earlier and it is the middle group (45-54 marks) which delays its decision longer,

## WASTAGE IN COLLEGE EDUCATION

TABLE 7-7 : *Wastage by sex and number of years spent in college (Science Students)*

Sex	Years spent in college									Total
	1 or less	2	3	4	5	6	7	8	9	
Stage										
Men	187	65	45	15	10	3	—	1	—	326
Women	13	5	7	—	—	—	—	—	—	25
Total	200	70	52	15	10	3	—	1	—	351
II Stage										
Men	—	—	5	11	11	5	9	6	2	49
Women	—	—	1	—	—	2	—	1	—	4
Total	—	—	6	11	11	7	9	7	2	53

TABLE 8 : *Wastage by S.S.C. examination marks and number of years spent in college (Arts students)*

S. S. C. examination marks (per cent)	Years spent in college									Total
	1 or less	2	3	4	5	6	7	8	9	
I Stage										
35-44	12	8	4	3	2	—	—	1	—	30
45-54	38	16	8	6	4	—	—	1	—	73
55-64	9	4	1	—	—	—	—	—	—	14
65 & above	1	1	—	—	—	—	—	—	—	2
Blank	6	1	1	—	1	—	—	—	—	9
Total	66	30	14	9	7	—	—	2	—	128
II Stage										
35-44	—	—	—	—	1	2	3	1	—	7
45-54	—	—	3	—	3	1	2	1	1	11
55-64	—	—	—	1	—	1	—	—	—	2
65 & above	—	—	1	—	1	—	—	—	—	2
Blank	—	—	—	—	—	—	—	—	—	—
Total	—	—	4	1	5	4	5	2	1	22
Four-year Course										
35-44	12	9	8	3	4	2	3	2	—	43
45-54	38	20	13	7	7	1	3	2	1	92
55-64	9	7	5	3	—	1	—	—	—	25
65 & above	1	2	1	—	1	—	—	—	—	5
Blank	6	2	2	—	1	—	—	—	—	11
Total	66	40	29	13	13	4	6	4	1	176

(especially in science). This may be due to there being the largest number of students in this group, in which case, it has no significance. On the other hand this may reflect the income and social position of the parents. In the second stage (Tables 7.8, 7.8(A), 7.9 and 7.9(A) ) it is the lowest group which postpones decision for a longer period.

TABLE 8 (A) : *Wastage by Intermediate Arts examination marks and number of years spent in college (Arts Students)*

Inter Arts marks (per cent)	Years spent in college							
	3	4	5	6	7	8	9	Total
<b>II Stage</b>								
Below 45	3	1	2	4	4	1	1	16
45-54	1	—	—	—	—	—	—	1
Blank	—	—	3	—	1	1	—	5
<b>Total</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>22</b>

TABLE 9 : *Wastage by S.S.C. examination marks and number of years spent in college (Science Students)*

S. S. C. Examination marks (per cent)	Years spent in college									
	1 or less	2	3	4	5	6	7	8	9	Total
<b>I Stage</b>										
35-44	14	2	4	4	1	—	—	—	—	22
45-54	103	45	37	11	8	3	—	1	—	208
55-64	47	15	8	2	1	—	—	—	—	73
65 & above	17	5	2	—	—	—	—	—	—	24
Blank	19	3	1	1	—	—	—	—	—	24
<b>Total</b>	<b>200</b>	<b>70</b>	<b>52</b>	<b>15</b>	<b>10</b>	<b>3</b>		<b>1</b>	<b>—</b>	<b>351</b>
<b>II Stage</b>										
35-44	—	—	—	—	—	—	1	—	—	1
45-54	—	—	1	8	5	4	6	3	2	29
55-64	—	—	2	—	6	1	2	3	—	14
65 & above	—	—	2	2	—	2	—	1	—	7
Blank	—	—	1	1	—	—	—	—	—	2
<b>Total</b>	<b>—</b>	<b>—</b>	<b>6</b>	<b>11</b>	<b>11</b>	<b>7</b>	<b>9</b>	<b>7</b>	<b>2</b>	<b>53</b>

TABLE 9 (A) : *Wastage by Intermediate science examination marks and number of years spent in college ( Science Students )*

<i>Inter Science marks (per cent)</i>	<i>Years spent in college</i>							<i>Total</i>
	3	4	5	6	7	8	9	
<b>II Stage</b>								
below 45	—	4	7	2	4	3	—	20
45-54	5	5	4	1	1	3	—	19
55-64	1	1	—	1	—	—	—	3
65 & above	—	—	—	—	—	—	—	—
Blank	—	1	—	3	4	1	2	11
<b>Total</b>	<b>6</b>	<b>11</b>	<b>11</b>	<b>7</b>	<b>9</b>	<b>7</b>	<b>2</b>	<b>53</b>

The figures were also analysed according to other factors, viz. age, caste and schools — local and non-local. These tables have not been reproduced here. We only summarize very briefly the conclusions arising out of the analysis. No definite pattern emerged from the analysis of the data by age, except perhaps the tendency that while in arts the higher age groups (18 years and above) delay their decision longer, in science it is the middle age groups (16 to 18 years) who do so. No definite pattern was in evidence in the analysis by castes except perhaps to indicate the better staying power of students from the advanced communities. The analysis by schools (local or non-local) from which the students came, showed that the local students delay their decision of leaving the college education longer than the non-local students, in all stages in arts and in the first stage in science.

## CHAPTER VIII

### REGRESSION ANALYSIS OF EXAMINATION MARKS

#### *Introduction*

We have seen earlier that the marks at S.S.C. examination is the most dominant factor determining the course of the career of a student in college. Wastage and stagnation are highly associated with this factor. It is therefore thought that it should be useful to see whether the percentage marks at S.S.C. examination are good indicators of the marks at the higher university examinations (Intermediate and degree examinations) and also whether the marks at Intermediate examination are good indicators of the marks at degree examination. For this purpose the method of linear regression is used. The data are described below and the results are summarized subsequently.

#### *Description of Data*

Table 8.1 classifies all students who *appeared* for Intermediate Arts examination by the percentage marks ( $y$ ) that they obtained in this examination at the first attempt against their percentage marks ( $x$ ) at S.S.C. examination. Only those students for whom this information was available are included for this purpose. Both percentage marks are grouped in intervals of five. Table 8.2 classifies all students who appeared for B.A. examination by the marks ( $y$ ) obtained at that examination at the first attempt against their marks ( $x$ ) at S.S.C. examination, and Table 8.3 classifies all those who appeared at B.A. examination by their marks ( $y$ ) at B.A. examination at the first attempt against their marks ( $x$ ) at Intermediate Arts examination. It should be observed that in the case of 'exempted' students exact information was not available about the marks at the earlier examination ( $x$ ), and they are therefore excluded from this analysis. Tables 8.4, 8.5, 8.6, respectively, give the same data for science students. Intermediate Arts and B.A. examinations being replaced by Intermediate Science and B.Sc. examinations respectively.

Tables 8.7 to 8.12 give similar but not identical data. Table 8.7 classifies all students who *passed* Intermediate Arts examination by the marks ( $y$ ) obtained at this examination at the final attempt when they passed it, against their marks ( $x$ ) at S.S.C. examination. Tables 8.8 and 8.9 give similar data classifying B.A. marks against S.S.C. marks and Intermediate Arts marks respectively. Two clarifications are necessary. It should be first observed that these tables deal with students who have ultimately passed the second examination while the corresponding Tables 8.1 to 8.3 considered all those who appeared at the second examination. Secondly, Tables 8.7, 8.8, 8.9 include the class of exempted students both at Intermediate and degree examinations. Tables 8.10, 8.11, 8.12 corres-

pond to Tables 8.7, 8.8, 8.9, the arts students and the arts examinations being replaced by the science students and the corresponding science examinations.

Linear regressions were fitted to all these data, the regression of  $y$  and  $x$  in each case. Tables 8.1 to 8.6 present no difficulty. For Tables 8.7 to 8.12 this was done in two ways: (A) excluding all exempted students, (B) including them and adjusting the cell frequencies. This adjustment was done in the following manner. It was thought not unreasonable to assume that students who are 'exempted' and who avail themselves of these exemptions score about 45 per cent marks or less in the examination as a whole. The cell frequency of the exempted students in the row (or column) was therefore distributed over the cells below 45 marks in the corresponding column (or row) in proportion to the frequencies of non-exempted students in these cells.

### Summary of Results

The results are summarized below: they give the table from which the data are considered,  $N$  the number of students, the regression equation of  $y$  on  $x$ , and the correlation coefficient between  $y$  and  $x$  in each case. All the correlations are significant and confirm the associations mentioned in earlier chapters. But the degree of dependence varies considerably. The part of the variation in  $y$  explained by the linear regression lies between

Table	$N$	Equation	Correlation coefficient
8· 1	296	$y = 9\cdot 3146 + 0\cdot 5247 x$	0· 6005
8· 2	192	$y = 21\cdot 0853 + 0\cdot 4041 x$	0· 4853
8· 3	182	$y = 8\cdot 4687 + 0\cdot 8429 x$	0· 6311
8· 4	1143	$y = 2\cdot 8245 + 0\cdot 7455 x$	0· 6057
8· 5	370	$y = 28\cdot 3301 + 0\cdot 2822 x$	0· 2054
8· 6	347	$y = 9\cdot 1966 + 0\cdot 7557 x$	0· 4209
8· 7 (A)	210	$y = 21\cdot 9936 + 0\cdot 3477 x$	0· 5526
8· 8 (A)	177	$y = 26\cdot 0728 + 0\cdot 3386 x$	0· 5050
8· 9 (A)	168	$y = 18\cdot 2082 + 0\cdot 6374 x$	0· 5978
8· 10 (A)	989	$y = 17\cdot 3914 + 0\cdot 5513 x$	0· 5945
8· 11 (A)	307	$y = 38\cdot 7131 + 0\cdot 1902 x$	0· 2068
8· 12 (A)	293	$y = 22\cdot 8847 + 0\cdot 5659 x$	0· 4714
8· 7 (B)	259	$y = 21\cdot 6179 + 0\cdot 3493 x$	0· 5550
8· 8 (B)	180	$y = 25\cdot 8670 + 0\cdot 3415 x$	0· 5098
8· 9 (B)	203	$y = 17\cdot 5641 + 0\cdot 6487 x$	0· 6056
8· 10 (B)	1044	$y = 16\cdot 0089 + 0\cdot 5693 x$	0· 6072
8· 11 (B)	339	$y = 37\cdot 2358 + 0\cdot 2021 x$	0· 2170
8· 12 (B)	344	$y = 21\cdot 8487 + 0\cdot 5739 x$	0· 4701

4 per cent (Table 8.5) and 40 per cent (Table 8.3). A study of the various correlations leads us to make the following observations. The internal pattern among the three groups 8.1 to 8.6, 8.7(A) to 8.12(A), and 8.7(B) to 8.12(B) is almost similar. Whether we take students' marks ( $y$ ) at the first attempt for all those who appeared at the second examination or at the final attempt for all those who passed it, whether we leave out the exempted students altogether or we make an adjustment for them, these do not make much difference for the degree of dependence as shown by the correlation coefficients. The only remark which may be permissible is that the adjustment slightly strengthens the correlation in most cases. Confining ourselves to the group 8.1 to 8.6 we find that the association is on the whole closer in the case of arts than in the case of science students, especially at the degree stage. This is probably due to the great depletion in the batch of science students after Intermediate stage due to the efflux to the professional courses. The arts batch remains comparatively untouched. There is a greater dependence of degree examination marks on Intermediate examination marks than on S.S.C. examination marks, which is one stage removed. This also explains the higher correlation between Intermediate examination marks and S.S.C. examination marks than between degree examination marks and S.S.C. examination marks. The highest correlation is between degree examination marks and the marks at Intermediate Arts examination. This perhaps indicates that the two stages of the four-year course are more closely related in structure in arts than in science.

From the regression analysis it is not unreasonable to conclude that although S.S.C. marks may perhaps be a reasonably good indicator of the capacity of students to complete the college education (see Chapters II and III), it does not appear to be a good indicator of the course of his academic development and performance in college. This gives rise to several important problems such as the relation between secondary education and college education, S.S.C. examination as a measure of the academic bent of mind of a student, the age at which intellectual or academic faculties and interests awaken in the minds of the adolescent, and so on. These must be necessarily left to educational and pedagogic experts for investigations specially designed for these problems. The reader will find in the next chapter some observations on the influences which operate on the course of careers of college students.

TABLE 8.1 : Marks at the first attempt at Intermediate Arts examination against S.S.C. examination marks (percentage)

Intermediate Arts marks	S. S. C. marks									Total
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	
15-19	—	—	2	1	—	—	—	—	—	3
20-24	1	2	1	1	—	—	—	—	—	5
25-29	2	15	8	8	1	—	—	—	—	34
30-34	—	15	26	18	10	2	1	—	—	72
35-39	—	5	19	23	10	8	1	4	—	70
40-44	—	1	11	19	14	8	5	2	—	60
45-49	—	—	3	4	10	5	8	5	1	36
50-54	—	—	—	2	4	2	2	4	2	16
Total	3	38	70	76	49	25	17	15	3	296

TABLE 8.2 : Marks at the first attempt at B.A. examination against S.S.C. examination marks (percentage)

B. A. marks	S, S. C. marks									Total
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	
20-24	—	1	—	1	—	—	—	1	—	3
25-29	—	1	2	1	—	—	—	—	—	4
30-34	—	5	3	1	1	—	—	—	—	10
35-39	2	5	10	13	6	1	1	1	—	39
40-44	—	3	19	13	9	4	4	1	—	53
45-49	—	1	8	16	11	9	3	4	1	53
50-54	—	—	—	5	6	3	2	4	1	21
55-59	—	—	—	—	2	1	1	2	1	7
60-64	—	—	—	—	—	1	—	—	—	1
65-69	—	—	—	—	—	—	—	—	—	—
70-74	—	—	—	—	—	—	—	1	—	1
Total	2	16	42	50	35	19	11	14	3	192

TABLE 8-3 : Marks at the first attempt at B.A. examination against Intermediate Arts examination marks (percentage)

B. A. marks	Intermediate Arts marks					Total
	30-34	35-39	40-44	45-49	50-54	
20-24	1	1	1	—	—	3
25-29	—	4	—	—	—	4
30-34	7	4	—	—	—	11
35-39	5	20	7	1	—	33
40-44	4	16	17	9	1	47
45-49	1	10	26	12	6	55
50-54	—	1	6	8	5	20
55-59	—	—	—	5	2	7
60-64	—	—	—	—	1	1
65-69	—	—	—	—	—	—
70-74	—	—	—	—	1	1
Total	18	56	57	35	16	182

TABLE 8-4 : Marks at the first attempt at Intermediate Science examination against S.S.C. examination marks (percentage)

Intermediate Science marks	S. C. C. marks										Total
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	
15-19	—	—	3	1	1	1	—	—	—	—	6
20-24	—	3	4	6	1	1	—	—	—	—	15
25-29	—	—	5	11	2	3	—	—	—	—	21
30-34	1	2	23	19	12	6	3	—	—	—	66
35-39	1	5	34	62	36	13	4	5	—	—	160
40-44	—	5	37	55	46	28	19	8	1	—	199
45-49	—	—	22	42	55	63	28	10	2	—	222
50-54	—	—	8	13	58	61	34	16	7	—	197
55-59	—	1	2	8	22	23	48	27	2	1	134
60-64	—	—	—	—	2	8	22	31	10	2	75
65-69	—	—	—	—	2	4	8	5	9	1	29
70-74	—	—	—	—	—	1	2	6	3	1	13
75-79	—	—	—	—	—	—	—	—	5	1	6
Total	2	16	138	217	237	212	168	108	39	6	1143

TABLE 8.5 : Marks at the first attempt at B.Sc. examination against S.S.C. examination marks (percentage)

B.Sc. marks	S. S. C. marks									Total
	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	
15-19	—	—	5	1	1	1	—	—	—	8
20-24	—	3	3	1	1	1	—	—	—	9
25-29	1	1	3	1	4	—	1	—	—	11
30-34	—	4	7	8	3	4	—	—	—	26
35-39	1	10	6	14	8	4	2	—	—	45
40-44	1	11	14	16	17	6	5	2	—	72
45-49	1	11	19	25	17	7	4	2	—	86
50-54	1	6	13	16	15	8	4	—	—	63
55-59	—	2	4	10	8	1	3	—	—	28
60-64	—	—	—	4	4	2	—	1	—	11
65-69	—	1	2	1	1	2	—	—	1	8
70-74	—	—	—	—	—	—	—	1	—	1
75-79	—	—	—	—	—	—	2	—	—	2
Total	5	49	76	97	79	36	21	6	1	370

TABLE 8.6 : Marks at the first attempt at B.Sc. examination against Intermediate Science examination marks (percentage)

B.Sc. marks	Intermediate Science marks										Total
	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	
15-19	—	—	3	1	1	1	—	—	—	—	6
20-24	—	3	2	3	—	—	—	—	—	—	8
25-29	—	1	2	7	—	—	—	—	—	—	10
30-34	—	1	7	11	2	2	—	—	—	—	23
35-39	1	2	16	22	4	—	—	—	—	—	45
40-44	—	4	19	22	14	2	—	—	—	—	61
45-49	—	2	24	32	25	1	—	—	—	—	84
50-54	—	1	13	32	16	1	—	—	—	—	63
55-59	—	—	4	3	12	5	—	1	—	—	25
60-64	—	—	2	3	3	1	1	2	—	—	12
65-69	—	—	—	1	3	—	2	—	—	1	7
70-74	—	—	—	—	—	—	1	—	—	—	1
75-79	—	—	—	—	—	—	—	1	1	—	2
Total	1	14	92	137	80	13	4	4	1	1	347

TABLE 8·7 : Marks at the Intermediate Arts examination against S.S.C. examination marks (percentage)

Intermediate Arts marks	S. S. C. marks									Total
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	
30-34	—	11	7	5	2	—	—	—	—	25
35-39	1	9	22	17	9	4	—	4	—	66
40-44	—	1	10	21	15	8	5	2	—	62
45-49	—	2	4	5	10	5	9	5	1	41
50-54	—	—	—	2	4	2	2	4	2	16
Exempt	1	5	14	17	7	4	1	—	—	49
Total	2	28	57	67	47	23	17	15	3	259

TABLE 8·8 : Marks at B.A. examination against S.S.C. examination marks (percentage)

B. A. marks	S. S. C. marks									Total
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	
35-39	1	6	9	11	4	—	1	1	—	33
40-44	1	3	23	15	9	4	4	1	—	60
45-49	—	1	8	17	11	9	3	4	1	54
50-54	—	—	—	5	6	3	2	4	1	21
55-59	—	—	—	—	2	1	1	2	1	7
60-64	—	—	—	—	—	1	—	—	—	1
65-69	—	—	—	—	—	—	—	—	—	—
70-74	—	—	—	—	—	—	—	1	—	1
Exempt	—	1	—	1	1	—	—	—	—	3
Total	2	11	40	49	33	18	11	13	3	180

TABLE 8-9 : Marks at B.A. examination against Intermediate Arts examination marks (percentage)

B. A. marks	Intermediate Arts marks						Total
	30-34	35-39	40-44	45-49	50-54	Exempt	
35-39	7	18	6	1	—	10	42
40-44	6	18	17	9	1	13	64
45-49	1	10	27	12	6	7	63
50-54	—	1	6	8	5	1	21
55-59	—	—	—	5	2	—	7
60-64	—	—	—	—	1	—	1
65-69	—	—	—	—	—	—	—
70-74	—	—	—	—	1	—	1
Exempt	—	3	—	—	—	1	4
Total	14	50	56	35	16	32	203

TABLE 8-10 : Marks at Intermediate Science examination against S.S.C. examination marks (percentage)

Intermediate Science marks	S. S. C. marks										Total
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	
30-34	—	—	1	—	—	—	—	—	—	—	1
35-39	—	2	11	13	8	1	2	1	—	—	38
40-44	—	4	43	46	43	25	13	6	—	—	180
45-49	—	1	31	58	71	67	30	9	2	—	269
50-54	—	—	11	17	70	65	37	19	7	—	226
55-59	—	1	5	11	23	26	49	27	3	1	146
60-64	—	—	—	1	2	8	24	32	10	2	79
65-69	—	—	—	—	2	4	8	6	9	1	30
70-74	—	—	—	—	—	1	2	6	3	1	13
75-79	—	—	—	—	—	—	—	1	5	1	7
Exempt	1	3	8	25	12	5	2	—	—	—	56
Total	1	11	110	171	231	202	167	107	39	6	1045

TABLE 8-11 : Marks at B.Sc. examination against S.S.C. examination marks (percentage)

B.Sc. marks	S. S. C. marks									Total
	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	
35-39	—	3	2	1	2	1	—	—	—	9
40-44	1	8	10	15	11	2	3	2	—	52
45-49	1	11	23	31	24	9	6	2	—	107
50-54	1	7	15	20	16	13	4	—	—	76
55-59	—	3	5	13	11	3	3	—	—	38
60-64	—	—	—	6	5	2	—	1	—	14
65-69	—	1	2	1	1	2	—	—	1	8
70-74	—	—	—	—	—	—	—	1	—	1
75-79	—	—	—	—	—	—	2	—	—	2
Exempt	—	10	6	4	6	4	2	—	—	32
Total	3	43	63	91	76	36	20	6	1	339

TABLE 8-12 : Marks at B. Sc. examination against Intermediate Science examination marks (percentage)

B. Sc. marks	Intermediate Science marks											Total
	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	Ex-empt	
35-39	1	—	3	5	—	—	—	—	—	—	1	10
40-44	—	2	12	21	6	1	—	—	—	—	10	52
45-49	—	2	29	45	28	2	—	—	—	—	2	108
50-54	—	1	17	39	19	1	—	—	—	—	2	79
55-59	—	—	6	7	13	7	—	1	—	—	4	38
60-64	—	—	3	3	4	1	1	2	—	—	—	14
65-69	—	—	—	1	4	—	2	—	—	1	—	8
70-74	—	—	—	—	—	—	1	—	—	—	—	1
75-79	—	—	—	—	—	—	—	1	1	—	—	2
Exempt	—	4	12	8	5	2	—	—	—	—	1	32
Total	1	9	82	129	79	14	4	4	1	1	20	344

## CHAPTER IX

### CAREERS OF BRIGHT STUDENTS

#### *Introduction*

We conclude these investigations by recording notable facts about the careers of bright students, that is, of students who did well in S.S.C. examination or degree examination. This study is divided into two parts: (A) the careers of students who entered college in arts with 60 per cent marks or more at S.S.C. examination, and of those who entered college in science with 65 per cent marks or more at S.S.C. examination; (B) the careers of students (traced backwards), who passed B.A. and B.Sc. examinations of the Poona University with more than 50 per cent and 55 per cent marks respectively.\*

#### SECTION A

#### *General Description*

Among the students who joined arts there were 71 students who had obtained 60 per cent marks or above at S.S.C. examination, and among those who joined science there were 362 who had secured more than 65 per cent marks at S.S.C. They are classified by (1) sex, (2) age at entry, (3) caste, (4) guardian's occupation, (5) guardian's income, and (6) schools (local or non-local) in Tables 9.1(A) to 9.6(A) respectively. Along with the percentage figures in different categories among bright students are also given the percentage figures among the total number of entrants in arts and science respectively. These figures bring out the difference in the composition of the entire batch and that of the group of bright students as defined by S.S.C. marks above 60 per cent and 65 per cent in case of arts and science respectively. (Arts and science students are given different floor percentages to accommodate the fact that science attracts better students much more than arts.)

Table 9.1(A) shows that while there is practically no difference, in science, between the sex composition of the entire batch and the group of bright students, in arts, there are more women students in the group of bright students. This was to be expected in view of the several factors mentioned in Chapters II and III. In Table 9.2(A) it is observed that both in arts and science (and much more so in arts) there are a larger number of younger students (ages 15 and 16) in the 'bright' group than in the entire batch. From Table 9.3(A) the greater predominance of the advanced communities (Brahmins) in the 'bright' group is evident (as compared with other communities). There is no point in making comparisons among other communities because of the smaller numbers. Tables

\* Tables 9.1(A) to 9.9(A) refer to students considered in Section A, and Tables 9.10(B) to 9.17(B) refer to students considered in Section B.

TABLE 9-1 (A) : Classification of 'bright' students by sex

	Arts			Science		
	Bright students		Percentage in total entry	Bright students		Percentage in total entry
	Number	Per cent		Number	Per cent	
Men	32	45.1	57.2	331	97.4	90.6
Women	39	54.9	42.8	31	8.6	9.4
Total	71	100.0	100.0	362	100.0	100.0

TABLE 9-2 (A) : Distribution of 'bright' students by age at entry

Age	Arts			Science		
	Bright students		Percentage in total entry	Bright students		Percentage in total entry
	Number	Per cent		Number	Per cent	
15	16	22.5	8.3	71	19.6	13.3
16	21	29.6	15.7	131	36.2	27.4
17	15	21.1	22.0	94	26.0	28.4
18	12	16.9	21.1	42	11.6	16.1
19	3	4.2	12.1	17	4.7	8.3
20 and above	4	5.6	19.7	7	1.9	6.1
Blank	—	—	1.1	—	—	0.4
Total	71	100.0	100.0	362	100.0	100.0

TABLE 9-3 (A) : Distribution of 'bright' students by caste

Caste	Arts			Science		
	Bright students		Percent- age in total entry	Bright students		Percent- age in total entry
	Number	Per cent		Number	Per cent	
Brahmin	52	73.2	59.0	245	67.7	55.5
Maratha	7	9.9	13.2	18	5.0	8.0
C. K. Prabhu	3	4.2	6.9	12	3.3	3.7
Jain, Marwadi, etc.	3	4.2	6.3	30	8.3	12.5
Lingayat etc.	3	4.2	5.8	31	8.6	8.4
Mali, Sutar, etc.	1	1.4	2.5	7	1.9	2.3
Backward classes	—	—	1.6	5	1.4	2.7
Others	2	2.8	4.7	14	3.9	6.8
Total	71	100.0	100.0	362	100.0	100.0

9.4(A) and 9.5(A) show that the proportion of the professional classes (doctors, pleaders, etc.) and of those belonging to income groups below Rs. 5000 is greater in the 'bright' group than in the entire batch both in arts and science. Table 9.6(A) which classifies them by schools shows that while there is no marked difference in this respect between the entire batch and the 'bright' group in science, in arts, there are more local students in the bright group than in the whole batch. This is a reflection of the greater number in the 'bright' group of women students most of whom are local.

TABLE 9.4 (A) : *Distribution of 'bright' students by guardian's occupation*

Occupation	Arts			Science		
	Bright students		Percentage in total entry	Bright students		Percentage in total entry
	Number	per cent		Number	per cent	
Service	19	26.7	22.4	85	23.5	23.5
Business	9	12.7	12.6	36	9.9	15.2
Doctor, pleader, etc.	19	26.7	17.7	81	22.4	18.1
Teacher	2	2.8	6.0	37	10.2	5.8
Jamindar, farmer, etc.	5	7.0	11.2	40	11.0	9.7
Pensioner	6	8.4	7.6	37	10.2	7.6
Others	2	2.8	2.2	8	2.2	1.4
Blank	9	12.7	20.2	38	10.5	18.7
Total	71	100.0	100.0	362	100.0	100.0

Table 9.5 (A) : *Distribution of 'bright' students by guardian's income*

Guardian's income (Rs.)	Arts			Science		
	Bright students		Percentage in total entry	Bright students		Percentage in total entry
	Number	per cent		Number	Per cent	
Below 2,000	24	33.8	35.2	133	36.7	34.1
2,000-5,000	29	40.8	34.5	149	41.2	39.2
5,000-10,000	9	12.7	15.5	50	13.8	15.1
10,000 and above	5	7.0	7.8	25	6.9	8.0
Blank	4	5.6	6.9	5	1.4	3.6
Total	71	100.0	100.0	362	100.0	100.0

TABLE 9.6 (A) : *Distribution of 'bright' students by schools*

Schools	Arts			Science		
	Bright students		Percent- age in total entry	Bright students		Percent- age in total entry
	Number	Per cent		Number	Per cent	
Local	44	62.0	58.1	192	53.0	52.5
Non-local	26	36.6	41.0	169	46.7	45.8
Others	1	1.4	0.9	1	0.3	1.7
Total	71	100.0	100.0	362	100.0	100.0

*Arts Students*

Table 9.7(A) shows how these 'bright' students fared and how they left the college.

From the 71 students in arts 45 passed B.A. examination, two joined law to obtain LL.B. degree, and six who left to join other universities may be considered to have taken a degree. This means 53 out of these 71 (i.e. nearly 75 per cent) were able to complete their college education and the remaining 18 could not do so.

TABLE 9.7 (A) : *How the 'bright' students fared*

	Arts	Science
1. Passed B. A. or B. Sc. examination of Poona University (PU)	45	72
2. Joined Engineering courses in PU	—	123
3. Joined Medical course in PU	—	58
4. Joined other degree courses in PU	2	8
5. Joined other university	6	41
6. Joined non-degree courses	—	5
7. Left without passing F. Y. examination	6	16
8. Left after passing F. Y. examination but without passing Intermediate examination	4	11
9. Left after passing Intermediate examination without joining degree course	3	22
10. Joined the degree course in Arts or Science but left without passing the degree examination	5	6
Total	71	362

Of the six who left without passing the First Year Arts examination two are clear cases of academic failure; one of them being a son of a senior government servant with high income must have left college education

to take another fruitful career. Of the remaining four who left during the first year three (all men), appear to be the poverty cases and the fourth, (a woman), may have left the course for marriage. Of the four who left after passing the F.Y. examination (but before passing Intermediate), three seem to be poverty cases (two of these were also academic failures) and the fourth, (a woman), left to marry. Out of the three who left after passing Intermediate examination, two probably dropped out because of the poor academic performance during the first stage, and the third (who had a fair academic career) probably left to join his father's business. From the five who joined the second stage but left before completing it, two were clear cases of academic failure (one of them with poor economic circumstances); and from the remaining three, (all women), two left to marry, and the third who had a poor academic career probably did the same.

Summing up for these 18 cases of wastage we may say that 13 were academic failures (and many of them with poor economic circumstance), four women students left college to get married, and one may have left to join his father's business.

The cases of 45 students who passed B.A. examination were analysed further. There was not much difference between this group and the original group of 71 as regards the factors of sex, age or caste. Their distribution by the percentage marks at B.A. examination is given in Table 9.8(A). It is interesting to see that these students all of whom scored above 60 per cent marks at S.S.C. examination are spread over the whole spectrum. We examined the 11 cases below 45 per cent and seven cases above 55 per cent to see if they show any special characteristics. No pattern was in evidence for the former; but the latter seven were characterised by the high income group (above Rs. 5,000) and a good cultural background; two of them who secured first class and did really well were Brahmin women students.

TABLE 9.8 (A) : *Marks obtained by 'bright' students at the degree examination*

	<i>Marks (percentage)</i>									<i>Total</i>	
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79		<i>Exempt</i>
Arts	2	9	17	10	5	1	—	1	—	—	45
Science	1	7	17	17	6	3	3	1	2	6	63

The same 45 cases are analysed by the duration of the career in Table 9.9(A). There were 38 cases of regular progress (within the prescribed period of four years) and seven of delayed progress. These delayed cases belonged mostly to high-income groups; five of them were non-local; excluding two who did not join for a year and one who took the external

examination the remaining four were women students from advanced communities. It is possible that wedlock blocked their progress for some time.

TABLE 9.9 (A) : *Number of years taken by 'bright' students to complete the degree course*

Degree course in	Number of years				Total
	Four	Five	Six	Seven	
Arts	38	5	2	—	45
Science	34	19	8	2	63

### *Science Students*

Out of the 362 'bright' students who joined the first year science class 63 passed B.Sc. examination, nine passed B.A. examination (after changing over to arts), 123 joined engineering, 58 joined medicine and 8 joined some other degree course (e.g. *Ayurved*) under the Poona University [see Table 9.7(A)]. From those who joined the engineering degree course 120 passed the degree examination; three who could not do so, we expect, must have taken some other degree in science. Out of 58 who joined medicine, 57 secured the degree and one who made three attempts at the first M.B.B.S. examination subsequently gave up. All the eight students who joined other degree courses completed them to get a degree. It is estimated from their records that 41 students who went to other universities would be able to complete the degree course. Five who left to take a non-degree career all joined the diploma course in engineering. It was further felt from the scrutiny of the cards that three from category 7, seven from category 9, and one from category 10 would be able to complete a degree course. To summarize so far, out of the 362 students,  $257 = (63 + 9 + 120 + 57 + 8)$  obtained a degree and  $55 = (3 + 41 + 3 + 7 + 1)$  are expected to have completed a degree course, although we have no definite information about it. The remaining 50 (that is 14 per cent) constitute the wastage among the 'bright' students on the science side. This is less than that for the arts possibly for the following reasons: (1) the 'bright' group in science was defined above 65 per cent marks at S.S.C. instead of 60 per cent; (2) since the science course attracts the cream of students, *actually*, many of these may have had considerably higher percentage at S.S.C.; (3) because of the comparatively smaller number of women students there would be fewer academic casualties due to early marriage.

Let us now have a closer look into those among categories 7 to 10 who dropped out. From 16 students who left without passing the first year examination, three changed college and it is mentioned above that they may have obtained a degree. Four seem to have dropped out for economic

reasons during the course of the year. Three dropped after failures at the first year examination. About the remaining six we have no hypothesis to go on and they may have changed to some non-degree course or career; it is likely that two of them may have joined the hereditary business.

From the students who left after passing the first year examination five stopped after failure at Intermediate, three of them being poverty cases. Six others left without appearing for Intermediate examination; one of them, a woman student, probably left to marry, and another, a backward class male student, probably left due to difficult economic circumstances; for the remaining four, no reasons could be indicated and they may have taken up a non-degree course or career.

It was mentioned earlier that seven out of 22 students (who left after passing Intermediate examination) are expected to have joined a professional degree course in some other university. From the remaining 15, two women students seem to have left education for getting married; four students may have dropped due to poor economic circumstances; three who came from business communities may have opted out for that profession; but for the remaining six no reasons can be indicated, and they may have taken a non-degree course or career.

From the six cases who left after joining B.Sc. class, as mentioned earlier, one is expected to have taken a degree abroad; three are cases of failures; and the remaining two appear to have changed their minds in favour of a non-university career.

To sum up, out of the 55 students who left at various stages, it is expected that 11 may have been able to complete a degree course; 11 dropped out after repeated failures; three women students probably left to marry; nine students probably gave up due to poverty; and the remaining 21 left college to take up a non-university career or to join the hereditary profession (or business) or dropped out for some other reason.

The cases of 63 students who passed B.Sc. examination were further analysed. There is a higher percentage of women of advanced communities and of students of younger age among these 63 than in the original batch of 362. When analysed by their marks at B.Sc. examination [Table 9.8(A)], they run the whole spectrum, as in arts, in spite of the fact that all of them had obtained more than 65 per cent marks at S.S.C. We examined further the cases of eight students who scored less than 45 per cent marks at B.Sc. and the cases of 15 who scored more than 55 per cent marks at B.Sc. In the former group of eight students, who were all men, there were no other specific characteristics except the low income group and comparatively higher age group. In the latter group of 15, nine secured first class at B.Sc., and seven from these nine had a first class career throughout. No other specific characteristics marked them out from the others.

Analysing these 63 students for delay in progress [Table 9.9(A)] we find that no less than 29 had a delayed career. This proportion is much

greater than in arts and can be explained only by (1) the fact that they are the group of students who remained after the large number of better students had left for engineering and other careers and that they had already gone down in their performance at Intermediate examination and (2) perhaps also by the stiffness of B.Sc. course. (It should be mentioned here that there was a large number of failures at the first B.Sc. examination held after a far-reaching change in structure of the degree course, in 1953). If we confine ourselves to the 10 cases of delay of six years or more it is found that two had developed gaps in B.Sc. course, and five had failures only at B.Sc. No other pattern could be discerned.

## SECTION B

*General Description*

We now consider the group of students defined with reference to those who passed B.A. or B.Sc. examinations. For this purpose we consider those students who passed B.A. and B.Sc. examinations with more than 50 per cent marks and 55 per cent marks respectively. We have taken different levels for the two examinations in order to allow for the two facts; (1) a larger number of good quality students take to science; (2) B.Sc. examination is more 'scoring' than B.A. examination. We shall call them 'higher level' group of students for the sake of convenience. There were 30 students (including 25 in first class) who passed B.Sc. examination with more than 55 per cent marks. Tables 9.10(B) to 9.15(B) classify them by (1) sex, (2) age at entry, (3) caste, (4) guardian's occupation, (5) guardian's income, and (6) schools (local or non-local). In the tables are also given for comparison the corresponding figures of the various categories from the total number of students who passed B.A. or B.Sc. examination. (The percentages are not given as the numbers in this group are often very small). Because of the small figures we do not make detailed comparisons between this group of students and the total number of students who passed the examination. But the association with the factors of sex (in arts), younger age at entry and advanced community is quite clear.

TABLE 9·10 (B) : *Distribution of the 'higher level' group by sex*

Sex	Arts		Science	
	Higher level group	Total batch	Higher level group	Total batch
Men	12	109	61	303
Women	18	- 94	2	41
Total	30	203	63	344

TABLE 9·11 (B) : *Distribution of the 'higher level' group by age at entry*

Age	Arts		Science	
	Higher level group	Total batch	Higher level group	Total batch
15	9	26	15	57
16	9	48	21	126
17	6	50	20	95
18	4	43	4	45
19	—	13	1	13
20 and above	2	23	2	8
Total	30	203	63	344

TABLE 9·12 (B) : *Distribution of the 'higher level' group by caste*

Caste	Arts		Science	
	Higher level group	Total batch	Higher level group	Total batch
Brahmin	26	134	46	237
Maratha	1	23	4	27
C. K. Prabhu	—	14	2	16
Jain, Marwadi, etc.	—	8	2	22
Lingayat etc.	—	12	5	18
Mali, Sutar, etc.	1	5	1	3
Backward classes	—	2	—	5
Others	2	5	3	16
Total	30	203	63	344

TABLE 9·13 (B) : *Distribution of the 'higher level' group by guardian's occupation*

Guardian's occupation	Arts		Science	
	Higher level group	Total batch	Higher level group	Total batch
Service	7	53	22	109
Business	3	24	9	46
Doctor, pleader, etc.	6	46	8	64
Teacher	3	13	11	26
Jamindar, farmer etc.	3	27	5	35
Pensioner	6	20	7	41
Others	—	7	—	5
Blank	2	13	1	18
Total	30	203	63	344

TABLE 9-14 (B) : *Distribution of the 'higher level' group by guardian's income*

<i>Guardian's income (Rs.)</i>	<i>Arts</i>		<i>Science</i>	
	<i>Higher level group</i>	<i>Total batch</i>	<i>Higher level group</i>	<i>Total batch</i>
Below 2,000	9	72	28	116
2,000-5,000	11	75	25	151
5,000-10,000	4	29	5	43
10,000 & above	3	19	5	31
Blank	3	8	—	3
<b>Total</b>	<b>30</b>	<b>203</b>	<b>63</b>	<b>344</b>

TABLE 9-15 (B) : *Distribution of the 'higher level' group by schools*

<i>Schools</i>	<i>Arts</i>		<i>Science</i>	
	<i>Higher level group</i>	<i>Total batch</i>	<i>Higher level group</i>	<i>Total batch</i>
Local	21	125	38	216
Non-local	8	75	24	125
Others	1	3	1	3
<b>Total</b>	<b>30</b>	<b>203</b>	<b>63</b>	<b>344</b>

*Arts Students*

Table 9.16(B), which classifies them by their previous academic performance at S.S.C. and Intermediate examinations, shows that all the 30 students who scored more than 50 per cent marks at B.A. had also secured more than 50 per cent at S.S.C. But at Intermediate 21 of them (including one who was exempted), could not reach the 50 per cent. This no doubt reflects the stiffness of Intermediate Arts course and the relative ease of B.A. course where the major part consists of the optional subjects. No significant pattern can be discerned for any of these marks groups. Analysing these 30 students for delay in progress [Table 9.17(B)] it is found that 27 made regular progress and three were delayed. No specific characteristics were found for the delayed cases except that they all were delayed in the first stage up to Intermediate, probably confirming the relative stiffness of Intermediate course.

*Science Students*

From Table 9.16(B) we find that 11 of the 63 students who scored more than 55 per cent marks at B.Sc. examination had obtained less than 55 per

TABLE 9·16 (B) : Marks obtained by the 'higher level' group at S. S. C. and Intermediate examinations

Marks (per cent)	S. S. C.		Intermediate	
	Arts	Science	Arts	Science
35-39	—	—	1	—
40-44	—	—	6	9
45-49	—	4	13	11
50-54	5	7	9	21
55-59	8	20	—	8
60-64	5	17	—	4
65-69	3	7	—	4
70-74	7	5	—	1
75-79	2	2	—	1
80-84	—	1	—	—
Exempt	—	—	1	4
<b>Total</b>	<b>30</b>	<b>63</b>	<b>30</b>	<b>63</b>

TABLE 9·17 (B) : Number of years taken by the 'higher level' group to complete the degree course

	Number of years				
	Four	Five	Six	Seven	Total
Arts	27	1	1	1	30
Science	30	23	6	4	63

cent marks at S.S.C., and 45 (including four exempted students) had obtained less than 55 per cent at Intermediate science examination. In this again is reflected the exodus to engineering and medicine of the better quality science students leaving the remnant batch of less quality for B.Sc. course. Of the 11 students getting less than 55 per cent marks at S.S.C. examination, nine were delayed in progress. Three obtained first class in B.Sc. although two of these were delayed cases. At the upper end, of the 15 students with more than 65 per cent marks at S.S.C. examination, three made delayed progress to B.Sc. degree and the worst case among them happens to be that of a non-local student of non-advanced community and poor economic circumstances and with age of 21 years at entry. There are no other specific patterns which could be discerned. From the analysis of these 63 students by duration of progress [Table 9.17(B)] it is found that only 30 made regular progress and 33 were delayed. A further study of the 10 students who were delayed by two or more years did not

show any specific characteristics; but it is interesting to note that four of them could secure a first class in B.Sc.

It may be useful to note here that 25, out of these 63, obtained first class in B.Sc. (that is, they obtained more than 60 per cent marks) and out of them only 13 made regular progress; the remaining 12 took one to three years more to do so.

Before concluding this chapter it may be observed that for this type of investigation (of the careers of students) the information from the college records alone will not be adequate for further worthwhile analysis. Factors such as personal and family circumstances are bound to play an important role in shaping the career of a student. Even so the analysis given above should give indications of what could be attempted in this direction.

**APPENDIX A**  
**COMPARISON WITH OTHER COUNTRIES**

It is interesting to compare the wastage figures estimated in chapters II, III and IV for the Fergusson College and the Poona University with similar figures for other countries. It is known that the wastage for all university students (who join some degree course in a university) is 42 per cent in Australia, and 17 per cent in the U.K. (See: An article by Gani and Blakers, *The Universities' Quarterly*, 1959). For the American universities the figures very commonly quoted are of the order of 40 per cent.

There are several comprehensive inquiries on these questions conducted in the U.K.\* It is interesting to note that in some of these inquiries it was found that the wastage among women students is slightly less than that among men. There are also interesting similarities in the analysis of wastage by age and type of lodgings. An important contrast is the higher wastage among science students than among arts students. Again the wastage among students of engineering and other technical or professional courses in the U.K. is much higher than that among arts and science students, a conclusion very different from the one emerging from our enquiry. It should be mentioned in this connection, however, that unlike the Indian students, the British students start on their professional courses almost from the beginning of their university career.

We have no figures with us about the wastage in the Indian universities. It is likely that such results are available but the authors have not come across published accounts of such investigations. The authors will be grateful to the readers for any information in this respect.

\* For instance : (1) Montford, (Sir) James, *How They Fared* (Liverpool University Press), 1957 and (2) Malleon, N., "Student Performance at University College, London, 1948-51", *Universities Quarterly*, Vol. 12, No. 3, 1958, pp. 288-319.

**APPENDIX B**  
**PLANNING OF A GOOD INQUIRY ON THE PROBLEMS OF  
WASTAGE AND STAGNATION**

It may be desirable to describe explicitly the limitations and the shortcomings of the present investigations and to outline the requirements of a good inquiry on the two problems of wastage and stagnation.

The present inquiry is confined to only one college whose many distinctive features do not make it fully representative of the Poona University. It is necessary to plan an enquiry which will cover the entire university. It is possible, of course, to build a rough estimate of wastage for a university, in each of the distinct stages of a degree course, by collecting the figures for initial enrolment in all affiliated colleges, the number of students who appear at the university examination marking the end of the stage and the number of passes and failures amongst them, the number of repeaters in the following year and the passes and failures amongst them, and so on. Although such an investigation will cover the whole university it will suffer from the lack of information on all other factors except the academic performance of the group as a whole.

A more efficient enquiry (than the present one) and which will cover the whole university can be planned on the basis of a representative sample drawn from the batch of freshers to the colleges of the university over a number of years and to follow the sampled students until they take a degree (or complete a stage) or leave the college education. Along with items of information collected in the present inquiry it is necessary to introduce some vitally important new items such as the ultimate placement in life and the causes of failure and delayed progress. It is also necessary to devise methods to collect more accurate information on such items like income, guardian's occupation, guardian's education and the type of living accommodation on which the information collected in the present inquiry was far from satisfactory. It may be also considered desirable to follow the students who migrate to other universities and to study the causes of migration. This will inevitably involve field-work in addition to the collection of the data available in the records.

It may be worthwhile for a university to sponsor an inquiry on a long-term basis by drawing a random sample of students joining the first year class from each college affiliated to the university at the beginning of each academic year. The college should then be required to keep a detailed card of information (specially prepared by the university for this purpose) for the students in the sample. When a student migrates to another college in the same university the card should be sent to the new college to keep it up-to-date, until the student completes the degree course or gives it up for good. Such a procedure should collect a lot of useful data for the university about a representative cross-section of its alumni. A more ambitious university may collect such data for *all* its students.

*Part II*

**ANALYSIS OF FAILURES IN PRE-DEGREE  
EXAMINATION OF THE POONA UNIVERSITY**

**A. R. KAMAT**

## ANALYSIS OF FAILURES IN PRE-DEGREE EXAMINATION OF THE POONA UNIVERSITY

### I. Introduction

Until recently (up to and including the year 1957) the University of Poona like many other Indian universities had its degree courses in Arts, Science and Commerce of four years' duration after the Secondary School Certificate (S.S.C.) examination. The four-year course consisted of two stages. After the first two years in college students had to appear for a University examination called the Intermediate examination. On passing this examination students were admitted to the second stage of two more years at the end of which they appeared for the B.A., B.Sc. or B.Com. degree examinations held by the University. The promotion of students at the end of the first and the third year in college was done on the basis of internal examinations held by the college concerned. There were no university examinations for that purpose.

The University has now adopted the new pattern of courses called the Three-year Degree courses. Even now the degree courses are of four years after the S.S.C. but their structure is different. After the first year in college called the Pre-degree year students have to appear for the Pre-degree (P.-D.) examination in Arts, Science or Commerce held by the University and after passing this P.-D. examination they are admitted to the Three-year degree courses leading to the B.A., B.Sc. or B.Com. degree.

The Three-year courses of the University of Poona came into force from June 1958 and the first P.-D. examination was held in March 1959. There was a general feeling after the declaration of results that they were very poor. Both academic and non-academic circles felt greatly concerned over the large number of failures.\* The results of the P.-D. examination held in March 1960 were equally disappointing and the then Vice-Chancellor, Professor D. G. Karve felt that the failures at the examination should be analysed.† After the P.-D. examination of 1961 he asked us to continue the analysis of the P.-D. results. The analysis of the 1961 examination is summarised in the present report.

The present investigation is wider both in scope and coverage than the earlier one mentioned above. The analysis of the 1960 examination was

\* The intensity of the feelings roused over the issue is reflected in the interim measures devised by the University in that year. They consisted of (i) a repeat examination held in October 1959 as a special case, and (ii) permission to students who had failed in only one subject in the March examination to join the Three-year degree course subject to their passing in that subject at a P.-D. examination held subsequently. No such concessions were given in the following years.

† A Statistical Analysis of the Failures at the Pre-Degree Examination of the Poona University, 1960, by Kothurkar and Dandekar (*for official use only*), University of Poona, 1961,

based on the results of 1,824 candidates for the P.-D. Arts examination and 2,108 candidates for the P.-D. Science examination, who appeared at the Poona Centre. The present analysis covers *all* candidates (about fourteen thousand) who appeared for the P.-D. examination of 1961, (in Arts, Science, or Commerce) at the various centres of examination throughout the area of the Poona University. Secondly, in addition to the analysis of failures it also deals with a number of other important facets of the results of the P.-D. examination.

## 2. *Low Results at the P.-D. Examination*

The following table gives the overall results of the P.-D. examination held during the last three years. It shows that the proportion of passes is

### *Pre-Degree Examination Results (Arts, Science and Commerce together)*

<i>Year</i>	<i>Appeared</i>	<i>Passed</i>	<i>Percentage of passes</i>
1959 (March)	9,236	3,729	40.3
1959 (October)	2,297	773	33.6
1960	11,799	4,607	39.0
1961	14,051	5,378	38.3

as low as 38 to 40 per cent. (The figures for the examination held in October 1959 when only the repeaters had appeared are ignored for this purpose.) Since the overall figure lumps together the results for science, arts and commerce, and especially for internal and external\* candidates in arts and commerce, it is desirable to give separate figures for each of these categories. For the year 1961 the percentages of passes were: Science 43.8, arts internal 36.3, arts external 24.1, commerce internal 40.0, commerce external 31.2. The results are no doubt poor in themselves. But one reason why they came as a great shock to everybody concerned is that they were viewed against the background of the very high rate of promotion at the end of the first year in college for the last several years under the old structure. In this case the rate of promotion varied from college to college but was very often as high as 90 to 95 per cent.† This comparison was of course not valid because there is a basic difference in

\* Under the regulations of the Poona University, it is possible for persons fulfilling certain conditions to appear for the P.-D. examination in arts and commerce (and also some other examinations in arts and commerce faculties) "externally", that is without joining a college. The question papers and rules of passing are the same for the internal and external candidates. There is no "external" examination in P.-D. Science.

† See Part 1.

the old and new structures; the promotion under the old structure was based on internal assessment by college in contrast to the assessment by a university examination under the new structure.

Some basis for comparison is provided, however, if the results at the end of the first two years in college under the old and new structures are considered together. In the following table are given (i) the results of the Intermediate examination under the old structure for the years 1957, 1958 and 1959, and (ii) the results of the university examinations at the end of the first year of the three-year degree course (F.Y.B.A., F.Y.B.Sc. and F.Y.B.Com. examinations) held in 1960 and 1961. For the latter examination the figures given are of students who appeared in *all* subjects (for which they were ordinarily expected to appear) and of those amongst them who passed in *all* these subjects.

*Results at the end of the second year in college under the two structures*

<i>Examination</i>	<i>Year</i>	<i>Appeared</i>	<i>Passed</i>	<i>Percentage of passes</i>
Inter Arts	1957	3,409	1,680	49.3
	1958	4,049	1,985	49.0
	1959	4,777	2,282	47.8
F. Y. B. A.	1960	3,153	914	29.0
	1961	1,693	1,029	38.2
Inter Science	1957	3,371	1,896	56.1
	1958	3,492	1,955	55.9
	1959	3,709	2,165	58.3
F. Y. B. Sc.	1960	2,038	927	45.5
	1961	2,382	1,151	47.7
Inter Commerce	1957	648	321	49.5
	1958	633	211	49.1
	1959	975	375	38.4
F. Y. B. Com.	1960	679	83	12.2
	1961	909	119	13.1

As the P.-D. examination results were as low as 40 per cent it was expected that the results in the first year of the three-year degree course would be rather high. As the figures of the table given above show, however, this expectation did not come true. In all the three branches — Arts, Science and Commerce — the percentage of passes, instead of being

higher, is actually considerably lower in the new structure. Although the comparison is not strictly valid\* these figures for the results at the end of the second year in college, when taken together with the rates of promotion at the end of the first year in college, under the old and new structures, provide adequate grounds for concern over the poor results of the P.-D. examination.†

### 3. *More Detailed Presentation of 1961 P.-D. Results*

The following figures give the number of candidates appearing for the P.-D. examination in 1961 for the whole university. (1) Arts : internal 4,524, external 1,561, (2) Commerce : internal 2,443, external 288, (3) Science (all internal)‡ : 5,235. For purposes of analysis they are further classified under groups according to the centre of examination as follows : (1) Poona; (2) the nine centres of Kolhapur, Sangli, Nasik, Sholapur, Ratnagiri, Jalgaon, Amalner, Ahmednagar and Satara (which were established before 1950) and (3) the remaining centres of Karad, Dhulia, Phaltan, Malegaon, Pandharpur, Shirampur and Barsi (established after 1950). For the sake of convenience they will be named : Poona, Old (centres) and New (centres). The number of candidates in each group classified by sex and examination are summarized in the following short table. The percentage of failures is given in the table on the next page.

The figures in the first table show that the external students constitute approximately 25 per cent of the total candidates in arts and 10 per cent in commerce. A large proportion of external candidates — 44 per cent in arts and 52 per cent in commerce — are from Poona. This probably means that the Poona area is in a much better position to take advantage of the facility of the external examination and does in fact do so.

Of the total candidates who appeared for arts examination, about 23 per cent are women, but this proportion is 11 per cent for science and less than three per cent in commerce. It is also interesting to note that among internal candidates in arts in Poona more than 45 per cent are women.

\* The two main reasons why the comparison is not strictly valid are the following. (i) Unlike the old structure, it is not obligatory to pass the examination at the end of the first year of the three-year course (the second year in college) in the new structure. Although students are advised to take the examination, their promotion to the second year of the three-year course does not depend on the passing of the examination. This is believed to affect the results adversely. (ii) The contents of the syllabi for the first two years under the two structures are different to a certain extent.

† This is especially borne out by the figures for Science students who are admittedly the pick of students entering college and for whom the examination at the end of two years in college is also an entrance examination to the professional courses of engineering and medicine both under the old and new structures. It is also wellknown that most of the students who join the Science course intend to try subsequently for admission to the professional courses, and therefore ordinarily appear for the F. Y.B. Sc. examination.

‡ See footnote on p. 124.

*Number of students appeared*

Centre		Science	Arts		Commerce	
			Internal	External	Internal	External
Poona	Men	1,887	639	509	498	144
	Women	311	531	156	28	5
	Total	2,198	1,170	665	526	149
Old	Men	2,284	2,204	606	1,438	118
	Women	205	489	128	28	5
	Total	2,489	2,693	734	1,466	123
New	Men	524	550	140	443	16
	Women	24	111	22	8	—
	Total	548	661	162	451	16
All centres	Men	4,695	3,393	1,255	2,379	278
	Women	540	1,131	306	64	10
	Total	5,235	4,524	1,561	2,443	288

*Percentage of failures*

Centre		Science	Arts		Commerce	
			Internal	External	Internal	External
Poona	Men	48.9	62.9	77.8	50.6	68.1
	Women	46.3	50.7	75.6	25.0	40.0
	Total	48.5	57.4	77.3	49.3	67.1
Old	Men	61.3	68.2	76.1	61.3	72.1
	Women	50.2	51.3	67.2	39.3	40.0
	Total	60.4	65.1	74.5	60.9	70.7
New	Men	68.9	73.6	79.3	70.2	68.8
	Women	45.8	48.7	59.1	25.0	—
	Total	67.9	69.4	76.5	69.4	68.8
All centres	Men	57.2	68.1	77.1	60.7	69.9
	Women	47.8	50.8	70.9	31.3	40.0
	Total	56.2	63.7	75.9	60.0	68.8

The proportion of women is much less in the Old centres and still lower in the New centres.

From the table of percentage of failures the following facts stand out. (1) Women have done better than men in all examinations and in all the three groups of centres. (2) In each group the results of science students are the best, followed by those of the commerce students, and those of the arts students are the worst. (3) The internal candidates have fared far better than the external in both arts and commerce and in almost all categories. (4) Among science students and internal students in arts and commerce the Poona group has the best performance, the group of Old centres comes next and the group of New centres is the last. In the case of external candidates there is not much difference in the results of different groups of centres. (5) The failure rate among internal women candidates is roughly the same in all centres and in all the three examinations. This suggests greater homogeneity among them than among men candidates both as regards centres and examinations. (Points [1] and [5] will be considered in greater detail in a separate section later.)

The additional information given in Tables 1.1 to 1.5 especially of the first and second classes generally supports the conclusions drawn above about the general performance of candidates with regard to sex, centres and examinations.

#### 4. *Condonation Rules and their Effectiveness*

According to the rules governing the P.-D. examination a candidate has to obtain 35 marks for passing in each of the seven subjects for which he appears. The university regulations, however, also provide rules under which cases of marginal failures (in *one* subject) are condoned and the respective candidates are declared to have passed the examination. Tables 2.1 and 2.2 give the number of candidates who failed in one or more subjects and the number of candidates who were finally declared to have failed (after the application of condonation rules). The corresponding percentages to those appeared are also given. The figures show that the rules for condoning marginal cases of failure are liberal. They have reduced the failure percentages by 5 points (in science) to 13 points (in arts internal) when one considers the overall results for all centres. They appear to work better, that is, are more effective in reducing failures, for arts and commerce than for science, and for internal candidates than for external candidates. Figures for the three groups of centres taken separately showed that they perhaps work better in the case of candidates outside Poona for science and arts internal but the reverse is the case for commerce internal. The difference in effectiveness of the condonation rules as applied to science candidates on the one hand and arts and commerce candidates on the other is however quite substantial. It may be worth scrutinizing the condonation procedures from this angle and revising them if necessary.

TABLE 1.1 : Number of candidates who appeared at P.-D. Science examination of March 1961 and their performance

Performance at P.-D.	Poona			Old			New			All centres		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
I class	118	23	141	69	10	79	4	1	5	191	34	225
II class	540	110	650	512	66	578	88	10	98	1,140	186	1,326
Pass class	307	34	341	302	26	328	71	2	73	680	62	742
Failed	922	144	1,066	1,401	103	1,504	361	11	372	2,684	258	2,942
Total appeared	1,887	311	2,198	2,284	205	2,489	524	24	548	4,695	540	5,235
Absent or admission cancelled	114	5	119	98	6	104	16	—	16	228	11	239
Total registered	2,001	316	2,317	2,382	211	2,593	540	24	564	4,923	551	5,474
<i>Percentage to total appeared = 100</i>												
I class	6.2	7.4	6.4	3.0	4.9	3.2	0.8	4.2	0.9	4.1	6.3	4.3
II class	28.6	35.4	29.6	22.5	32.2	23.2	16.8	41.7	17.9	24.3	34.4	25.3
Pass class	16.3	10.9	15.5	13.2	12.7	13.2	13.5	8.3	13.3	14.4	11.5	14.2
Failed	48.9	46.3	48.5	61.3	50.2	60.4	68.9	45.8	67.9	57.2	47.8	56.2

N.B. : Tables 1.1 to 1.5 differ from those printed in the Annual Report of the University due to the later modifications and also due to the inclusion in the latter of the Teachers' Diploma Examination.

TABLE 1-2 : Number of candidates who appeared at P.-D. Arts Internal examination of March 1961 and their performance

Performance at P.-D.	Poona			Old			New			All centres		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
I class	3	1	4	—	—	—	—	—	—	3	1	4
II class	46	86	132	104	94	198	35	25	60	185	205	390
Pass class	188	175	363	598	144	742	110	32	142	896	351	1,247
Failed	402	269	671	1,502	251	1,753	405	54	459	2,309	574	2,883
Total appeared	639	531	1,170	2,204	489	2,693	550	111	661	3,393	1,131	4,524
Absent or admission cancelled	45	16	61	142	15	157	28	—	28	215	31	246
Total registered	684	547	1,231	2,346	504	2,850	578	111	689	3,608	1,162	4,770
<i>Percentage to total appeared = 100</i>												
I class	0.5	0.2	0.3	—	—	—	—	—	—	0.1	0.1	0.1
II class	7.2	16.2	11.3	4.7	19.2	7.4	6.4	22.5	9.1	5.4	18.1	8.6
Pass class	29.4	32.9	31.0	27.1	29.5	27.5	20.0	28.8	21.5	26.4	31.0	27.6
Failed	62.9	50.7	57.4	68.2	51.3	65.1	73.6	48.7	69.4	68.1	50.8	63.7

TABLE 1-3 : Number of candidates who appeared at P.-D. Commerce Internal examination of March 1961 and their performance

Performance at P.-D.	Poona			Old			New			All centres		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
I class	1	—	1	—	—	—	1	—	1	2	—	2
II class	107	15	122	202	11	213	51	4	55	360	30	390
Pass class	138	6	144	354	6	360	80	2	82	572	14	586
Failed	252	7	259	882	11	893	311	2	313	1,445	20	1,465
Total appeared	498	28	526	1,438	28	1,466	443	8	451	2,379	64	2,443
Absent or admission cancelled	10	—	10	55	—	55	9	1	10	74	1	75
Total registered	508	28	536	1,493	28	1,521	452	9	461	2,453	65	2,518

Percentage to total appeared = 100

I class	0.2	—	0.2	—	—	—	0.2	—	0.2	0.1	—	0.1
II class	21.5	53.6	23.2	14.1	39.3	14.5	11.5	50.0	12.2	15.9	46.9	15.9
Pass class	27.7	21.4	27.3	24.6	21.4	24.6	18.1	25.0	18.2	24.0	21.8	24.0
Failed	50.6	25.0	49.3	61.3	39.3	60.9	70.2	25.0	69.4	60.7	31.3	60.0

TABLE 1.4 : Number of candidates who appeared at P.-D. Arts External examination of March 1961 and their performance

Performance at P.-D.	Poona			Old			New			All centres		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
I class	—	—	—	—	—	—	—	—	—	—	—	—
II class	14	5	19	19	6	25	7	—	7	40	11	51
Pass class	99	33	132	126	36	162	22	9	31	247	78	325
Failed	396	118	514	461	86	547	111	13	124	968	217	1,185
Total appeared	509	156	665	606	128	734	140	22	162	1,255	306	1,561
Absent or admission cancelled	139	15	154	144	18	162	44	—	44	327	33	360
Total registered	648	171	819	750	146	896	184	22	206	1,582	339	1,921
<i>Percentage to total appeared = 100</i>												
I class	—	—	—	—	—	—	—	—	—	—	—	—
II class	2.7	3.2	2.9	3.1	4.7	3.4	5.0	—	4.3	3.2	3.6	3.3
Pass class	19.5	21.2	19.8	20.8	28.1	22.1	15.7	40.9	19.2	19.7	25.5	20.8
Failed	77.8	75.6	77.3	76.1	67.2	74.5	79.3	59.1	76.5	77.1	70.9	75.9

TABLE 1-5 : Number of candidates who appeared at P.-D. Commerce External examination of March 1961 and their performance

Performance at P.-D.	Poona			Old			New			All centres		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
I class	—	—	—	—	—	—	—	—	—	—	—	—
II class	13	2	15	12	2	14	2	—	2	27	4	31
Pass class	33	1	34	21	1	22	3	—	3	57	2	59
Failed	98	2	100	85	2	87	11	—	11	194	4	198
Total appeared	144	5	149	118	5	123	16	—	16	278	10	288
Absent or admission cancelled	31	1	32	22	—	22	1	—	1	54	1	55
Total registered	175	6	181	140	5	145	17	—	17	332	11	343
<i>Percentage to total appeared = 100</i>												
I class	—	—	—	—	—	—	—	—	—	—	—	—
II class	9.0	40.0	10.1	10.1	40.0	11.4	12.5	—	12.5	9.7	40.0	10.7
Pass class	22.9	20.0	22.8	17.8	20.0	17.9	18.7	—	18.7	20.5	20.0	20.5
Failed	68.1	40.0	67.1	72.1	40.0	70.7	68.8	—	68.8	69.8	40.0	68.8

TABLE 2.1 : Actual failures and declared failures — number and percentage—at P.-D. Science, Arts Internal and Commerce Internal examinations 1961

	Poona			Old			New			All centres		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
<i>Science</i>												
Actual failures	1,012	157	1,169	1,535	111	1,646	396	15	411	2,943	283	3,226
Declared failures	922	144	1,066	1,401	103	1,504	361	11	372	2,684	258	2,942
<i>Arts Internal</i>												
Actual failures	481	335	816	1,806	314	2,120	476	69	545	2,763	718	3,184
Declared failures	402	269	671	1,502	251	1,753	405	54	459	2,309	574	2,883
<i>Commerce Internal</i>												
Actual failures	319	8	327	1,064	12	1,076	355	2	357	1,738	22	1,760
Declared failures	252	7	259	882	11	893	311	2	313	1,445	20	1,465
Percentage to total appeared = 100												
<i>Science</i>												
Actual failures	53.6	50.5	53.2	67.2	54.2	66.1	75.6	62.5	75.0	62.7	52.4	61.6
Declared failures	48.9	46.3	48.5	61.3	50.2	60.4	68.9	45.8	67.9	57.2	47.8	56.2
<i>Arts Internal</i>												
Actual failures	75.3	63.1	69.7	81.9	64.2	78.7	86.6	62.2	82.5	81.4	63.5	76.9
Declared failures	62.9	50.7	57.4	68.2	51.3	65.1	73.6	48.7	69.4	68.1	50.8	63.7
<i>Commerce Internal</i>												
Actual failures	64.1	28.6	62.2	74.0	42.9	73.4	80.5	25.0	79.5	73.1	34.4	72.1
Declared failures	50.6	25.0	49.3	61.3	39.3	60.9	70.2	25.0	69.4	60.7	31.3	60.0

TABLE 2.2 : Actual failures and declared failures — number and percentage — at P.-D. Arts External and Commerce External examinations 1961

	Poona			Old			New			All centres		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
<i>Arts External</i>												
Actual failures	439	131	570	510	98	608	120	17	137	1,069	246	1,315
Declared failures	396	118	514	461	86	547	111	13	124	968	217	1,185
<i>Commerce External</i>												
Actual failures	110	2	112	97	2	99	12	—	12	219	4	223
Declared failures	98	2	100	85	2	87	11	—	11	194	4	198
<i>Percentage to total appeared = 100</i>												
<i>Arts External</i>												
Actual failures	86.3	84.0	85.7	84.2	76.6	82.8	85.7	77.3	84.6	85.2	80.4	84.2
Declared failures	77.8	75.6	77.3	76.1	67.2	74.5	79.3	59.1	76.5	77.1	70.9	75.9
<i>Commerce External</i>												
Actual failures	76.4	40.0	75.2	82.2	40.0	80.5	75.0	—	75.0	84.2	40.0	77.4
Declared failures	68.1	40.0	67.1	72.1	40.0	70.7	68.8	—	68.8	69.8	40.0	68.8

### 5. *Classification by S.S.C. Examination Marks*

Among the factors contributing to success or failure at the P.-D. examination the quality of the candidates as shown by their performance at the S.S.C. is naturally the most important. Candidates were therefore classified by their performance (first, second or third class) in the S.S.C. examination and the percentage of failures in the P.-D. examination in each class. Tables 3.1 and 3.2 give the numbers and failure percentages. It is clear from these tables that those who pass the S.S.C. in third class have very little chance of passing the P.-D. examination. This chance is about one in five for internal arts and commerce candidates and one in ten for science candidates. For external candidates in arts and commerce having third class at the S.S.C. the chance of success is approximately one in ten. Even from those who had second class at the S.S.C. more than two thirds failed in the P.-D. examination in science and the failure percentage in internal arts and commerce in the same category is also as high as 55 per cent. Even among the first class (at S.S.C.) students the casualties at the P.-D. stage are not negligible; about one in six to one in eight of them are not able to pass the P.-D. examination. In the case of external students the corresponding failure rates are even higher.\*

The following conclusions appear to emerge. First, the P.-D. science course seems to be more difficult to cope up with than the arts or commerce courses. Secondly, although it is generally true that the higher the S.S.C. marks the better is the chance of passing the P.-D. examination the two examinations are perhaps not quite comparable; that is, the P.-D. examination is not merely a continuation of the S.S.C. but stands on an altogether different level. Perhaps in effect it is already replacing the S.S.C. as the entrance examination to higher education.

The next table displays the percentage of passes against the median S.S.C. marks in each category for candidates for whom such data was available. Let us first consider the internal candidates. It was observed earlier that the P.-D. science results were better than the arts and commerce results; and the commerce results were better than the arts results. The table shows that the median S.S.C. marks of the respective candidates are also in the same order if we consider the figures for the whole university. When the three groups (of centres) are compared with one another it is found that in each of the three categories of science, arts and commerce the order of the groups (according to the percentage of passes) is Poona, Old and New. The difference in Poona and Old as well as that between Old and New is quite considerable, about 7 to 12 points in the former and 5 to 11 points in the latter. It is true that in science the median S.S.C. marks are also in the same descending order but the differences are not large and in arts and commerce there is no such order in the median S.S.C.

\* The number of candidates for whom the S.S.C. marks could not be obtained is large in certain categories; but this is not believed to affect substantially the conclusions drawn here.

*Median (Percentage of) marks at the S. S. C. and percentage of passes at P.-D.*

	<i>Poona</i>			<i>Old</i>			<i>New</i>			<i>All centres</i>		
	<i>Total appe- ared</i>	<i>% of passes</i>	<i>Medi- an marks</i>	<i>Total appe- ared</i>	<i>% of passes</i>	<i>Me- dian marks</i>	<i>Total appe- ared</i>	<i>% of passes</i>	<i>Me- dian marks</i>	<i>Total appe- ared</i>	<i>% of passes</i>	<i>Median marks</i>
Science	1,812	53.4	56.1	2089	41.2	53.2	445	31.2	52.2	4,345	45.2	53.7
Arts internal	780	46.2	48.0	1,659	38.9	46.2	418	34.0	47.0	2,857	40.2	46.8
Commerce internal	376	50.8	47.6	1,130	42.1	47.9	358	31.0	47.4	1,864	41.3	47.7
Arts external	408	25.5	47.4	403	30.3	48.8	96	24.0	48.2	907	27.5	48.1
Commerce external	86	38.4	47.8	76	27.6	49.5	12	33.3	52.3	174	33.3	48.7

N.B. : Figures relate to only those candidates for whom the S.S.C. marks available in all subjects.

marks of candidates from different groups of centres. It is also true that the median does not always effectively reflect the composition of the upper (or lower) half. But one finds similar differences in the results of the three groups and in the same order on comparing the percentages of failures for the different S.S.C. classes in Table 3.1 and also after breaking them down further in five-marks intervals of the S.S.C. marks.\* They are also confirmed if one considers the number of first and second classes at the P.-D. in each of the three groups of centres in each interval of S.S.C. marks. (The corresponding tables have not been attached for considerations of space). The differences in the results of the groups (of centres) are therefore real and worth consideration because they are substantial. One important reason for these differences will of course be the cultural background of the candidates which will depend on many socio-economic factors including the degree of urbanization.† But even so it is felt that educational factors such as staffing and equipment should not be ignored when one considers remedial measures.

Turning to external candidates in arts and commerce it was observed earlier that their performance is much poorer when compared to that of internal students, and that there is not a great deal of difference in the results of the different groups of centres. Table 3.2 where candidates are classified by the class obtained by them at the S.S.C. shows that (as in the case of internal candidates in each group of centres) the higher the class at the S.S.C. the better is the chance of passing the P.-D. examination. But the failure percentages are alarmingly high when compared with the internal candidates. Even in the case of those who had secured first class at the S.S.C. the failures are over 40 per cent. Moreover, classification by the median S.S.C. marks shows that the differences in the results of the three groups of centres (for arts external—in commerce external the numbers are small—) cannot be meaningfully related to this factor. It was felt therefore that for further analysis of external candidates the three groups may be combined for many purposes.

From the analysis given above it is also clear that the analysis of the internal and external candidates should be done separately. This is also proper for other reasons. Although the internal and external candidates take the same examination—answer the same question papers and are governed by the same rules for passing—they differ in all other respects. While the internal candidates are full-time students in a college, the ex-

\* It was observed that in the S.S.C. marks group 'below 40' the Poona group shows worse performance (especially for commerce internal) than the Old and New groups. Does it mean these students receive better attention (from an educational standpoint) elsewhere than in Poona?

† For instance, one factor in the better performance in Poona in arts is almost certainly the considerably greater proportion (45 per cent) of women students who as a group have a better performance than men students as will be seen later.

TABLE 3-1 : Percentage of failures at P.-D. Science, Arts Internal, and Commerce Internal examinations 1961 among different classholders at the S. S. C. examination

Class at S.S.C.	Science				Arts Internal				Commerce Internal			
	Poona	Old	New	All centres	Poona	Old	New	All centres	Poona	Old	New	All centres
I class	631	568	82	1,281	80	96	28	204	32	84	22	138
II class	1,063	1,331	319	2,713	509	969	266	1,744	247	773	231	1,251
Pass class	118	190	44	352	191	594	124	909	97	273	105	475
Exemption	29	64	9	102	81	180	58	319	33	104	35	172
Not available	357	336	94	787	309	854	185	1,348	117	232	58	407
<b>Total</b>	<b>2,198</b>	<b>2,489</b>	<b>548</b>	<b>5,235</b>	<b>1,170</b>	<b>2,693</b>	<b>661</b>	<b>4,524</b>	<b>526</b>	<b>1,466</b>	<b>451</b>	<b>2,443</b>
<i>Percentage to total appeared in the corresponding cell above = 100</i>												
I class	12.8	19.7	29.3	17.0	11.2	13.5	12.0	12.4	21.9	16.7	18.2	18.1
II class	62.6	70.6	75.2	68.0	52.7	54.1	62.0	54.9	45.3	54.2	65.8	54.7
Pass class	83.9	92.6	95.5	90.1	74.9	80.3	85.5	79.9	68.0	81.0	86.7	81.1
Exemption	86.2	89.1	77.8	87.3	77.8	80.4	82.8	80.2	78.8	79.8	82.4	78.4
Not available	54.9	64.9	62.8	60.1	60.8	69.6	72.4	68.0	43.6	67.2	65.5	60.2
<b>Total</b>	<b>48.5</b>	<b>60.4</b>	<b>67.9</b>	<b>56.2</b>	<b>57.4</b>	<b>65.1</b>	<b>69.4</b>	<b>63.7</b>	<b>49.3</b>	<b>60.9</b>	<b>69.4</b>	<b>60.0</b>

N.B. : Class at S.S.C. is defined as I class — 60 and above, II class — 45 to 59, pass class — 44 and below.

TABLE 3-2 : *Percentage of failures at P.-D. Arts External and Commerce External examinations 1961 among the different classholders at the S. S. C. examination*

Class at S.S.C.	Arts External				Commerce External			
	Poona	Old	New	All centres	Poona	Old	New	All centres
I class	29	41	6	76	10	11	4	25
II class	260	278	63	601	54	42	7	103
Pass class	119	84	27	230	22	23	1	46
Exemption	77	77	25	179	6	11	—	17
Not available	180	254	42	476	57	36	4	97
Total	665	734	163	1,562	149	123	16	288
<i>Percentage to total appeared in the corresponding cell above = 100</i>								
I class	51.7	36.6	66.7	44.7	30.0	54.5	25.0	40.0
II class	71.5	69.1	66.7	69.9	55.6	66.7	85.7	62.1
Pass class	86.6	88.1	100.0	88.7	90.9	91.3	100.0	91.3
Exemption	86.8	87.0	80.0	85.9	83.3	81.8	—	82.4
Not available	80.4	80.2	73.2	79.7	73.7	63.9	75.0	70.1
Total	77.3	74.5	76.5	75.9	67.1	70.7	68.8	68.8

ternals mostly are in employment and are trying to raise their qualifications by studying in their spare time. The external candidates will not have facilities available in a college such as regular tuition, a well laid-out programme of study or a well-equipped library. Many of them must be attending private coaching classes, and in this respect candidates from Poona and bigger towns may perhaps have better facilities than those from smaller towns in the mofussil. But this has not been thrown up by our analysis. Again, so far as the examination centre is concerned while the internal candidate will mostly appear at the same centre where he is learning in college the external candidate will appear at a centre which is his place of residence or employment or geographically nearer to it or convenient to him in other respects.

#### 6. Differences in Performance of Men and Women

It was observed earlier that women as a group show better performance than men in all centres and all examinations. This is further explored in Table 3.3 where men and women candidates are further classified by their S.S.C. performance and the percentage of passes at the P.-D. are given for each S.S.C. class, for all centres together. Two things stand out very clearly from the table. First, the quality of the women candidates (as shown by the S.S.C. marks) is considerably better than that of the men candidates appearing for all the examination. Women have a greater proportion of those with higher S.S.C. marks. This is illustrated by the following short table of the proportion of the S.S.C. class-holders (among those for whom the data was available) for the internal candidates. This

#### *Composition of different S.S.C. classholders*

<i>S. S. C. class</i>	<i>Science</i>		<i>Arts internal</i>		<i>Commerce internal</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
<b>I class</b>	27.2	42.3	3.0	15.0	6.1	34.0
<b>II class</b>	61.9	53.3	52.4	61.6	61.6	56.6
<b>Pass class</b>	10.9	4.4	44.6	23.4	32.3	9.4
<b>Total</b>	100.0	100.0	100.0	100.0	100.0	100.0

accounts, to a large extent, for the better performance of women as a group in the respective P.-D. examinations. It may also be stated here that what we have observed above is true separately for the different centres (for which separate tables have not been given for considerations of space) and that the composition of the different S.S.C. classholders is more or less the same among women candidates in the three groups of centres thus confirming the homogeneity amongst them suggested earlier. Secondly, the table (3.3) also shows that the performance of women candidates in each

TABLE 3-3 : *Percentage of passes at P.-D. examination 1961 among different classholders at the S. S. C. examination classified by sex*

Class at S. S. C.	Number appeared									
	Science		Arts Internal		Commerce Internal		Arts External		Commerce External	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
I class	1,082	199	68	136	120	18	49	27	23	2
II class	2,462	251	1,198	546	1,221	30	479	122	99	4
Pass class	341	11	765	144	473	2	198	32	46	—
Exemption	92	10	254	64	168	4	152	27	17	—
Not available	718	69	1,108	241	397	10	377	98	93	4
<b>Total</b>	<b>4,695</b>	<b>540</b>	<b>3,393</b>	<b>1,131</b>	<b>2,379</b>	<b>64</b>	<b>1,255</b>	<b>306</b>	<b>278</b>	<b>10</b>
Percentage of passes										
I class	82.5	85.4	85.2	88.7	80.0	94.4	52.1	59.2	65.2	50.0
II class	32.0	31.9	41.6	52.9	45.0	60.0	30.3	30.3	37.4	50.0
Pass class	10.0	9.1	19.9	21.5	20.3	50.0	10.6	15.6	8.7	—
Exemption	14.1	0.0	17.3	29.7	22.3	0.0	13.3	18.5	17.6	—
Not available	39.4	44.9	30.0	41.5	39.0	70.0	19.6	23.4	28.0	75.0
<b>Total</b>	<b>42.8</b>	<b>52.2</b>	<b>31.9</b>	<b>49.2</b>	<b>39.3</b>	<b>68.7</b>	<b>22.9</b>	<b>29.1</b>	<b>30.2</b>	<b>60.0</b>

group of S.S.C. classholders is better than that of men candidates (except perhaps in science) if we ignore cells with small numbers. This holds for all the three groups of centres and is therefore another contributing factor of their over-all better performance in the P.-D. examination in all the centres.

The first fact noted above implies that parents take into consideration the S.S.C. performance of their daughters before sending them up for higher education to a much greater extent than they do in the case of their sons. In other words, for understandable reasons, sons get preference over daughters in the matter of higher education. The better performance of women candidates in almost all S.S.C. marks groups is almost certainly due to the better cultural background (such as educated parents) at home.\*

#### 7. Year of Passing the S.S.C. Examination

To carry the analysis in yet another direction the results were classified by the date when the candidate passed the S.S.C. examination.† This is given in Table 4 and is summarized in a short table below for all centres

#### *Percentage of failures among students passing the S.S.C. in different years*

<i>Year of passing S. S. C.</i>	<i>Science</i>	<i>Arts internal</i>	<i>Commerce internal</i>
March 1960	50.0	58.0	54.3
October 1959	83.7	76.1	74.7
March 1959	58.7	62.4	61.6
October 1958	78.2	75.7	74.4
March 1958 and before	71.8	69.2	71.1
Not available	51.2	52.2	72.2

taken together. In the case of internal candidates it is found that those who had passed the S.S.C. examination in March have a far better performance than those who passed in October. Among the former those who passed in March 1960 have fared much better than those who passed in March 1959. And the performance of those who belonged to the S.S.C. batches of March 1958 or earlier, was slightly better than the performance of those who passed in October 1958 or 1959. It should be remembered in this connection that the March batches are the regular S.S.C. batches

\* See Part I.

† A very large proportion of candidates have passed the S.S.C. examination of the Maharashtra State. Those who have passed other qualifying examination are less than 5, 1.5 and 1 per cent in arts, science and commerce respectively among internal candidates and less than one per cent among the externals. The majority of the candidates who have taken other qualifying examinations has passed the H.S.C. (Hyderabad Secondary Certificate) examination.

TABLE 4 : Classification of students according to their year of passing the S. S. C. examination and performance at P.-D. examination 1961

Year of passing S.S.C.	Science		Arts Internal		Commerce Internal		Arts External		Commerce External	
	Appear- ed	Percent- age of failed	Appear- ed	Percent- age of failed	Appear- ed	Percent- age of failed	Appear- ed	Percent- age of failed	Appear- ed	Percent- age of failed
March 1960	3,072	50.0	1,951	58.0	1,203	54.3	96	85.4	15	73.3
October 1959	190	83.7	397	76.1	233	74.7	39	87.2	9	100.0
March 1959	1,296	58.7	1,061	62.4	570	61.6	173	82.1	29	58.6
October 1958	124	78.2	313	75.7	129	74.4	50	92.0	7	100.0
March 1958 and before	510	71.8	779	69.2	270	61.1	1,187	73.1	224	67.4
Not available	43	51.2	23	52.2	38	72.2	16	81.2	4	75.0
<b>Total</b>	<b>5,235</b>	<b>56.2</b>	<b>4,524</b>	<b>63.7</b>	<b>2,443</b>	<b>60.0</b>	<b>1,561</b>	<b>75.9</b>	<b>288</b>	<b>68.8</b>

while the October batches consist mostly of repeaters. The corresponding difference in quality accounts for the difference in the results noted above. It should also be remembered in this connection that candidates belonging to the S.S.C. batches of March 1959 and earlier will consist of a large number of repeaters at the P.-D. examination of 1960 and hence they will be of an inferior quality as compared to the freshers of March 1960.

So far as external candidates in arts are concerned (the number of external candidates in commerce is small and is therefore ignored for this purpose) a very large majority belongs to the S.S.C. batches of March 1958 and earlier and they have definitely fared better than those belonging to the later batches. (See Table 4 on page 144). Moreover there is no discernible pattern in the later S.S.C. batches (as between March and October) similar to that seen above in the case of internal candidates. This may be due to the fact that external candidates belonging to earlier batches are more mature and therefore more purposeful; they had also obviously a longer period to prepare for the examination. It is to be observed that while in the case of internal candidates a greater proportion belongs to the March S.S.C. batches of 1960 and 1959, in the case of externals the overwhelming proportion of candidates are from the S.S.C. batches of a much earlier period (of March 1958 and earlier).

For the sake of completeness it should be mentioned here that this pattern for the university as a whole was also more or less true for the three groups of centres considered separately for internal as well as external candidates.\*

#### 8. *Classification of Failures by the Number of Subjects in which the candidate Failed*

Let us now have a closer look at the failures. One approach to the analysis of failures is to classify them by the number of subjects in which a candidate has failed. This is presented in Tables 5.1 to 5.4 for *declared* failures, that is the failures which remain after the effect of condonation rules. The figures give the number of candidates who have failed in each category and their percentage to the total candidates who appeared for the examination. The following summary for the university as a whole shows that one-subject failures are not large; they are not more than 12 per cent of the candidates appeared in any category. The greater proportion of failures is due to failure in three or more subjects. These are as high as 30 per cent in science and commerce internal and 47 per cent in arts internal. In external arts and commerce they are 52 and 45 per cent respectively. Again, larger failures where they exist are not due to one-subject or two-subject failures but due to a large number of failures

\* We should also remark here that it is possible to analyse further by considering the S.S.C. marks and previous failures at the P.-D. examination. But since we were mainly concerned with the broad pattern it was not thought worthwhile to make further and finer classifications.

TABLE 5-1 : Declared failures according to the number of subjects failed in at P.-D. Science, Arts Internal and Commerce Internal examinations 1961

Number of subjects failed in	Science			Arts Internal			Commerce Internal		
	Men	Womer	Total	Men	Women	Total	Men	Women	Total
1 subject	603	68	671	365	150	515	296	8	304
2 subjects	635	73	708	515	167	682	419	2	421
3 subjects	454	55	509	384	99	483	285	5	290
4 subjects	383	41	424	350	84	434	189	1	190
5 subjects	292	15	307	296	43	339	124	2	126
6 subjects	189	5	194	225	18	243	90	2	92
7 subjects	128	1	129	174	13	187	42	—	42
Total failures	2,684	258	2,942	2,309	574	2,883	1,445	20	1,465

**TABLE 5.2 : Percentage of declared failures according to the number of subjects failed in at P.-D. Science, Arts Internal and Commerce Internal Examinations 1961**

<i>Number of subjects failed in</i>	<i>Science</i>			<i>Arts Internal</i>			<i>Commerce Internal</i>		
	<i>Men</i>	<i>Women</i>	<i>Total</i>	<i>Men</i>	<i>Women</i>	<i>Total</i>	<i>Men</i>	<i>Women</i>	<i>Total</i>
1 subject	12.8	12.6	12.8	10.8	13.3	11.4	12.5	12.5	12.5
2 subjects	13.5	13.5	13.5	15.2	14.8	15.1	17.6	3.1	17.3
3 subjects	9.7	10.2	9.7	11.3	8.8	10.7	12.0	7.8	11.9
4 subjects	8.2	7.6	8.1	10.3	7.4	9.6	8.0	1.6	7.8
5 subjects	6.2	2.8	5.9	8.7	3.8	7.5	5.2	3.1	5.2
6 subjects	4.0	0.9	3.7	6.6	1.6	5.4	3.8	3.2	3.8
7 subjects	2.8	0.2	2.5	5.2	1.1	4.0	1.6	—	1.5
Total failures	57.2	47.8	56.2	68.1	50.8	63.7	60.7	31.3	60.0

N.B. ; Percentage is to the total appeared.

TABLE 5-3 : Declared failures and their percentages according to the number of subjects failed in at P.-D. Arts External and Commerce External examinations 1961

Number of subjects failed in	Number						Percentage					
	Arts External			Commerce External			Arts External			Commerce External		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
1 subject	113	33	146	19	2	21	9.0	10.8	9.4	6.8	20.0	7.3
2 subjects	172	45	217	47	—	47	13.7	14.7	13.9	16.9	—	16.3
3 subjects	171	47	218	36	—	36	13.6	15.4	14.0	13.0	—	12.5
4 subjects	152	37	189	35	1	36	12.1	12.1	12.1	12.6	10.0	12.5
5 subjects	147	31	178	21	1	22	11.7	10.1	11.4	7.6	10.0	7.6
6 subjects	138	14	152	21	—	21	11.0	4.6	9.7	7.6	—	7.3
7 subjects	75	10	85	15	—	15	6.0	3.2	5.4	5.3	—	5.3
Total failures	968	217	1,185	194	4	198	77.1	70.9	75.9	69.8	40.0	68.8

N.B. : Percentage is to the total appeared.

*Failure percentage by the number of subjects*

<i>Examination</i>	<i>One subject</i>	<i>Two subjects</i>	<i>Three or more subjects</i>	<i>Total failures</i>
Science	12.8	13.5	29.9	56.2
Arts internal	11.4	15.1	47.2	63.7
Commerce internal	12.5	17.3	30.2	60.0
Arts external	9.4	13.9	52.6	75.9
Commerce external	7.3	16.3	45.2	68.8

in three or more subjects. For instance in arts and commerce external where the total failures are much larger the one-subject and two-subject failures are actually much smaller. It is therefore, clear that a large majority of the failures is not such as could be described a 'chance' failure. They are rather due to inadequate preparation or lack of ability on the part of candidates in general and not due to an unsatisfactory examination procedure.\* They are decisive, not marginal. (The analysis by groups of centres supports the same conclusions; hence separate tables for the three groups are not reproduced.)

### 9. *Classification of Failures by the P.-D. Total Marks*

Another way of confirming that a large number of failures is not marginal is to classify them by the (percentage of) total marks secured at the P.-D. examination. This is given in Table 6. Remembering that a candidate has to obtain 35 marks in each of the seven papers for passing it is obvious that there will be many who may secure more than 35 per cent in the total and yet may fail in one or more subjects. The point is to see whether there are large numbers who have failed because of failure in one or two subjects and yet have shown evidence of high general ability otherwise. From the summary table given below it is seen that those among the failures who obtained more than 40 per cent marks in the total are 12 per cent in science, two per cent in arts internal and six per cent in commerce internal. Among external candidates the figures are one per cent in arts and four per cent in commerce. The science figure which is much higher than others, is perhaps due to the requirement of separate passing in theory in science subjects—physics, chemistry and biology. But the main feature to observe is that except perhaps in science all figures are rather small. This means that failures are mainly due to general lack of preparation or lack of general ability on the part of the candidates rather

\* This is not to suggest that the examination procedures are not unsatisfactory or that there are no 'vagaries' of examination. These defects, as is well-known, undoubtedly exist. But the point made here is that they do not account for the large majority of failures.

TABLE 6 : Classification of candidates who failed the P.-D. examination according to their grand total marks expressed as percentage of the maximum marks

Percentage to maximum (700) marks	Science		Arts Internal		Commerce Internal		Arts External		Commerce External	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
—15	72	2.7	69	2.6	30	2.2	39	3.5	14	7.7
16—20	117	4.3	67	2.6	34	2.5	47	4.2	9	5.0
21—25	282	10.4	243	9.3	82	6.1	126	11.3	12	6.6
26—30	479	17.6	594	22.6	221	16.3	319	28.6	43	23.6
31—35	717	26.4	1,010	38.5	494	36.5	423	37.9	58	31.9
36—40	717	26.4	578	22.0	408	30.2	146	13.1	39	21.4
41—45	329	12.1	64	2.4	84	6.2	16	1.4	6	3.3
46—50	8	0.2	—	—	—	—	—	—	1	0.5
51—55	1	0.1	—	—	—	—	—	—	—	—
Total	2,722	100.0	2,625	100.0	1,353	100.0	1,116	100.0	182	100.0

N.B. : Failed candidates who had taken exemption in one or more subject are excluded from this table.

*Analysis of failures by the P.-D. total marks (per cent)*

<i>P.-D. total (per cent)</i>	<i>Internal</i>			<i>External</i>	
	<i>Science</i>	<i>Arts</i>	<i>Commerce</i>	<i>Arts</i>	<i>Commerce</i>
35 per cent or below	61.2	75.6	63.6	85.5	74.8
36 to 40 per cent	26.4	22.0	30.2	13.1	21.4
Above 40 per cent	12.4	2.4	6.2	1.4	3.8
Total failures	100.0	100.0	100.0	100.0	100.0

than to vagaries of the examination or to uneven standard of examination. Looking from the other end it is observed that those who have scored less than 35 per cent in the total are : science 61 per cent, arts internal 76 per cent, commerce internal 64 per cent, arts external 85 per cent, and commerce external 75 per cent. This supports the conclusions noted above. Analysis by the three groups of centres showed a general tendency of a comparatively greater concentration at the lower end of the spectrum in centres outside Poona which again is in conformity with what is mentioned above. (Tables are not given for considerations of space).

*10. Analysis of One-Subject Failures*

Failures in one subject and in two subjects are now analysed further by particular subjects and subject-combinations. Details of single-subject failures are presented in Tables 7.1 to 7.5, which give from the actual failures, (those securing less than 35 marks,) condoned cases and declared failures in each subject and the percentage of declared failures in that subject to the total number of declared single-subject failures. The condonation rules operate only on single-subject failures and the figures show that this has reduced the actual single-subject failures in science by 30 per cent and by an even greater margin in other categories. This again shows the extent to which the condonation procedures mentioned earlier have been effective in their operation.

Coming to specific subjects it is clear that in internal arts and commerce, English accounts for an overwhelmingly big proportion (70 and 65 per cent) of the single-subject failures. The other subjects which contribute significantly are geography (13 per cent) in arts and economics and book-keeping (11 and 10 per cent) in commerce. The remaining subjects do not appear to count for much in single-subject failures. In science mathematics accounts for 60 per cent of the single-subject failures and this is followed by English which accounts for another 22 per cent. These are over-all figures and conceal the differences between different centres. The separate figures for the three groups of centres show that in Poona while the single-subject failures in English are negligible (5 per cent) it is

TABLE 7.1 : *Distribution of candidates condoned and declared failed in only one subject according to subject failed in : P.-D. Science*

Subject	Poona			Old			New			All centres		
	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed
English	29	15	5.2	81	85	29.0	35	46	51.1	145	146	21.8
M. I. L.	14	10	3.5	10	4	1.4	—	—	—	24	14	2.1
Physics	2	12	4.2	2	4	1.4	—	—	—	4	16	2.4
Chemistry	4	27	9.4	8	23	7.8	1	3	3.3	13	53	7.9
Biology	—	3	1.0	—	1	0.3	—	—	—	—	4	0.6
Mathematics	28	208	72.2	23	157	53.6	3	38	42.3	54	403	60.0
Civics	11	3	1.0	9	6	2.1	—	3	3.3	20	12	1.8
Other optional subjects	15	10	3.5	9	13	4.4	—	—	—	24	23	3.4
<b>Total</b>	<b>103</b>	<b>288</b>	<b>100.0</b>	<b>142</b>	<b>293</b>	<b>100.0</b>	<b>39</b>	<b>90</b>	<b>100.0</b>	<b>284</b>	<b>671</b>	<b>100.0</b>

Note : In Tables 7.1 to 7.5 addition of condoned and declared failures gives the number of actual failures (i.e. those scoring less than 35 marks.)

TABLE 7.2 : *Distribution of candidates condoned and declared failed in only one subject according to subject failed in : P.-D. Arts Internal*

Subject	Poona			Old			New			All centres		
	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed
English	69	105	72.9	219	164	62.5	67	91	85.0	355	360	69.9
M. I. L.	6	1	0.7	10	4	1.5	2	1	0.9	18	6	1.2
Geography	15	11	7.6	42	45	17.1	11	11	10.4	68	67	13.0
Mathematics	5	4	2.8	3	5	1.5	—	1	0.9	8	10	1.9
Classical Language	21	9	6.2	21	11	4.2	—	2	1.9	42	22	4.3
History	7	3	2.1	30	10	3.8	1	—	—	38	13	2.5
Economics	14	6	4.2	24	13	4.9	5	1	0.9	43	20	3.9
Civics	8	5	3.5	18	12	4.5	—	—	—	26	17	3.3
Other subjects	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total</b>	<b>145</b>	<b>144</b>	<b>100.0</b>	<b>367</b>	<b>264</b>	<b>100.0</b>	<b>86</b>	<b>107</b>	<b>100.0</b>	<b>598</b>	<b>515</b>	<b>100.0</b>

TABLE 7.3 : *Distribution of candidates condoned and declared failed in only one subject according to subject failed in : P.-D. Commerce Internal*

Subject	Poona			Old			New			All centres		
	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed
English	40	43	64.2	106	115	65.0	28	41	68.3	174	199	65.5
M. I. L.	2	1	1.5	4	2	1.1	1	1	1.7	7	4	1.3
Geography	6	6	9.0	14	9	5.1	8	2	3.3	28	17	5.6
Elements of commerce	1	1	1.5	5	2	1.1	1	1	1.7	7	4	1.3
Book-keeping and Accounts	2	2	3.0	9	20	11.3	2	8	13.3	13	30	9.9
Economics	12	4	6.0	33	24	13.6	3	6	10.0	48	34	11.2
Civics	4	5	7.4	7	2	1.1	—	—	—	11	7	2.3
Other subjects	1	5	7.4	5	3	1.7	1	1	1.7	7	9	2.9
Total	68	67	100.0	183	177	100.0	44	60	100.0	295	304	100.0

**TABLE 7-4 :** *Distribution of candidates condoned and declared failed in only one subject according to subject failed in : P.-D. Arts External*

Subject	Poona			Old			New			All centres		
	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed
English	20	24	33.3	13	24	40.7	10	10	66.6	43	58	39.7
M. I. L.	4	3	4.2	2	—	—	—	—	—	6	3	2.1
Geography	5	12	16.7	9	11	18.6	—	3	20.0	14	26	17.8
Mathematics	—	5	6.8	1	—	—	—	—	—	1	5	3.4
Classical Language	9	12	16.7	8	5	8.5	—	—	—	17	17	11.6
History	11	12	16.7	7	5	8.5	—	1	6.7	18	18	12.3
Economics	5	2	2.8	12	10	16.9	3	1	6.7	20	13	8.9
Civics	2	2	2.8	9	3	5.1	—	—	—	11	5	3.4
Other subjects	—	—	—	—	1	1.7	—	—	—	—	1	0.8
<b>Total</b>	<b>56</b>	<b>72</b>	<b>100.0</b>	<b>61</b>	<b>59</b>	<b>100.0</b>	<b>13</b>	<b>15</b>	<b>100.0</b>	<b>130</b>	<b>146</b>	<b>100.0</b>

TABLE 7.5 : *Distribution of candidates condoned and declared failed in only one subject according to subject failed in : P.-D. Commerce External*

Subject	Poona			Old			New			All centres		
	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed	Con- doned	De- clared	Percent- age of declared failed
English	2	3	25.0	2	1	14.3	—	1	50.0	4	5	23.8
M. I. L.	2	—	—	1	—	—	—	—	—	3	—	—
Geography	—	7	58.4	2	1	14.3	1	—	—	3	8	38.1
Elements of Commerce	—	—	—	—	—	—	—	1	50.0	—	1	4.8
Book-keeping and Accounts	—	1	8.3	—	—	—	—	—	—	—	1	4.8
Economics	4	1	8.3	4	5	71.4	—	—	—	8	6	28.5
Civics	4	—	—	3	—	—	—	—	—	7	—	—
Other subjects	—	—	—	—	—	—	—	—	—	—	—	—
Total	12	12	100.0	12	7	100.0	1	2	100.0	25	21	100.0

mathematics which accounts for 72 per cent of them. But English (as will be seen later in greater detail) has a greater share in Old and New centres (29 and 51 per cent respectively) and the share of mathematics becomes correspondingly smaller (54 and 42 per cent respectively). It is important to note that failures in the optional (arts) subject in science do not appear to contribute very much (5 per cent) to single-subject failures.

In the case of external candidates, the single-subject failures are not as highly concentrated in one or two specific subjects as in the case of internal candidates. The figures show however that in arts English (40 per cent) and geography (18 per cent) have a greater share. (The numbers in commerce are small and will therefore be ignored in this analysis.)

### 11. *Two-Subject Failures*

Tables 8.1 to 8.5 give details about two-subject failures by different subject combinations—the number of failures for each combination and its percentage in the total number of two-subject failures. Taking science candidates it is found that two-thirds of the two-subject failures are in combinations with mathematics and the combinations with mathematics and/or English account for more than 86 per cent. These figures again pin-point the two problem subjects in the P.-D. science course. In arts internal combinations with English contribute more than 70 per cent to two-subject failures and these are followed by combinations with geography and with economics. In commerce internal also combinations with English take the largest toll (of more than 70 per cent) of two-subject failures and are then followed by combinations with economics and with book-keeping. If we examine the figures of the science candidates separately for the three groups of centres it is found that in Poona combinations with English (except when it is with mathematics) lose significance (only 7 per cent) but in the mofussil centres they account for a much larger share (more than 25 per cent) confirming the conclusions drawn above. In arts internal the situation is more or less the same as described above (for single-subject failures) at different centres. In commerce also the situation at different centres is more or less the same; but it is worth noting that in the New centres the single English-economics combination accounts for as many as 45 per cent of the two-subject failures.

Turning to external candidates in arts it is found that combinations with English are again the most important (52 per cent) although they do not account for as many as they did in the case of internal candidates, and history also assumes importance along with geography and economics. In commerce external combinations with English and economics account for more than 80 per cent of the two-subject failures. While the figures for commerce external are too small to be separated into the three groups of centres those in arts show that in the New centres combinations with English are again of much greater importance (more than 70 per cent).

It is perhaps convenient to summarize here our findings so far as regards

TABLE 8.1 : *Distribution of candidates failed in two subjects according to subject combinations failed in : P.-D. Science*

Subject combination	All centres		Poona		Old		New	
	Number of failures	Percentage to total	Number of failures	Percentage to total	Number of failures	Percentage to total	Number of failures	Percentage to total
Mathematics-English	166	23.4	34	12.5	104	29.1	28	35.4
Mathematics-Chemistry	149	21.0	78	28.7	60	16.8	11	13.9
Mathematics-Physics	81	11.4	51	18.7	28	7.8	2	2.5
Mathematics-Optional	58	8.2	29	10.7	28	7.8	1	1.3
English-Chemistry	55	7.8	4	1.5	44	12.3	7	8.9
English-Optional	55	7.8	9	3.3	35	9.8	11	13.9
English-M.I.L.	29	4.1	7	2.6	13	3.6	9	11.4
Mathematics-M.I.L.	23	3.2	16	5.9	7	2.0	—	—
Chemistry-Optional	23	3.2	9	3.3	10	2.8	4	5.1
Chemistry-Physics	20	2.8	6	2.2	11	3.1	3	3.8
Optional-M.I.L.	12	1.7	10	3.7	2	0.6	—	—
Other combinations	47	5.4	19	6.9	15	4.3	3	3.8
Total	708	100.0	272	100.0	357	100.0	79	100.0

TABLE 8-2 : *Distribution of candidates failed in two subjects according to subject combinations failed in : P.-D. Arts Internal*

<i>'Subject-combination</i>	<i>All centres</i>		<i>Poona</i>		<i>Old</i>		<i>New</i>	
	<i>Number of failures</i>	<i>Percentage to total</i>	<i>Number of failures</i>	<i>Percentage to total</i>	<i>Number of failures</i>	<i>Percentage to total</i>	<i>Number of failures</i>	<i>Percentage to total</i>
English-Geography	113	16.5	35	20.7	57	14.0	21	19.1
English-Classical Language	111	16.2	30	17.8	71	17.5	10	9.1
English-Economics	83	12.1	9	5.3	49	12.1	25	22.7
English-History	76	11.1	15	8.9	45	11.1	16	14.5
English-Civics	64	9.3	11	6.5	43	10.6	10	9.1
English-M.I.L.	41	6.0	12	7.1	21	5.2	8	7.3
Economics-Geography	40	5.8	14	8.3	19	4.7	7	6.4
Economics—Civics	26	3.8	6	3.5	20	4.9	—	—
Geography-Classical Language	19	2.8	7	4.1	10	2.5	2	1.8
Geography-History	18	2.6	4	2.4	14	3.4	—	—
Geography-Civics	15	2.2	4	2.4	9	2.2	2	1.8
Geography-M.I.L.	13	1.9	8	4.7	2	0.5	3	2.7
History-Civics	13	1.9	—	—	12	3.0	1	0.9
Other combinations	50	7.8	14	8.3	31	8.3	5	4.6
<b>Total</b>	<b>682</b>	<b>100.0</b>	<b>169</b>	<b>100.0</b>	<b>403</b>	<b>100.0</b>	<b>110</b>	<b>100.0</b>

**TABLE 8.3 : Distribution of candidates failed in two subjects according to subject combinations failed in : P.-D. Commerce Internal**

Subject-combination	All centres		Poona		Old		New	
	Number of failures	Percentage to total	Number of failures	Percentage to total	Number of failures	Percentage to total	Number of failures	Percentage to total
English-Economics	118	28.0	18	20.9	62	24.7	38	45.2
English-Book-keeping and Accounts	56	13.3	3	3.5	41	16.3	12	14.3
English-Geography	43	10.2	10	11.6	28	11.2	5	5.9
English-M.I.L.	38	9.0	25	29.1	9	3.6	4	4.8
Economics—Book-Keeping and Accounts	35	8.3	2	2.3	27	10.8	6	7.1
English-Civics	32	7.6	7	8.1	21	8.4	4	4.8
Economics-Civics	18	4.3	7	8.1	10	4.0	1	1.2
English-Elements of Commerce	14	3.3	1	1.2	6	2.4	7	8.3
Geography-Economics	13	3.1	2	2.3	11	4.4	—	—
Geography-Book-keeping and Accounts	9	2.1	1	1.2	6	2.4	2	2.4
Economics-Elements of Commerce	8	1.9	1	1.2	5	2.0	2	2.4
Geography-Civics	8	1.9	3	3.5	4	1.6	1	1.2
Other combinations	29	7.0	6	7.0	21	8.4	2	2.4
<b>Total</b>	<b>421</b>	<b>100.0</b>	<b>86</b>	<b>100.0</b>	<b>251</b>	<b>100.0</b>	<b>84</b>	<b>100.0</b>

TABLE 8.4 : Distribution of candidates failed in two subjects according to subject combinations failed in : P.-D. Arts External

Subject-combination	All centres		Paona		Old		New	
	Number of failures	Percentage to total	Number of failures	Percentage to total	Number of failures	Percentage to total	Number of failures	Percentage to total
English-Economics	30	13.8	4	4.4	18	18.2	8	29.6
English-Classical Language	25	11.5	14	15.4	10	10.1	1	3.7
English-Geography	24	11.1	8	8.8	11	11.1	5	18.5
Geography-Economics	22	10.1	9	9.9	12	12.1	1	3.7
Geography-History	18	8.3	12	13.2	4	4.0	2	7.4
English-History	14	6.5	5	5.5	6	6.1	3	11.1
Classical Language-History	13	6.0	11	12.1	2	2.0	—	—
English-Civics	11	5.1	1	1.0	8	8.1	2	7.4
English-M.I.L.	9	4.1	4	4.4	4	4.0	1	3.7
M.I.L.-History	8	3.7	5	5.5	3	3.0	—	—
History-Economics	7	3.2	3	3.3	4	4.0	—	—
Geography-Classical Language	6	2.8	4	4.4	2	2.0	—	—
Other combinations	30	13.8	11	12.1	15	15.3	4	14.9
<b>Total</b>	<b>217</b>	<b>100.0</b>	<b>91</b>	<b>100.0</b>	<b>99</b>	<b>100.0</b>	<b>27</b>	<b>100.0</b>

TABLE 8.5 : Distribution of candidates failed in two subjects according to subject combinations failed in : P.-D. Commerce External

Subject-combination	All centres		Poona		Old		New	
	Number of failures	Percentage to total	Number of failures	Percentage to total	Number of failures	Percentage to total	Number of failures	Percentage to total
Economics-English	16	34.1	4	19.0	11	45.8	1	50.0
Economics—Geography	9	19.1	5	23.7	4	16.6	—	—
Economics-Book-keeping and Accounts	4	8.5	2	9.5	1	4.2	1	50.0
Geography-Civics	3	6.4	2	9.5	1	4.2	—	—
Economics-Civics	3	6.4	—	—	3	12.5	—	—
Economics-M.I.L.	2	4.3	—	—	2	8.3	—	—
Economics-Elements of Commerce	2	4.3	1	4.8	1	4.2	—	—
English-Geography	1	2.1	1	4.8	—	—	—	—
English-Book-keeping and Accounts	1	2.1	1	4.8	—	—	—	—
Geography-M.I.L.	1	2.1	1	4.8	—	—	—	—
Civics-M.I.L.	1	2.1	1	4.8	—	—	—	—
Other combinations	4	8.5	3	14.3	1	4.2	—	—
Total	47	100.0	21	100.0	24	100.0	2	100.0

the problem subjects in the different courses, that is, subjects which have a dominant position in one-subject and two-subject failures. This is done below giving the subjects in order of their importance for the discussion of failures.

<i>Examination</i>	<i>Subjects</i>
Science	Mathematics, English
Arts Internal	English, geography, economics
Commerce internal	English, economics, book-keeping
Arts external	English, geography, economics
Commerce external	English, geography, economics

### 12. *Analysis of Failures in Individual Subjects*

Let us now consider the incidence of failure in individual subjects by themselves irrespective of whether they occur with or without failure in other subjects. Tables 9.1 to 9.5 give the number of candidates who appeared in a specified subject and the percentage of those who failed (scored less than 35 marks\*) in it. Here attention will be focussed on those seven subjects which are commonly offered by a large majority of candidates ignoring other subjects offered only by a few candidates. For instance in arts mathematics and commerce subjects which are offered only by a few will not be considered.

First, we observe that women have a lower rate of failure than men in every subject in each of the examinations and it is much more so for internal candidates than for external candidates. This of course is in line with the better general performance of women noted earlier. It is also to be seen that the order of subjects according to the incidence of failure is almost the same for the two sexes. Secondly, as regards the different groups of centres, one observes in many subjects the same general tendency which was seen when general results were considered; that is, in science and in internal arts and commerce the Poona group has the best performance followed by the group of Old centres and the group of New centres is the last. The notable exceptions to this general tendency are the Modern Indian Language and the Second Language. For external arts and commerce there is no such definite pattern.

\* In the P.-D. science examination for each of the three science subjects of physics, chemistry and biology, the examination consists of a theory paper of 70 marks and a practical examination of 30 marks. For passing in a subject a candidate must secure at least 24 marks in theory and 35 marks in theory and practical together. It is thus possible that a candidate who has 35 marks or more in a science subject may have failed in it because of his deficiency in the theory paper.

TABLE 9.1 : Number of candidates appeared and percentage failures in different subjects at P.-D. Science examination 1961

	<i>Number appeared</i>						
	<i>English</i>	<i>MIL</i>	<i>Physics</i>	<i>Chemistry</i>	<i>Biology</i>	<i>Mathematics</i>	<i>Optional Subject</i>
Men	4,613	4,430	4,450	4,417	4,538	4,579	4,568
Women	525	506	508	510	514	526	524
Poona	2,141	2,086	2,105	2,064	2,126	2,138	2,155
Old	2,453	2,357	2,346	2,361	2,396	2,436	2,406
New	544	493	507	502	530	531	531
All centres	5,138	4,936	4,958	4,927	5,052	5,105	5,092
	<i>Percentage failures</i>						
Men	33.2	12.3	26.3	33.1	11.3	46.4	20.5
Women	21.1	3.2	21.5	27.5	3.3	40.1	13.9
Poona	14.0	11.2	22.6	25.4	6.5	42.4	17.1
Old	41.5	11.4	27.7	37.8	13.4	47.8	22.8
New	59.2	12.0	30.6	37.5	13.6	49.9	17.1
All centres	31.9	12.1	25.8	32.6	10.5	45.8	19.8

N.B. : For Tables 9.1 to 9.5, except in Physics, Chemistry and Biology (refer to p. 163 of text), failures are defined as those scoring less than 35 marks in a subject.

TABLE 9.2 : Number of candidates appeared and percentage failures in different subject at P.-D. Arts Internal Examination 1961

	<i>Number appeared</i>							
	<i>English</i>	<i>MIL</i>	<i>Geography</i>	<i>SL</i>	<i>History</i>	<i>Economics</i>	<i>Civics</i>	<i>Mathematics</i>
Men	3,370	3,221	3,231	3,253	3,278	3,293	3,325	59
Women	1,118	1,042	1,043	1,063	1,005	1,108	1,105	91
Poona	1,150	1,082	1,068	1,109	1,027	1,138	1,145	78
Old	2,679	2,548	2,574	2,564	2,607	2,620	2,648	60
New	659	633	632	643	649	643	637	12
All centres	4,488	4,263	4,274	4,316	4,283	4,401	4,430	150
	<i>Percentage failures</i>							
Men	62.7	19.2	36.0	31.5	31.2*	36.2	32.0	52.5
Women	45.3	8.0	26.3	12.6	16.9	21.9	19.6	38.5
Poona	47.5	17.6	30.9	25.2	23.1	25.2	22.3	42.3
Old	59.9	14.8	34.3	28.3	31.0	36.3	33.1	50.0
New	71.0	21.2	35.3	23.8	22.8	31.0	23.6	25.0
All centres	58.4	16.5	33.6	26.8	27.9	32.6	28.9	44.0

TABLE 9.1 : Number of candidates appeared and percentage failures in different subjects at P.-D. Science examination 1961

	<i>Number appeared</i>						
	<i>English</i>	<i>MIL</i>	<i>Physics</i>	<i>Chemistry</i>	<i>Biology</i>	<i>Mathematics</i>	<i>Optional Subject</i>
Men	4,613	4,430	4,450	4,417	4,538	4,579	4,568
Women	525	506	508	510	514	526	524
Poona	2,141	2,086	2,105	2,064	2,126	2,138	2,155
Old	2,453	2,357	2,346	2,361	2,396	2,436	2,406
New	544	493	507	502	530	531	531
All centres	5,138	4,936	4,958	4,927	5,052	5,105	5,092
	<i>Percentage failures</i>						
Men	33.2	12.3	26.3	33.1	11.3	46.4	20.5
Women	21.1	3.2	21.5	27.5	3.3	40.1	13.9
Poona	14.0	11.2	22.6	25.4	6.5	42.4	17.1
Old	41.5	11.4	27.7	37.8	13.4	47.8	22.8
New	59.2	12.0	30.6	37.5	13.6	49.9	17.1
All centres	31.9	12.1	25.8	32.6	10.5	45.8	19.8

N.B. : For Tables 9.1 to 9.5, except in Physics, Chemistry and Biology (refer to p. 163 of text), failures are defined as those scoring less than 35 marks in a subject.

TABLE 9.2 : Number of candidates appeared and percentage failures in different subject at P.-D. Arts Internal Examination 1961

	<i>Number appeared</i>							
	<i>English</i>	<i>MIL</i>	<i>Geography</i>	<i>SL</i>	<i>History</i>	<i>Economics</i>	<i>Civics</i>	<i>Mathematics</i>
Men	3,370	3,221	3,231	3,253	3,278	3,293	3,325	59
Women	1,118	1,042	1,043	1,063	1,005	1,108	1,105	91
Poona	1,150	1,082	1,068	1,109	1,027	1,138	1,145	78
Old	2,679	2,548	2,574	2,564	2,607	2,620	2,648	60
New	659	633	632	643	649	643	637	12
All centres	4,488	4,263	4,274	4,316	4,283	4,401	4,430	150
	<i>Percentage failures</i>							
Men	62.7	19.2	36.0	31.5	31.2	36.2	32.0	52.5
Women	45.3	8.0	26.3	12.6	16.9	21.9	19.6	38.5
Poona	47.5	17.6	30.9	25.2	23.1	25.2	22.3	42.3
Old	59.9	14.8	34.3	28.3	31.0	36.3	33.1	50.0
New	71.0	21.2	35.3	23.8	22.8	31.0	23.6	25.0
All centres	58.4	16.5	33.6	26.8	27.9	32.6	28.9	44.0

TABLE 9.3 : Number of candidates appeared and percentage failures in different subjects at P.-D. Commerce Internal examination 1961

	<i>Number appeared</i>							
	<i>English</i>	<i>MIL</i>	<i>Geography</i>	<i>Elements of commerce</i>	<i>Book-keeping &amp; Accounts</i>	<i>Economics</i>	<i>Civics</i>	<i>Other subjects</i>
Men	2,363	2,286	2,292	2,311	2,270*	2,320	1,934	412
Women	64	62	63	64	63	63	50	15
Poona	521	504	502	514	496	519	461	60
Old	1,455	1,406	1,416	1,426	1,403	1,417	1,168	274
New	451	438	437	435	434	447	355	93
All centres	2,427	2,348	2,355	2,375	2,333	2,383	1,984	427
	<i>Percentage failures</i>							
Men	55.2	12.9	23.7	13.2	24.1	37.0	22.2	24.8
Women	26.6	3.2	19.1	48.4	7.9	20.6	18.0	0.0
Poona	44.9	9.5	21.7	11.9	10.9	28.5	21.3	38.3
Old	53.7	13.4	22.8	13.1	26.7	38.4	23.3	23.4
New	67.8	13.9	27.9	20.2	28.6	39.8	19.2	16.1
All centres	54.4	12.7	23.5	14.2	23.7	36.5	22.1	23.9

TABLE 9.4 : Number of candidates appeared and percentage failures in different subjects at P.-D. Arts External Examination 1961

	<i>Number appeared</i>							
	<i>English</i>	<i>MIL</i>	<i>Geography</i>	<i>SL</i>	<i>History</i>	<i>Economics</i>	<i>Civics</i>	<i>Mathematics</i>
Men	1,230	1,181	1,194	1,190	1,200	1,204	1,238	21
Women	303	282	285	290	295	294	300	11
Poona	657	619	628	619	635	636	658	20
Old	721	699	698	708	709	711	726	11
New	155	145	153	153	151	151	154	1
All centres	1,533	1,463	1,479	1,480	1,495	1,498	1,538	32
	<i>Percentage failures</i>							
Men	53.7	27.5	44.5	45.2	49.7	46.3	34.6	66.7
Women	53.5	14.2	42.8	38.3	38.0	32.3	35.3	63.6
Poona	49.9	33.4	46.5	50.1	53.1	33.2	29.9	80.0
Old	54.0	17.5	43.0	42.4	45.1	51.9	38.8	45.5
New	67.7	24.8	39.9	28.8	33.8	47.7	35.7	00.0
All centres	53.6	25.0	44.2	44.2	47.4	43.6	34.7	65.6

TABLE 9.5 : Number of candidates appeared and percentage failures in different subjects at P.-D. Commerce External examination 1961

	<i>Number appeared</i>							
	<i>English</i>	<i>MIL</i>	<i>Geography</i>	<i>Elements of Commerce</i>	<i>Book-keeping and Accounts</i>	<i>Economics</i>	<i>Civics</i>	<i>Other subjects</i>
Men	270	263	265	262	253	266	246	35
Women	10	9	10	10	8	9	8	3
Poona	144	139	145	142	133	139	130	25
Old	121	118	117	116	115	123	110	13
New	15	15	13	14	13	13	14	—
All centres	280	272	275	272	261	275	254	38
	<i>Percentage failures</i>							
Men	42.2	29.7	43.4	19.1	22.5	56.4	38.8	54.3
Women	20.0	11.1	30.0	00.0	12.5	11.1	12.5	00.0
Poona	38.9	31.7	47.6	12.7	20.3	46.0	37.7	52.0
Old	44.6	25.4	40.2	24.1	23.5	65.9	43.6	46.2
New	40.0	33.3	15.4	28.6	30.8	46.2	14.3	—
All centres	41.4	29.0	42.9	18.4	22.2	54.9	39.0	50.0

Coming to specific subjects let us first consider the science course. The seven subjects commonly offered by science candidates may be grouped as (i) English, and Modern Indian Language (MIL) which is almost always the mother tongue; (ii) physics, chemistry, and biology; (iii) mathematics; and (iv) optional arts subject. The last may also be considered along with the language group. Among the languages the MIL seems to offer no difficulty to the candidates; this is quite natural since it is almost always the mother tongue. But English takes a toll of as many as 32 per cent of the candidates. Of the three science subjects biology again offers no great difficulty but in physics and in chemistry the failures are quite large (26 and 33 per cent respectively). Mathematics with its highest figure of failures (46 per cent) appears to be the main stumbling block. The optional arts subject (which is introduced in the science course to meet the needs of General Education) with 20 per cent failures is comparable to physics. Thus all except the MIL and biology appear to cause more or less difficulty, the three most difficult being mathematics, chemistry and English in that order.

In arts the seven most popular subjects can be grouped as : (i) English, the MIL, and the Second Language (SL) which is very often a classical Indian language (e.g. Sanskrit) or a modern European language (e.g. German or French) or a modern Indian language which has to be different from the one offered under the MIL; (ii) history, civics, and economics; and (iii) geography (which is introduced as a science subject in the interests of General Education). Here considering first the internal candidates, it is seen that English with 58 per cent failures is the most difficult hurdle. The MIL with 16 per cent failures is comparable to the same subject in science (and also in commerce as we shall see later). The classical language (SL) with 27 per cent failures is comparable to subjects in the social sciences group viz. history (28 per cent), economics (33 per cent) and civics (29 per cent). Lastly, geography in which there are 34 per cent failures, also appears to be a problem subject next to English. Thus except the MIL all other subjects take a heavy toll, the three most difficult being English, geography and economics in that order.

In commerce the commonly offered seven subjects may be grouped as follows : (i) English and the MIL; (ii) economics and civics; (iii) elements of commerce and book-keeping-and-accounts; and (iv) geography (which is supposed to serve the same purpose as in arts). Here as in arts (confining ourselves to internal candidates) English with 54 per cent failures appears to be the most serious hurdle; and the MIL (13 per cent) has the same easy position as in arts and science. The second problem subject is economics with 37 per cent failures; civics seems to be comparatively easier with 22 per cent failures. Of the two commerce subjects book-keeping-and-accounts with 24 per cent failures appears to be far more difficult than elements of commerce with only 14 per cent failures. Geography takes a high toll (24 per cent failures) but does not appear to be

as difficult a subject with commerce students as with arts students. Thus all subjects except the MIL and elements of commerce cause more or less difficulty, and English followed by economics are the two most difficult subjects.

When we come to external candidates it is found that in arts although the proportion of failures among the external candidates is greater than that among the internal candidates the relative position of the seven subjects is almost the same for both internal and external candidates. But in commerce economics instead of English appears to be the most serious hurdle for external students.

The analysis of failures in individual subjects thus strengthens and extends our findings about the problem subjects in the different P.-D. examinations. These are summarized for the three internal examinations as follows. The subjects with more than 20 per cent failures are listed in order, those amongst them with more than 30 per cent failures being printed in italics.

Science	: <i>Mathematics, chemistry, English,</i> physics, optional arts subject
Arts internal	: <i>English, geography, economics,</i> civics, history, second language.
Commerce internal	: <i>English, economics,</i> book-keeping, geography, civics.

### 13. *The Position of English*

Thus the position of English is central in any consideration of failures at the P.-D. examination. In fact it is also necessary to view this subject (English) a little more in detail on other counts as well. First, there are more failures in English among internal candidates in arts and commerce than among external candidates. This is surprising in the face of the advantage of regular tuition in college in this subject which internal candidates receive. We had seen earlier that the quality of external candidates as indicated by the median S.S.C. marks was slightly better than the internals. But considering the handicap which the externals have in other respects the difference of five per cent and 13 per cent respectively in arts and commerce between the percentages of failures in English of the internal and external candidates cannot be explained by the slight difference in the median S.S.C. marks. The explanation must be sought in other factors such as greater maturity of external candidates and the fact that they are employed. (Those in clerical service will have an obvious advantage in this respect).

Secondly, the percentage figures of failures in English in centres outside Poona are indeed very high. For instance these figures for New centres are 71, 68 and 59 per cent for internal arts, internal commerce and science candidates respectively. In fact in science the over-all figure of 32 per cent failures in English conceals the fact that for Poona the figure

is as low as 14 per cent (and therefore can be ignored); for Old centres it is 42 per cent (and is therefore already second in order to mathematics); and for New centres it is 59 per cent, nine per cent higher than in mathematics which is considered to be the main hurdle for science students. It is quite clear that in the case of English the problems of Poona candidates and mofussil candidates (especially those in smaller towns) are qualitatively different. The higher incidence of failure in English in the centres outside Poona may be due to inadequate teaching facilities in colleges (such as lack of qualified teachers of English) or due to lack of general cultural background of the new class of student which is coming up to the university in larger numbers. Perhaps it is due to both these factors. In any case it deserves serious attention both as regards future investigation and remedial measures.

#### 14. *Failures in Subjects Analysed by Marks*

A further probe into the failures in individual subjects is to analyse them by marks obtained in that subject. This is presented in Tables 10.1 to 10.4 which give the percentage of candidates who obtained less than a given number of marks in a particular subject. For this purpose only those subjects are considered where there was a comparatively greater incidence of failure (as observed above). For English because of its central importance the analysis is given also for the three groups of centres separately for the three internal examinations. For other subjects the failures for the university as a whole are analysed.

The first thing that strikes the eye is the gracing adopted by the examiners in every subject before submitting their marks to the university. This is 'informal' levelling up which takes place independently of and prior to the formal gracing by the condonation procedures which operate when marks in all the subjects are taken together and one-subject failures are ascertained. The extent of this 'informal' gracing is summarized below where the figure in bracket after each subject gives the minimum number of marks which have been raised to the passing level of 35 marks.

Science	: English (31), mathematics (24), optional subject (32).
Arts internal	: English (31), geography (31), second language (32), history (32), economics (32), civics (32).
Commerce internal	: English (31), geography (31), book-keeping (30), economics (32), civics (32).

The levels of 'informal' gracing in a subject at the external arts and commerce are the same as those for the internal. It should also be mentioned that in the three science subjects the figures of Table 10.1 do not show evidence of this kind of gracing for the total of theory and practical. There may have been raising of marks in theory to bring them to the minimum passing marks 24 in theory papers in these subjects, of the same order as

TABLE 10.1 : Percentage of candidates who have scored marks below the specified marks in different subjects at P.-D. Science examination 1961

Centre	Poona	Old	New	All centres				
				English	Physics	Chemistry	Mathematics	Optional subject
Subject	English	English	English	English	Physics	Chemistry	Mathematics	Optional subject
Below 20	0.5	6.0	13.4	4.5	7.4	7.0	34.9	2.3
" 21	0.6	8.2	16.0	5.8	8.1	8.0	37.0	2.7
" 22	0.7	10.0	19.1	7.1	8.9	8.9	39.4	3.3
" 23	1.1	12.2	21.7	8.6	10.0	10.0	43.8	4.2
" 24	1.6	15.0	26.1	10.6	11.0	11.4	45.8	5.3
" 25	2.7	18.8	31.8	13.5	12.0	12.6	45.8	6.5
" 26	3.7	22.8	36.9	16.3	13.0	14.0	45.8	7.8
" 27	4.7	25.8	41.4	18.6	14.1	15.7	45.8	9.1
" 28	6.4	29.2	46.5	21.5	15.6	17.6	45.8	11.0
" 29	8.3	33.1	49.6	24.5	17.1	19.0	45.8	12.9
" 30	10.6	36.7	53.9	27.6	18.5	20.5	45.8	15.2
" 31	14.0	41.3	58.8	31.8	20.3	22.0	45.8	18.2
" 32	14.0	41.5	59.2	31.9	21.3	23.4	45.8	19.8
" 33	14.0	41.5	59.2	31.9	22.3	24.6	45.8	19.8
" 34	14.0	41.5	59.2	31.9	23.2	26.0	45.8	19.8
" 35	14.0	41.5	59.2	31.9	23.9	27.5	45.8	19.8
Number appeared	2,141	2,453	544	5,138	4,958	4,927	5,105	5,092

N.B. : Figures in this table for Physics and Chemistry will not tally with the corresponding figures in Table 9.1 (See p. 163).

TABLE 10.2 : Percentage of candidates who have scored marks below the specified marks in different subjects at P.-D. Arts Internal examination 1961

Centre		Poona	Old	New	All centres					
Subject		English	English	English	English	Geography	SL	History	Economics	Civics
Below	20	4.3	10.0	19.7	10.0	6.6	3.0	4.8	7.1	3.9
"	21	5.9	12.6	23.4	12.5	7.6	3.9	5.5	6.5	4.7
"	22	7.7	15.9	28.2	15.6	9.1	4.6	6.8	9.8	5.8
"	23	11.0	20.2	32.9	19.7	10.9	5.8	8.0	11.3	7.0
"	24	15.0	24.2	37.6	23.8	12.9	7.2	9.3	12.8	8.4
"	25	17.3	29.0	42.0	27.9	14.9	9.0	10.9	14.4	9.7
"	26	21.8	33.6	45.4	32.3	17.2	10.9	12.6	16.3	11.5
"	27	26.7	38.9	51.6	37.7	20.3	12.8	14.5	18.7	13.5
"	28	30.1	44.8	57.4	42.9	23.5	15.2	16.5	20.9	16.2
"	29	34.8	50.4	63.0	48.2	26.9	18.2	19.0	24.2	18.7
"	30	40.2	55.7	67.2	53.4	29.9	21.3	21.6	27.0	21.7
"	31	47.0	59.9	71.0	58.2	33.6	25.5	24.6	29.9	24.7
"	32	47.0	59.9	71.0	58.2	33.6	26.7	27.9	32.4	28.8
"	33	47.0	59.9	71.0	58.2	33.6	26.8	27.9	32.4	28.8
"	34	47.2	59.9	71.0	58.3	33.6	26.8	27.9	32.4	28.8
"	35	47.5	59.9	71.0	58.4	33.6	26.8	27.9	32.6	28.9
Number appeared		1,150	2,679	659	4,488	4,274	4,316	4,283	4,401	4,430

TABLE 10.3 : Percentage of candidates who have scored marks below the specified marks in different subjects at P.-D. Commerce Internal examination 1961

Centre		Poona	Old	New	All centres				
Subject		English	English	English	English	Geography	Book-keeping & Accounts	Economics	Civics
Below	20	2.5	7.6	16.9	8.2	3.3	9.7	5.9	2.7
"	21	3.6	10.3	20.4	10.8	4.3	10.9	6.9	3.4
"	22	4.8	13.1	24.2	13.4	5.1	12.2	8.1	3.8
"	23	7.1	16.1	28.6	16.5	6.1	13.7	9.9	4.6
"	24	10.6	19.5	31.9	19.9	7.9	14.6	12.0	5.3
"	25	14.2	22.8	37.7	23.7	9.9	15.7	14.2	6.5
"	26	17.7	27.4	43.5	28.3	11.5	17.3	16.5	7.8
"	27	22.1	32.5	47.7	33.1	13.5	18.3	18.8	9.4
"	28	27.8	37.3	53.7	38.3	15.8	20.0	22.1	11.0
"	29	33.6	42.9	59.4	44.0	18.2	21.9	25.2	13.2
"	30	37.4	48.0	64.1	48.7	20.3	23.7	28.3	15.5
"	31	44.9	53.7	67.8	54.4	23.5	23.7	31.8	18.5
"	32	44.9	53.7	67.8	54.4	23.5	23.7	36.5	22.1
"	33	44.9	53.7	67.8	54.4	23.5	23.7	36.5	22.1
"	34	44.9	53.7	67.8	54.4	23.5	23.7	36.5	22.1
"	35	44.9	53.7	67.8	54.4	23.5	23.7	36.5	22.1
Number appeared		521	1,455	451	2,427	2,355	2,333	2,383	1,984

TABLE 10.4 : Percentage of candidates who have scored marks below the specified marks in different subjects at P.-D. Arts External and Commerce External examinations 1961

Subject	Arts External			Commerce External		
	English	Geography	Economics	English	Geography	Economics
Below 20	10.4	11.3	10.9	6.4	13.8	12.7
.. 21	13.1	13.5	12.3	8.9	13.8	15.6
.. 22	15.2	15.6	14.3	12.1	17.1	17.8
.. 23	18.9	17.5	16.4	14.3	20.0	21.1
.. 24	22.0	20.7	19.2	16.1	22.9	24.0
.. 25	25.6	23.5	21.6	18.2	25.5	25.8
.. 26	29.4	25.8	24.0	20.4	27.6	28.0
.. 27	33.3	29.5	27.6	22.9	30.5	33.5
.. 28	38.4	32.4	30.8	27.5	32.4	37.1
.. 29	42.8	36.6	34.1	30.7	37.5	41.8
.. 30	48.4	40.4	36.5	35.4	39.6	49.8
.. 31	53.6	44.2	40.1	41.4	42.9	52.4
.. 32	53.6	44.2	43.6	41.4	42.9	54.9
.. 33	53.6	44.2	43.6	41.4	42.9	54.9
.. 34	53.6	44.2	43.6	41.4	42.9	54.9
.. 35	53.6	44.2	43.6	41.4	42.9	54.9
Number appeared	1,533	1,479	1,498	280	275	275

in other subjects but this is not shown up by the combined marks in theory and practical on account of the passing requirements and procedure as regards theory and practical parts of the subject explained in a footnote on page 163.

In most subjects marks are raised from 31 (or 32) to 35 and in mathematics they are raised from 24 onwards to 35, so that in the final results no candidate gets marks in these intervals. The extent of this informal gracing can be estimated by estimating the percentage of candidates who obtained exactly 35 marks by continuing the series, in Tables 10.1 to 10.4 to a few numbers beyond 35. By way of illustration we give below estimates of the rise in the percentage of passes due to this informal gracing in some subjects in the three internal examinations. The figure in bracket after each subject gives the number of points by which the percentage of passes must have increased.

Science	:	English (12), mathematics (8)
Arts internal	:	English (9), geography (12)
Commerce internal	:	English (9), economics (9)

It is clear that this prior gracing in a subject is substantial.

The structure of failures is better understood if the data of Tables 10.1 to 10.4 is further summarized by taking intervals at 32, 26 and 20 marks. This is done below for a few subjects by way of illustration.

<i>Subject</i>	<i>Percentage of candidates securing marks less than</i>		
	<i>32</i>	<i>26</i>	<i>20</i>
English (science)	31.9	16.3	4.5
Mathematics (science)	45.8	45.8	34.9
Optional subject (science)	19.8	7.8	2.3
English (arts internal)	58.4	32.3	10.0
Geography (arts internal)	33.6	17.2	6.6
Economics (commerce internal)	36.5	16.5	5.9
Book-keeping (commerce internal)	23.7	17.3	9.7
English (arts external)	53.6	29.4	10.4
Economics (arts external)	43.6	24.0	10.9

Roughly speaking in all subjects (except of course mathematics) 40 to 50 per cent of the failures lie in the narrow interval of five or six marks between 25 and 30 (or 31); and there is a negligible percentage below 20 marks. This is true of such different subjects like English, geography, economics or book-keeping. Mathematics is however an altogether different situation where about 35 per cent of the candidates (more than one-third) cannot score even 20 marks. Again, we find that failures in English have different structure in different groups of centres as is evident

from the following figures for arts internal.

Centres	Percentage of candidates securing marks less than		
	32	26	20
Poona	47.5	21.8	4.3
Old	59.9	33.6	10.0
New	71.0	45.4	19.7

While in Poona failures in English have the same structure as in other subjects for the whole university, in the New centres 45 per cent candidates fail in English by more than 10 marks and 20 per cent cannot secure even 20 marks.

From the discussion above it appears that the problem of failures may be usefully divided into four more or less separate areas for further investigation and possible remedial measures. First, there are candidates who fail by a narrow margin of marks, that is, those who fail by less than 10 marks and would therefore reach the desired level with some extra effort and attention. Secondly, there are those who fail by a greater margin and who will require therefore much greater effort and perhaps a different method of instruction. Then we have the group of candidates who fail in mathematics by as many as 15 marks. Finally, there are the mofussil students who find it extremely difficult to cope with English and cannot secure even 20 marks. It is clear that the last two groups will have to be tackled on different levels altogether. Before ending this discussion we may observe that these four areas should not be considered as absolutely distinct areas since obviously there will be considerable overlapping. It is also likely that many of these candidates (especially in the last three groups) are perhaps lacking in the requisite scholastic aptitude or have not reached the necessary level of training in their schools so that the P.-D. course is really beyond their abilities or their present equipment.

#### 15. *Relationship between Failures at P.-D. and the Performance at S.S.C. in the Same or Corresponding Subjects*

It is now proposed to study the incidence of failures in different subjects of the P.-D. examination by relating them to the performance of the candidates in the same or corresponding subjects at the S.S.C. examination. We first consider English which every P.-D. candidate has to offer both at the S.S.C. and the P.-D. examinations. Table 11.1 gives the percentages of failures in English at the P.-D. examination for different classholders in English at the S.S.C. The following figures extracted from them show very clearly that the incidence of failures in English in the P.-D. examination does follow closely the performance of candidates in that subject at the S.S.C. examination; the better the performance in English at the S.S.C.

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Percentage of failures in English at P.-D. among different classholders in English at S.S.C.

S. S. C. class in English	Science	Arts		Commerce	
		Internal	External	Internal	External
I	7.3	12.0	26.3	15.7	26.7
II	28.2	41.1	49.3	38.7	40.7
Pass	51.1	69.8	65.3	67.5	54.7

the greater is the chance of passing in English at the P.-D. To confirm it in another manner we give below figures relating failures in English at the P.-D. to the general performance (by class) at the S.S.C. for two internal P.-D. examinations.\*

Failures in English at P.-D.

General class at S. S. C.	Science	Arts internal
I	9.6	14.5
II	40.8	54.2
Pass	56.6	70.8

The higher incidence of failures among candidates with higher general S.S.C. class than among those with higher class in English at S.S.C. shows that in addition to the general ability the specific performance in English at the S.S.C. does count in their performance in that subject at the P.-D.

Two more things should also be noted. First, the relationship between the same subjects (English) at the two examinations is much less close in the case of external candidates. Secondly, when one scans the figures for different groups of centres given elsewhere in Table 11.1 the difficult situation of the mofussil candidates – especially in the New centres – as regards English is once again brought to the fore. In the New centres even among those who had scored second class in English at the S.S.C. more than half are unable to pass in that subject in the P.-D.

In the case of the MIL (Table 11.2) the position appears to be different. Here although the incidence of failure in the MIL at the P.-D. closely follows the performance in it at the S.S.C. it appears to be of a similar order with the general performance at the S.S.C. as will be seen from the

\* Tables giving detailed figures of this and similar analysis by classifying candidates by their S.S.C. general performance are not given for considerations of space.

TABLE 11.1 : Failures at the P.-D. examination in English classified by the performance in English at the S. S. C.

S. S. C. English class	Number appeared													
	Science				Arts Internal				Commerce Internal				Arts External	Commerce External
	Poona	Old	New	All centres	Poona	Old	New	All centres	Poona	Old	New	All centres		
I class	331	351	55	737	72	64	31	167	19	75	27	121	95	15
II class	763	908	187	1858	312	478	137	927	142	378	113	633	369	86
Pass class	707	827	208	1742	459	1160	299	1918	241	758	253	1252	632	86
Exemption	6	17	1	24	12	30	7	49	2	19	2	23	21	4
Not available	334	350	93	777	295	947	185	1427	117	225	56	398	416	89
Total	2141	2453	544	5138	1150	2679	659	4488	521	1455	451	2427	1533	280
Percentage failures														
I class	1.5	10.3	23.6	7.3	5.6	15.6	19.4	12.0	10.5	12.0	29.6	15.7	26.3	26.7
II class	12.5	37.0	49.7	28.2	36.2	39.7	56.9	41.1	35.9	35.7	52.2	38.7	49.3	40.7
Pass class	25.7	65.2	81.3	51.1	63.0	69.3	81.6	69.8	57.3	66.2	81.0	67.5	65.3	54.7
Exemption	33.3	64.7	100.0	58.3	25.0	46.7	42.9	40.8	50.0	31.6	50.0	34.8	47.6	50.0
Not available	4.5	27.1	49.5	20.1	46.5	62.0	74.1	60.4	35.9	57.3	58.9	51.3	46.1	31.3
Total	14.0	41.5	59.2	31.9	47.5	59.9	71.0	58.4	44.9	53.7	67.8	54.4	53.6	41.4

TABLE 11·2 : Failures at the P.-D. Arts examination in a subject classified by the performance in the same (or corresponding) subject at the S. S. C.

P.-D. Subject	Number appeared									
	External		Internal							
	M. I. L.	M.I.L.	Geography		History		Economics	Civics		
S. S. C. Subject	M. I. L.	M.I.L.	Geography	Social Studies	History	Social Studies	Social Studies	Civics	Social Studies	
<i>Class in S.S.C. Subject</i>										
I class	65	154	176	48	22	110	117	44	96	
II class	439	1,252	759	381	56	951	967	267	789	
Pass class	429	1,303	554	337	60	666	693	179	551	
Exemption	53	66	63	21	16	52	55	23	45	
Total	986	2,775	1,552	787	154	1,779	1,832	513	1,481	
<i>Percentage failures</i>										
I class	6·2	2·6	12·5	22·9	22·7	11·8	11·1	11·4	8·3	
II class	20·0	10·8	25·4	37·8	28·6	22·9	30·1	25·5	24·8	
Pass class	35·4	21·7	39·5	51·0	36·7	37·7	45·2	38·0	38·3	
Exemption	26·4	21·2	41·3	42·9	43·8	23·1	36·4	30·4	24·4	
Total	26·2	15·7	29·6	42·7	32·5	27·8	34·8	28·8	28·8	
<i>Neither the same nor the corresponding subject at S. S. C.</i>										
		531	23·9	1,061	20·0	1,166	25·7	1,036	22·6	

following figures for the arts internal and external. The reason for this

*Failure percentages in the MIL at P.-D. arts*

<i>S. S. C. class in MIL</i>	<i>Internal</i>	<i>External</i>	<i>S. S. C. class (general)</i>	<i>Internal</i>	<i>External</i>
I	2.6	6.2	I	0.5	4.2
II	10.8	20.0	II	10.5	20.2
Pass	21.7	35.4	Pass	23.0	46.0

is obvious. The MIL is almost always the mother tongue of the candidate and therefore it does not require any extra grounding in school (over and above or distinct from the general preparation in school where other subjects are also usually learnt in the same medium) while English being a foreign language demands such grounding. (We are not giving figures for the MIL in the other P.-D. examinations for considerations of space. Those given above are typical and therefore illustrative. We are also not presenting figures about the classical language of the SL group. The position is similar to English in the sense that the S.S.C. performance in it does influence the incidence of failure at the P.-D. This is of course to be expected in the case of the classical language such as Sanskrit.)

Let us now take up other subjects in arts and commerce. Leaving out the languages the four commonly offered subjects in arts are geography, history, civics and economics. From these only the first three have their counterparts at the S.S.C. We may also include Social Studies at the S.S.C. among the subjects with which these four subjects at the P.-D. are to be related (so that economics may be retained). But in commerce, the two subjects, elements of commerce and book-keeping-and-accounts, have no subjects even remotely related at the S.S.C. and therefore they drop out from this analysis. The remaining three, most commonly offered, are geography, economics and civics which are already included among the four subjects in arts mentioned above. Hence for the sake of convenience we shall only consider these four subjects and confine our discussion to arts internal candidates (see Table 11.2).

Let us first consider the incidence of failures among these four subjects at the P.-D. in the following three groups of candidates: (i) those who have offered the same subject at the S.S.C. (with or without Social Studies), (ii) those who have not offered the same subject at the S.S.C. but have offered Social Studies, and (iii) the remaining who have offered neither that subject nor Social Studies at the S.S.C. (It is clear that for economics the first group of candidates is non-existent). The figures are given in a table below.

*Percentage of failures in four subjects in Arts Internal classified into the three groups above*

<i>S. S. C.</i>	<i>Geography</i>	<i>History</i>	<i>Civics</i>	<i>Economics</i>
Same subject (with or without Social Studies)	29·6	32·5	28·8	—
Social Studies	42·7	27·8	28·8	34·8
Neither the same subject nor Social Studies	23·9	20·0	22·6	25·7

From these figures it appears that in history and civics the performance of candidates who had offered the same subject (or Social Studies) at the S.S.C. is not at all better than the performance of those who had offered neither the same subject nor Social Studies. In fact in history the disparity is quite considerable, and we have the strange spectacle of candidates who had offered history at the S.S.C. doing much worse in history at the P.-D. than those who had not offered it at the S.S.C. It looks as if the study of history in school has become a handicap to them in their study of history at the P.-D. As the following figures will show in greater detail the incidence of failures in history at the P.-D. is much more closely related to the general performance at the S.S.C. than to the performance in the same subject at the S.S.C. (or in Social Studies).

*Failures in history at P.-D.*

<i>S. S. C. class in</i>	<i>History</i>	<i>Social Studies</i>	<i>General</i>
I	22·7	11·8	2·1
II	28·6	22·9	22·0
Pass	36·7	37·7	30·0

In civics we have disparity in the same direction but not so glaring as in history. In economics also it is found that the incidence of failures is more closely related to the general ability of the candidate than to his performance in Social Studies.

Let us now turn to geography whose special significance in the P.-D. arts is that it is included in the course as a science subject in the interests of General Education. From the figures given above it appears that the failures in geography at the P.-D. are less among those who had offered it at the S.S.C. than among those who had offered Social Studies, but are greater than among those who had offered neither. So it appears again that failure in geography at the P.-D. may be more closely related with the general ability of the candidate rather than to his performance in that subject at the S.S.C. The following detailed figures are given in further support of this conclusion.

*Failures in geography at P.-D.*

<i>S. S. C. class in</i>	<i>Geography</i>	<i>Social Studies</i>	<i>General</i>
I	12.5	22.9	4.0
II	25.4	37.8	26.2
Pass	39.5	51.0	45.9

Thus it seems none of these four subjects at the P.-D. (history, economics, civics and geography) appear to be closely related to their counterparts (same subject or Social Studies) in the S.S.C. It also appears that it is perhaps necessary to review the position of Social Studies in the S.S.C. in relation to the P.-D. course in arts. A large number of students who come to the college offer this subject at the S.S.C. Presumably it is easy and good for scoring in the S.S.C. examination. Whatever may be its cultural (or other) value at the school certificate level it hardly appears to help those who go for higher education; it neither gives them grounding in the relevant subjects in the college course nor does it appear to add to their general ability which from the foregoing discussion seems to be so important for the arts course in a college.

In the P.-D. science we have the optional arts subject which is often civics which has already been discussed for arts internal. The relationship of English at the P.-D. with the same subject at the S.S.C. has also been studied. This leaves us with mathematics and the three science subjects of physics, chemistry and biology.

Taking first mathematics (Table 11.3) we note that a student in the P.-D. science must have offered at the S.S.C. either algebra-geometry or elementary mathematics (which also consists of the same subjects but at a lower level). Let us call them for convenience mathematics higher level and mathematics lower level. Below are given figures of the percentage of failures in mathematics at the P.-D. classified by the class in, higher level or lower level mathematics at the S.S.C. There is no doubt,

*Failures in mathematics at P.-D. science*

<i>S. S. C. class in</i>	<i>Mathematics</i>	
	<i>Higher level</i>	<i>Lower level</i>
I	23.9	41.4
II	58.9	66.1
Pass	70.5	72.6
Total	40.1	52.1

that those who had offered higher level mathematics have done better at the P.-D. Progress in mathematics at any stage is, by the very nature of

TABLE 11.3 : Failures at the P.-D. Science examination in Mathematics classified by the performance in Mathematics (Higher or Lower) at the S. S. C.

Class at S. S. C.	Number appeared							
	Poona		Old		New		All centres	
	Higher	Lower	Higher	Lower	Higher	Lower	Higher	Lower
I class	722	406	398	775	87	156	1207	1337
II Class	270	145	216	307	56	59	542	511
Pass class	138	93	126	200	38	36	302	329
Exemption	9	2	10	4	3	1	22	7
<b>Total</b>	<b>1139</b>	<b>646</b>	<b>750</b>	<b>1286</b>	<b>184</b>	<b>252</b>	<b>2073</b>	<b>2184</b>
	Percentage failures							
I class	23.5	34.9	24.1	42.5	26.4	52.6	23.9	41.4
II class	64.8	63.4	54.6	63.1	46.4	67.8	58.9	66.1
Pass class	70.3	76.3	74.6	71.5	57.1	69.4	70.5	72.6
Exemption	44.4	100.0	60.0	100.0	33.3	100.0	50.0	100.0
<b>Total</b>	<b>38.9</b>	<b>47.5</b>	<b>44.8</b>	<b>53.1</b>	<b>31.5</b>	<b>59.7</b>	<b>40.1</b>	<b>52.1</b>

the subject, bound to depend on the equipment of the student in that subject collected at the previous stage. But from the figures given above this relationship with the same subject at the S.S.C. is found to be less close than the one found in the case of English. This means that there is a big jump (or hurdle) from mathematics at the S.S.C. to mathematics at the P.-D. (even for those who offer higher level mathematics at the S.S.C.). Among candidates for whom the data is available (Table 11.3) those who had offered higher level and lower level mathematics at the S.S.C. are roughly half and half, and over 60 per cent of each category had scored first class in that subject at the S.S.C. But almost one in four of the higher level first classes and two in five of the lower level first classes at the S.S.C. just could not pass the P.-D. mathematics. The poignancy of the situation becomes even more severe if we recall the informal gracing in mathematics at the P.-D. which brought down the passing level in mathematics from 35 to 24 marks. So far as those who obtained pass class in mathematics at the S.S.C. it appears that they have very little chance of coping up with the P.-D. mathematics and this is irrespective of whether they had offered higher or lower level mathematics at the S.S.C. Scanning the figures for the three groups of centres it was surprising to find that in Poona failures among those who obtained second class at the S.S.C. in higher level mathematics are relatively very high (65 per cent). All these facts suggest that the position of mathematics needs serious scrutiny as regards its content at the S.S.C., its contents at the P.-D., and the amount and method of instruction in that subject at the P.-D.

We now turn to the three science subjects of physics, chemistry and biology (Table 11.4). Here it is to be expected (as in English and mathematics) that the previous equipment in the subject should influence the candidate's performance at the P.-D. Now a P.-D. student in science must have offered at least one science paper at the S.S.C. It appears from the data available that most of them offer General Science with Physics-Chemistry, a few others offer it with Physiology-Hygiene at the S.S.C. We shall first consider failures in physics and chemistry at the P.-D. classified for (i) those who had offered Physics-Chemistry with or without General Science at the S.S.C. and (ii) those who had offered only General Science.

*Failures in physics and chemistry at P.-D.*

<i>P.-D. Subject</i>	<i>Physics</i>		<i>Chemistry</i>	
	<i>Physics-Chemistry</i>	<i>General Science</i>	<i>Physics-Chemistry</i>	<i>General Science</i>
<i>I</i>	10.6	19.4	15.2	25.3
<i>II</i>	34.5	40.4	45.0	51.8
<i>Pass</i>	51.1	61.1	63.3	66.7
<b>Total</b>	<b>24.4</b>	<b>34.0</b>	<b>31.9</b>	<b>42.7</b>

TABLE 11.4 : Failures at the P.-D. Science examination in a subject classified by the performance in the same (or corresponding) subject at the S. S. C.

<i>P.-D. Subject S. S. C. Subject Class at S. S. C.</i>	<i>Physics</i>				<i>Chemistry</i>				<i>Biology</i>			
	<i>Physics and Chemistry</i>		<i>General Science</i>		<i>Physics and Chemistry</i>		<i>General Science</i>		<i>Physiology and Hygiene</i>		<i>General Science</i>	
	<i>Appe- ared</i>	<i>Perce- ntage failed</i>	<i>Appe- ared</i>	<i>Perce- ntage failed</i>	<i>Appe- ared</i>	<i>Perce- ntage failed</i>	<i>Appe- ared</i>	<i>Perce- ntage failed</i>	<i>Appe- ared</i>	<i>Perce- ntage failed.</i>	<i>Appe- ared</i>	<i>Perce- ntage failed</i>
I class	1,963	10.6	170	19.4	1,966	15.2	170	25.3	47	2.1	2,389	4.7
II class	1,306	34.5	175	40.0	1,295	45.0	170	51.8	70	12.9	1,387	16.1
Pass class	487	51.1	36	61.1	480	63.3	39	66.7	21	33.3	126	32.5
Exemption	30	46.7	10	80.0	29	55.2	10	90.0	7	14.3	67	25.4
<b>Total</b>	<b>3,786</b>	<b>24.4</b>	<b>391</b>	<b>34.0</b>	<b>3,770</b>	<b>31.9</b>	<b>389</b>	<b>42.7</b>	<b>145</b>	<b>12.4</b>	<b>3,969</b>	<b>9.9</b>

There is no doubt that it does make a difference whether the candidate had offered Physics-Chemistry or General Science at the S.S.C. But it should also be noted that the relationship is not as close as in the case of English and that it is less close for chemistry at the P.-D. than for physics. Again for candidates with a pass class at the S.S.C. what science subject he has offered there hardly makes any difference so far as chemistry at the P.-D. is concerned.

Failures in biology at the P.-D. seem to be more closely related to the S.S.C. performance in science — whether it is Physiology-Hygiene or General Science makes no difference — than failures in physics or chemistry at the P.-D. as will be seen from the figures below.\* What is however more

*Failures in biology at P.-D.*

<i>S. S. C. class in</i>	<i>Physiology-Hygiene</i>	<i>General Science</i>
I	2.1	4.7
II	12.9	16.1
Pass	33.3	32.5
Total	12.4	9.9

significant is that failures in physics, chemistry or biology are more closely related to the general performance at the S.S.C. as will be seen from the following illustrative figures for chemistry and biology seen along with

*Failures in chemistry and biology at P.-D.*

<i>S. S. C. class (general)</i>	<i>Chemistry</i>	<i>Biology</i>
I	6.2	1.9
II	39.7	11.1
Pass	71.8	31.1
Total	33.1	10.5

those given above. It seems therefore that though there is some relationship between the science subjects at the P.-D. and the corresponding subjects at the S.S.C. the relationship is not very close. The contribution of the science subjects at the S.S.C. seems to be important for the P.-D. science course mostly as far as it contributes to the general equipment of the science student and not so much to their specific equipment in the particular subject.

\* It should be recalled here that the incidence of failure was higher in chemistry than in physics and higher in physics than in biology. (See Table 9.1).

### 16. *Marathi Medium of Examination*

Since some years back the University of Poona has introduced the use of the regional language Marathi as alternative to English in some of the courses of higher education. It will therefore be interesting to find the effects of this policy on the results of the P.-D. examination.

Under the regulations of the Poona University a candidate can opt for Marathi as the medium in which he will answer a question paper in a subject or subjects. Consequently a number of students write their answers in Marathi in a number of subjects in arts and commerce. Many colleges have also provided facilities for teaching these subjects in Marathi. It appears however that in mathematics and in science subjects no candidate exercises his option in favour of Marathi; all of them prefer to write their answers in English.

Tables 12.1 to 12.4 present the relevant data about the number of candidates who answered their papers in English and in Marathi and the percentage of passes amongst them. We have considered for this purpose the most commonly offered subjects except the languages and book-keeping in the P.-D. commerce. In a language paper the subject determines the medium of writing in most cases and in book-keeping almost all students write their answers in English. This left us with the following subjects : (i) the optional arts subject in the P.-D. science, (ii) geography, history, economics and civics in the P.-D. arts, and (iii) geography, elements of commerce, economics and civics in the P.-D. commerce.

From the summary table below giving the proportion of candidates answering in Marathi it is clear that a large number of candidates do exercise their option in favour of writing in Marathi. Even in science where all other papers are answered in English some 45 per cent candidates prefer to answer the paper in the optional arts subject in Marathi. In

#### *Proportion of candidates writing answers in Marathi*

		<i>Poona</i>	<i>Old</i>	<i>New</i>	<i>All centres</i>
<b>Arts</b> Internal	Geography	84.9	94.0	98.9	92.5
	History	83.0	94.4	99.1	92.1
	Economics	82.0	93.7	98.8	91.4
	Civics	82.6	94.1	99.1	91.8
<b>Commerce</b> Internal	Geography	62.4	89.1	98.2	94.0
	Elements of commerce	42.6	64.5	94.7	71.5
	Economics	53.0	77.2	97.3	75.6
	Civics	78.5	94.9	96.4	91.4
<b>Science</b>	Optional subject	47.3	44.1	42.4	45.3

TABLE 12.1 : Classification of candidates by the language (English or Marathi) in which papers were answered at the P.-D examination and percentage of passes

	Number appeared								
	Science	Arts Internal				Commerce Internal			
	Optional subject	Geography	History	Economics	Civics	Geography	Elements of commerce	Economics	Civics
<i>Answered in English</i>									
Men	2,494	195	197	239	225	132	646	525	157
Women	315	129	150	146	139	11	41	40	16
Total	2,809	324	347	385	364	143	687	565	173
<i>Answered in Marathi</i>									
Men	2,118	3,069	3,121	3,110	3,118	2,183	1,699	1,733	1,793
Women	209	900	948	970	976	51	22	22	38
Total	2,327	3,969	4,069	4,080	4,094	2,234	1,721	1,755	1,831
<i>Percentage of passes</i>									
<i>Answered in English</i>									
Men	74.5	46.7	45.2	43.9	51.1	71.2	84.4	59.4	73.2
Women	84.1	69.0	77.3	65.1	77.7	81.8	95.1	82.5	87.5
Total	75.6	55.6	59.1	51.9	61.3	72.0	85.0	60.7	74.7
<i>Answered in Marathi</i>									
Men	82.6	63.7	69.5	63.9	69.4	75.7	86.1	66.8	77.7
Women	88.5	72.7	84.6	80.0	81.0	82.4	100.0	77.3	84.2
Total	83.1	65.7	73.0	67.7	72.2	75.8	86.2	67.0	77.9

TABLE 12.2 : Classification of candidates by the language (English or Marathi) in which papers were answered at the P.-D. examination and percentage of passes

	Number appeared							
	Arts External				Commerce External			
	Geography	History	Economics	Civics	Geography	Elements of Commerce	Economics	Civics
<i>Answered in English</i>								
Men	53	53	65	60	36	149	91	45
Women	11	11	12	11	1	1	1	1
Total	64	64	77	71	37	150	92	46
<i>Answered in Marathi</i>								
Men	1,156	1,167	1,174	1,185	227	112	174	207
Women	280	294	282	294	9	9	8	5
Total	1,436	1,461	1,456	1,479	236	121	182	212
Percentage of passes								
<i>Answered in English</i>								
Men	35.8	47.2	40.0	63.3	25.0	76.5	38.5	53.3
Women	54.5	45.5	41.7	54.5	100.0	100.0	100.0	100.0
Total	39.1	46.9	40.3	62.0	27.0	76.7	39.1	54.3
<i>Answered in Marathi</i>								
Men	54.5	51.2	53.7	64.2	56.8	83.9	43.1	61.4
Women	55.0	61.9	66.3	67.3	66.7	88.9	75.0	60.0
Total	54.6	53.4	56.5	64.8	57.2	84.3	44.5	61.3

TABLE 12.3 : Percentage of passes in individual subjects at the P.-D. examination classified by S. S. C. marks and language in which the P.-D. paper was answered

S. S. C. marks percentage	Science				Arts Internal											
	Optional Subject				Geography				History				Economics			
	English		Marathi		English		Marathi		English		Marathi		English		Marathi	
	Appeared	Percentage of passes	Appeared	Percentage of passes	Appeared	Percentage of passes	Appeared	Percentage of passes	Appeared	Percentage of passes	Appeared	Percentage of passes	Appeared	Percentage of passes	Appeared	Percentage of passes
—39	35	31.4	17	29.4	5	20.0	254	46.1	5	20.0	254	56.7	7	00.0	256	48.4
40—44	214	48.5	127	63.0	46	54.3	758	54.6	47	38.3	763	64.0	52	34.6	765	52.8
45—49	430	62.6	402	72.9	47	46.8	930	66.6	49	51.0	957	74.4	57	38.6	943	68.6
50—54	534	77.7	523	79.5	39	71.8	543	76.4	39	66.7	567	84.5	50	62.0	556	80.6
55—59	440	83.0	387	88.4	18	61.1	219	90.0	13	84.6	231	93.9	17	82.4	231	92.2
60—64	299	86.6	303	94.1	12	83.3	94	93.6	11	81.8	107	98.1	13	84.6	108	96.2
65—69	184	95.7	179	97.2	5	100.0	36	97.2	6	100.0	46	100.0	8	87.5	44	97.7
70 and above	176	98.9	124	98.4	8	87.5	21	100.0	8	100.0	26	100.0	13	92.3	22	100.0
Total	2,312	76.7	2,062	83.3	180	60.6	2,855	66.8	178	58.4	2,951	75.1	217	53.0	2,925	68.5
Not available	497	70.6	265	81.9	144	49.3	1,114	63.0	169	59.8	1,118	67.4	168	50.6	1,155	65.6
Grand total	2,809	75.6	2,327	83.1	324	55.6	3,969	65.7	347	59.1	4,069	73.0	385	51.9	4,080	67.7

TABLE 12.4 : Percentage of passes in individual subjects at the P.-D. examination classified by S. S. C. marks and language in which the P.-D. paper was answered

S. S. C. marks percentage	Internal Commerce											
	Elements of commerce				Economics				Civics			
	English		Marathi		English		Marathi		English		Marathi	
	Appeared	Percentage of passes	Appeared	Percentage of passes	Appeared	Percentage of passes	Appeared	Percentage of passes	Appeared	Percentage of passes	Appeared	Percentage of passes
—39	13	53.8	88	78.4	11	27.3	90	44.4	3	100.0	83	49.4
40—44	88	71.6	369	79.7	73	49.3	301	65.1	24	62.5	379	66.2
45—49	143	80.4	514	87.7	106	43.4	552	64.7	30	76.7	536	78.7
50—54	132	86.4	302	90.4	104	60.6	330	70.9	22	72.7	333	86.2
55—59	79	94.9	138	92.8	68	77.9	148	86.5	14	78.6	144	93.8
60—64	52	96.2	40	97.5	34	76.5	52	90.4	10	80.0	53	94.3
65—69	19	100.0	20	100.0	23	95.7	16	87.5	4	100.0	20	95.0
70 and above	11	90.9	—	—	11	90.9	—	—	6	100.0	3	100.0
Total	537	84.4	1,471	86.6	430	60.2	1,489	68.2	113	76.1	1,551	77.9
Not available	150	87.3	250	84.0	135	62.2	266	59.8	60	71.7	280	77.9
Grand total	687	85.0	1,721	86.2	565	60.7	1,755	67.0	173	74.7	1,831	77.9

arts internal the proportion of students writing answers in Marathi is of the order of 92 per cent and in arts external it is of the order of 95 per cent. In commerce internal while in elements of commerce and economics this percentage is 72 and 76 respectively, in geography and civics it rises to 94 and 91 per cent respectively. (In commerce external this proportion has a more varied pattern but we do not consider it here in detail because of the small numbers involved.) The figures of Tables 12.1 and 12.2 show that relatively more men opt for Marathi than women which may be mainly due to the fact noted earlier viz. women candidates fall in relatively higher S.S.C. marks groups (who, as we shall see later, tend to exercise their option in favour of answering in English to a larger extent than the candidates in the lower S.S.C. marks groups). Figures for the three groups of centres in the table given above also show that the proportion of candidates opting for writing in Marathi increases as one goes from Poona to Old and then to New centres in arts and commerce (except in the optional subject in science). This may be explained by the greater degree of urbanization and relatively larger number of candidates whose mother tongue is not Marathi.

The figures for percentages of passes given in Tables 12.1 and 12.2 show that the performance of those who answered in Marathi was invariably better than the performance of those who answered in English. This is all the more striking in arts internal where in history and economics the difference is as high as 14 points and 16 points respectively when we take men and women candidates together. In most cases this difference is even greater for men than for women candidates as will be seen from the following short table for a few selected subjects. The figures for the

*Difference in percentages of passes of candidates answering in Marathi over those answering in English*

Subject	Science	Arts internal		Commerce internal	
	Optional subject	History	Economics	Geography	Elements of commerce
Men	8.1	24.3	20.0	4.5	1.7
Women	4.4	7.3	14.9	0.6	4.9
Total	7.5	13.9	15.8	3.8	1.2

arts external also point to the same conclusion. There is no doubt that the choice of medium has considerably helped the students who exercised it in favour of Marathi in their performance in the P.-D. examination.

Tables 12.3 and 12.4 extend this analysis further by classifying candidates by their S.S.C. marks in intervals of five marks and noting the per-  
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centage of passes among candidates writing in English and in Marathi. This is done for a few selected subjects : (i) optional arts subject in science, (ii) geography, history and economics in arts internal, and (iii) elements of commerce, economics and civics in commerce internal. The tables show two things. First, except in science relatively greater number of candidates from the lower S.S.C. marks groups exercise their option in favour of Marathi. Secondly, in most of the S.S.C. marks groups those who write their answers in Marathi have an edge over those who write in English.

## APPENDIX 1

### A NOTE ON THE PRE-DEGREE COURSE OF THE POONA UNIVERSITY

#### *Structure*

The Pre-Degree course to be taken after the S.S.C. Examination, is of one year's duration and at the end of the year the university holds the Pre-Degree examination. Passing the Pre-Degree examination is a pre-condition for admission to the Three-Year Integrated Degree courses in science, arts or commerce. The three-year degree courses are suitably spread over the three years in a graduated manner and students can take examination held by the university at the end of each year in the subjects covered by them during the year. But those students who do not take these examinations or fail in them can also proceed further so that a student could (if he liked) take examination in *all* the subjects of the three-year course at the end of the three years.\* The examination at the end of the first year of the three-year degree course in science also serves as the pre-professional examination the passing of which is a pre-condition for admission to the degree courses in engineering and medicine.

For the sake of completeness we should mention here that the old degree courses were of four years' duration after the S.S.C. There were two stages of two years each and at the end of each stage there was a university examination viz. the Intermediate examination and the degree examination respectively. There were no university examinations at the end of the first or the third year in college. The promotion was determined by the college concerned by holding the necessary examinations and as mentioned earlier the rates of promotion at the end of the first year were often of the order of 90 or 95 per cent and those at the end of the third year were almost 100 per cent. The Intermediate examination in science also served as the pre-professional examination for admission to the courses in engineering and medicine.

#### *Courses*

The Pre-Degree course (in arts, science or commerce consists of seven papers of 100 marks each (except in the three science subjects of physics, chemistry and biology where there is a theory paper of 70 marks in each subject and a practical carrying 30 marks.) For passing the examination a candidate has to obtain at least 35 marks in each paper. In physics, chemistry or biology he has to secure at least 24 marks in the theory paper and 35 marks in theory and practical together. Among the candidates

\* This rule has now (1962) been modified so that a student must clear at least some prescribed number of subjects at the end of the first year of the three-year course before he goes to the second year of the course. No such restriction is imposed for subjects taught in the second year.

who pass those who get 60 per cent marks or more in the total are declared to have passed in first class and those who get 45 per cent or more are declared to have passed in second class.

For the Pre-Degree course in science, arts or commerce there are two (common) compulsory papers: (1) English and (2) Modern Indian Language (MIL). In the remaining five papers a student of the Pre-Degree Science has to offer the four subjects, (3) mathematics, (4) physics, (5) chemistry and (6) biology, and (7) an additional arts subject (other than economics). For the course in Commerce a candidate must offer (3) geography, (4) elements of commerce and (5) book-keeping and accountancy, and two more subjects (6) and (7) at his option (civics and economics being the usual choice). The arts student must offer (3) at least one science subject (which is geography in most cases) and four more subjects (4), (5), (6) and (7) at his option (which are very often a second language, history, civics and economics). The manner in which these options work out in practice has already been described on page 163 onwards.

#### *Comparison with old first year course*

It is interesting to compare the Pre-Degree courses outlined above with the old first year courses. Instead of going into the details of the latter we shall exhibit below typical courses in arts and science in the old and in the new schemes.

<i>Old First Year</i>	<i>New Pre-Degree</i>
<i>Arts</i>	
1. English (Text) (100)	1. English (100)
2. English (composition and grammar) (100)	2. Geography (100)
3. Modern Indian Language (100)	3. Modern Indian Language (100)
4. Classical Language (100)	4. Classical Language (100)
5. Civics and Indian Administration (100)	5. Civics and Indian Administration (100)
6. Ancient Indian History and Culture (100)	6. History (100)
7. Geography (100)	7. Economics (100)
Total marks 700	Total marks 700
Number of heads of passing : 6	Number of heads of passing : 7
<i>Science</i>	
1. English (100)	1. English (100)
2. Modern Indian Language (100)	2. Modern Indian Language (100)
3. Physics (paper 100, practical 50)	3. Physics (paper 70, practical 30)
4. Chemistry (paper 100, practical 50)	4. Chemistry (paper 70, practical 30)
5. Biology (paper 100, practical 50)	5. Biology (paper 70, practical 30)
6. Mathematics (2 papers 100 marks each)	6. Mathematics (100)
	7. Arts subject (100)
Total marks 850	Total marks 700
Number of heads of passing : 6	Number of heads of passing : 7

It is clear from the typical lists of subjects given above that in arts the total number of marks have remained the same (700) while in science they are reduced from 850 in the old course to 700 in the new course. But the number of subjects to be studied has increased from six to seven both in arts and in science. In the old first year course in arts the number of separate heads of passing were six; the two papers in English were considered as a single head of passing. Now there are seven separate heads of passing. In science also, under the old structure there were six separate heads of passing; mathematics with two papers constituted a single head for passing. Now there are seven heads of passing as in arts. The other differences which are easily noted are as follows. The emphasis on English in the old course in arts is reduced by cutting down one paper. In science an additional arts subject has been introduced to promote General Education. Geography serves a similar purpose in the new course in arts.\*

So far as the changes in syllabi in the corresponding subjects under the old and the new structures are concerned it is more difficult to strike definite comparisons. Nevertheless the differences which were found after a careful scrutiny of the syllabi are recorded below subject by subject for arts and science.

#### *Arts*

*English* : As stated above the number of papers are reduced from two to one. It appears that the contents of this one paper are somewhat greater than half the contents of the two papers of the old course. The new paper is heterogeneous as compared with either of the two old papers.

*MIL (Marathi)* : The two syllabi (old and new) are mostly equivalent except for minor shifts of emphasis. There are now three texts instead of two in the old course.

*Classical Language (Sanskrit)* : There is not much difference except a few minor changes.

*Civics and Indian Administration* : There is no change.

*Ancient Indian History and Culture* : This paper is now different and comparison would not be appropriate.

*Geography* : The new course is of a less descriptive nature and more intensive; altogether it appears to be heavier than the old course.

*Economics* : This is an additional subject which was not offered under the old scheme.

#### *Science*

*English* : The new course is more diverse in character and is more non-textual.

\* It should also be mentioned here that while in the college examination in the old course the passing requirement in each head used to be very often 33 per cent, in the university examination under the new course it is 35 per cent.

*MIL (Marathi)*: The same remarks as are made above for arts are applicable.

*Physics*: The syllabus seems to cover the same ground as before; it is made more precise.

*Chemistry*: The syllabus in this case also covers almost the same ground as before, perhaps with a few additions.

*Biology*: The two syllabi are almost equivalent.

*Mathematics*: There were two papers in the old course with four branches (algebra, geometry, trigonometry and calculus). There is now only one paper with only the first three branches. Roughly speaking the contents of the new syllabus may be considered equivalent to two-thirds of the old syllabus.

*Optional Arts Subject*: This is an altogether new paper introduced in the new course.

Taking into consideration the structure, the heads of passing and the contents of syllabi in the old and new courses it is not unreasonable to conclude that the new courses both in arts and in science are more diverse and carry a heavier load when compared to the old courses.\*

\* This should not be considered as an adverse judgement on the new courses. The framers of the courses and the syllabi are entitled to frame them in a manner which will meet what they consider to be the present needs of the higher education and they may be perfectly justified in framing them in the manner in which they have done at present.

## APPENDIX 2

### ESTIMATING THE MARGINAL 'DISTRESS' CASES

It has been stated earlier that the bulk of failures are not marginal and that they can be attributed mainly to inadequate preparation and not to the so called 'vagaries' of the examination procedures. Here we make an attempt to estimate the number of failed candidates who are likely to feel on the basis of the actual marks obtained by them that the condonation procedures have not treated them fairly, that is they have been victims of the 'vagaries' of the examination. Let us clearly state at the outset that we are not considering here unsatisfactory nature of question papers, unsatisfactory assessments or unevenness of marking as between examiners. These no doubt exist and are certainly important considerations in devising reforms in the prevalent examination system. But as we do not propose to go in this study *behind* the current examination procedures we shall proceed on the basis that the results as recorded are a fair assessment of the candidate in the various subjects.

With this assumption we attempt to *narrow down* the area of marginal cases so as to determine the number of 'distress' cases amongst them. First, we limit ourselves to only those candidates who have obtained more than 30 per cent marks in the total in the P.-D. examination; the others, who fail by more than 35 marks in a total of 700 marks, will not be considered as marginal cases for this purpose. From these we take away those who fail in more than two subjects; that is we do not consider those who fail in three or more subjects as really marginal failures. Thus we are left with one-subject and two-subject failures who have secured more than 30 per cent marks in the total.

In one-subject failures we shall define those who fail by less than 10 marks in that subject as 'distress' cases; and in two-subject failures those who fail by five marks or less in each of the two subjects as similar unfortunate marginal cases. Actually the informal gracing adopted by the examiners in a subject and formal condonation rules operating on one-subject failures narrow down the number of such 'distress' cases to a considerable extent. A difficulty is experienced in the case of P.-D. Science examination where for reasons mentioned earlier it is not easy to find the number of such cases belonging to the three science subjects. For this reason (and since our analysis is only illustrative in character) we content ourselves with finding the number of 'distress' cases for internal arts and commerce examinations. The figures thus arrived at are given in the following table. (It may be mentioned that there were no such cases having total marks greater than 45 per cent.) It is found that this 'distress' area is approximately three to four per cent of the total candidates appeared. Among them those who scored 40 per cent or above in the total may feel even more keenly aggrieved. Although these 'distress' cases

*Number of 'distress' cases*

<i>P.-D. total (per cent)</i>	<i>Arts</i>				<i>Commerce</i>			
	<i>One- subject failures</i>	<i>Two- subject failures</i>	<i>Total</i>	<i>Per cent of appe- ared</i>	<i>One- subject failures</i>	<i>Two- subject failures</i>	<i>Total</i>	<i>Per cent of appe- ared</i>
31 to 34	1	2	3	0.1	0	1	1	0.0
35 to 39	82	29	111	2.4	44	9	53	2.2
40 and above	39	1	40	0.9	35	5	40	1.6
<b>Total</b>	<b>122</b>	<b>32</b>	<b>154</b>	<b>3.4</b>	<b>79</b>	<b>15</b>	<b>94</b>	<b>3.8</b>

of failure are very small in proportion to the other more decisive cases of failure this statistical argument is not likely to bring comfort to an individual belonging to the 'distress' area. It may perhaps be feasible to institute some reviewing procedure (after the operation of the normal condonation rules) to review such marginal failures.



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