A SURVEY OF THE UNIVERSITY OF CHICAGO CLASS OF 1960

Conducted for The University of Chicago
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National Opinion Research Center
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CHAPTER I

A PROFILE OF THE GRADUATES OF THE UNIVERSITY OF CHICAGO, SPRING, 1960

I. THE SAMPLE AND THE NATURE OF THE DATA

This study focuses on two overlapping groups of University of University of Chicago students: 1) the entering freshman class of Autumn, 1956, and 2) the graduating class of Spring, 1960. The present chapter will deal primarily with this latter group and will constitute a profile of the June graduates.

In April of 1960 the Office of the Registrar designed a questionnaire and distributed it to each of the candidates for the baccalaureate degree. The rate of return of the questionnaires was extremely high, so that for virtually every graduate information was gathered that was not available elsewhere. Equally significant were the data covering many facets of the academic and non-academic lives of the students gathered from their case records and latest available student census cards. It should be emphasized that wherever these three major sources of data overlapped the more reliable was given priority, e.g., while the questionnaire asks for such information as major field at time of entrance, these data were recorded more reliably in the actual admissions data found in the case records.

During the interim between the compilation of the tentative commencement list and the commencement itself, some thirty-five candidates were, for varying reasons, excluded from the ceremony. The actual sample represented here, then, consists of the 165 men and 118 women receiving baccalaureate degrees this June.[1]

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[1] However, due to the fact that there was some ambiguity regarding the fate of several of the candidates these figures include three of those who did not graduate but were recorded as graduates in this study. The presence of these three, for the present purposes, will not significantly alter any of the following report.

II. THE ORIGINS AND PREVIOUS PREPARATION OF THE GRADUATES

A. Geographic Origins.

Immediately prior to entering the University of Chicago, roughly 50 per cent of the graduates were living in Illinois. Apart from the rest of the mid-west, the largest contributing geographic areas is the east coast. Looking only at single states, apart from Illinois, the largest proportion of the graduates came from New York and California, respectively.

TABLE 1

PLACE OF RESIDENCE PRIOR TO ENTRANCE, BY STATE AND REGION

Midwest	West	South	East	Foreign	Inc. Data
Illinois . . 147	California . 12	Virginia . . 3	New York . . 18	Germany . 1	10
Indiana . . 14	Arizona . 2	Texas 2	New Jersey . 7	Hong Kong . 1	
Ohio 9	Colorado . 2	Arkansas . . 1	Pennsylvania 7	Japan 1	
Missouri . . 6	Hawaii . . 1	Florida . . . 1	Massachusetts 3	Panama . . 1	
Michigan . . 4	Idaho . . 1	Georgia . . . 1	Connecticut. 2	Gt. Britain 1	
Iowa . . . 3	Montana . 1	Louisiana . . 1	Maryland . . 2		
Kentucky . . 3	Washington 1	N. Carolina . 1	D. C. . . . 1		
Minnesota . 3			New Hampshire 1		
Oklahoma . . 3			Rhode Island 1		
Nebraska . . 2					
Kansas . . . 1					
S. Dakota . 1					
Total (283) 196	20	10	42	5	10

B. High School and Other Academic Preparation.

Without much more data than are usually available, the specific type and quality of high school experience is not amenable to a detailed analysis. However, the majority of the graduates did attend a public high school and graduated in the upper fifth of their class--for the most part--the class of 1956.

TABLE 2

TYPE OF HIGH SCHOOL

Type of High School	Number	Per cent
Public	235	83
Private	35	12
Indeterminate and Foreign . .	13	5
Total	283	100

TABLE 3

POSITION IN HIGH SCHOOL GRADUATING CLASS

(FROM HIGH SCHOOL TRANSCRIPTS)

Position in High School Graduating Class	Number	Per cent
Upper 1/5th	173	61
2nd 1/5th	31	11
3rd 1/5th	11	4
4th or lower 1/5th	6	2
Indeterminate	62	22
Total	283	100

TABLE 4

DISTRIBUTION BY YEAR OF GRADUATION FROM HIGH SCHOOL

Year Graduated	Number	Per cent
1957 or later	14	5
1956	159	56
1955	34	12
1954 or earlier	47	17
Non-graduate at entrance .	29	10
Total	283	100

C. Previous College Experience.

Thirty-five per cent of the graduating class matriculated at the University of Chicago as transfer students. Of these, over 50 per cent entered having attended previous institutions for two or more years--11 per cent had attended two or more previous institutions. The distribution by the type of institution previously attended is given below.[2] The categorization of Universities used in this table was developed for a previous NORC study and is, in general, based on the prestige of these institutions in terms of the opinions of a national sample of departmental chairmen as reported in Hayward Keniston, "Educational Survey, Standing of American Graduate Departments."[3] The top stratum consists of the ten

[2]In the case of those students who had attended more than one previous institution, the most recent institution is given.

[3]Hayward Keniston, University of Pennsylvania, 1957, mimeo.

highest ranking institutions in the survey plus California Tech. and MIT (since Chicago is in the top ten, there are actually only eleven in this group); the middle stratum consists of other members of the Association of Graduate Schools or high producers of doctorates; the lower stratum consists of other Ph.D. granting institutions.

TABLE 5

TYPE OF INSTITUTIONS PREVIOUSLY ATTENDED BY TRANSFER STUDENTS

Type of Institution	Universities			LAS and other accredited degree granting colleges	Junior College	Other	Total
	Top Stratum	Middle Stratum	Lower Stratum				
Public . .	17	7	3	3	8	2	40
Private. .	4	6	7	36	1	0	54
Total .	21	13	10	39	9	2	94
Inc. data	-	-	-	-	-	-	4

D. Time of Entrance.

The degree to which the group of students entering in the Fall of 1956 overlap with the group graduating in the Spring of 1960 is shown by the distribution of graduates in terms of time of admission--126 (44 per cent) of the graduates matriculated as freshmen or early entrants in the Autumn quarter of 1956. The remaining 56 per cent of the class is a total of four per cent who graduated early (having entered as freshmen or early entrants at Mid-year or later in 1957), 21 per cent who are "stragglers" inasmuch as they entered prior to the Fall of 1956, and 31 per cent who entered as transfers in the Fall of 1956 or later:

TABLE 6

TIME OF ENTRANCE AND ENTRANCE STATUS

Year of Entrance	Entrance Status			Total
	Freshmen and Early Entrants	Transfers		
		Less than 2 years	2 years or more	
1959	0	1	10	11
1958	0	5	29	34
1957	12	23	11	46
1956 - Fall	126	6	2	134
1956 - Earlier . . .	11	1	0	12
1955	16	2	3	21
1954	6	0	0	6
1953 or Earlier . .	14	3	2	19
Total	185	41	57	283

Twenty-eight of the fifty-eight students who entered prior to the Fall of 1956 (stragglers) were registered continuously since their time of admission. The remainder spent varying amounts of time out of residence as indicated below.

TABLE 7

NUMBER OF YEARS SPENT OUT OF RESIDENCE BY STUDENTS MATRICULATING PRIOR TO AUTUMN 1956

None	Less than 1	1 - 2	2 - 3	3 - 4	4 or more	Incomplete Data	Total
28	0	2	10	9	7	2	58
Matriculated Autumn 1956 or later							225
Total							283

E. General Aptitude.

An indication of the general level of competence of the graduates may be obtained from the number of general comprehensive courses waived on the basis of the entrance placement examinations. Since the majority of transfer students are exempted from one or more general course requirements on the basis of previous preparation, the table below distinguishes those who matriculated as freshmen from those who matriculated with previous college preparation and the percentages are consequently calculated separately for each group.

TABLE 8

COMPREHENSIVE COURSES WAIVED AND ENTRANCE STATUS

Entrance Status		Number of "Comprehensive" Courses Waived						
		0	1 - 2	3 - 4	5 - 6	7 or more	Inc. Data	Total
Transfer	Number	6	10	21	19	40	2	98
	Per cent	6	10	22	19	41	2	100
Freshmen	Number	25	93	43	17	5	2	185
	Per cent	14	50	23	9	3	1	100

F. Summary.

With respect to origins and previous preparation then, the data may be summarized by constructing an artificial but "typical" graduate who may be described as a mid-westerner, probably from Chicago or its suburbs. He was in the upper fifth of the class of '56 in a public high school and matriculated here as a freshman doing well enough on the placement examinations to waive at least one or two course requirements.

III. SOCIAL CHARACTERISTICS AND SOCIAL ACTIVITIES

A. Age.

At the time of graduation the majority of the class (65 per cent) was in the age range from 20 to 22; only six per cent were under 20 years of age, while the remaining 30 per cent were older than 22. The complete age range, by year of birth, is presented below:

TABLE 9

DISTRIBUTION BY YEAR OF BIRTH

1941 . . . . . 1%	1935 . . . . . 3%
1940 . . . . . 5%	1934 . . . . . 3%
1939 . . . . . 23%	1933 . . . . . 1%
1938 . . . . . 41%	1932 . . . . . 2%
1937 . . . . . 12%	1931 or earlier. 7%
1936 . . . . . 1%	Total . .100% *(283)

*Percentages do not actually total 100 because of rounding.

The relatively "advanced" age of some of the students is explained in part by the fact that 34 men (12 per cent of the class) had served in the armed forces prior to graduation.

B. Family Background.

The family background of college students is frequently an important determinant of their academic success. Although no attempt will be made here to analyze the effects of these various circumstances on academic performance it may be of interest to present a general profile of the graduates.

With respect to parental education it is immediately apparent that close to half of the graduates' fathers have attended college and over one-third of their fathers are college graduates. With the exception of the fact that fewer mothers are college graduates, the mothers' education tends to be better than that of the fathers. These figures do not indicate an entirely "elite" occupational distribution for the parents: for example, there are more fathers in the "Blue Collar" and service occupations than in the major professions. With respect to the mothers, 60 per cent were not employed at the time of the students' matriculation. Of the 32 per cent who were employed, 44 per cent were engaged in professional (e.g., teaching) or semi-professional (e.g., nursing) occupations, 40 per cent in various White Collar and clerical occupations, and the remaining 16 per cent in Blue Collar and service occupations. The complete distributions are presented below:

TABLE 10

PARENT'S EDUCATION (PER CENT)

Parent	College Graduate	Part College	H. S. Graduate (but no college)	Less than H. S. Graduate	Inc. Data	Total
Father	34	14	18	26	8	100 (283)
Mother	29	17	25	21	8	100 (283)

TABLE 11

FATHER'S OCCUPATION (PER CENT)

Major Prof.	Minor Prof.	Big Bus. Admin.	Minor Supervis., Small Bus. Owner, and White Collar	Blue Collar and Service	Other	Inc. Data	Total
16	13	7	30	20	5	8	100* (283)

*Percentages do not actually total 100 because of rounding.

TABLE 12

MOTHER'S OCCUPATION (PER CENT)

Not Working	Prof. and Semi-Prof.	White Collar and Clerical	Blue Apron and Service	Inc. Data	Total
60	14	13	5	8	100 (283)

The size of the family is another frequently important factor for the college student. In the case of the graduates, they are primarily from small families, i.e., whereas 96 (34 per cent) have two or more siblings, 124 (44 per cent) have only one sibling, and 39 (14 per cent) have no siblings. In terms of age placement, the following table shows that roughly one-half of the graduates are eldest children.

TABLE 13

AGE PLACEMENT IN RELATION TO SIBLINGS (PER CENT)

Oldest	Youngest	In Between	Only Children (or twin)	Inc. Data	Total
49	18	10	14	9	100 (283)

C. Religion.

The religious profile of the graduates undergoes some change between entrance and graduation. In general, those who express no religious preference gain in number--this gain is a result of approximately equal losses among those expressing preference for the Jewish and Protestant religions. The distribution of religious "turnover" is given below:

TABLE 14

RELIGIOUS TURNOVER

Religious Preference at Entrance	Religious Preference at Graduation						Total	Per cent of Class
	Prot.	Cath.	Jew.	None	Other	Inc. Data		
Protestant	68	0	2	14	2	7	93	33
Catholic	1	22	0	2	1	0	26	9
Jewish	2	0	73	12	0	7	94	33
None	5	1	6	24	1	2	39	14
Other	0	2	0	2	4	0	8	3
Inc. Data	6	2	2	6	1	6	23	8
Total	82	27	83	60	9	22	283	100
Per cent of class	29	9	29	22	3	8	100	-

D. Marital Status.

At the time of entrance only five per cent of the class was married; at graduation this figure had increased to include 23 per cent of the class. Proportionately more women than men were married during this period; and more women than men were married to people not in residence at the University of Chicago.

TABLE 15

MARITAL STATUS, AT ENTRANCE AND GRADUATION, BY SEX

Marital Status	Male		Female		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Married at Entrance .	10	6(165)*	5	4(118)*	15	5(283)
Married at Graduation	32	19(165)	34	29(118)	66	23(283)

*The numbers in parentheses are the bases from which the percentages were calculated.

TABLE 16

STATUS OF SPOUSE, BY SEX

Sex	Total Married	Per cent Married to U. of C. Student
Male	32	59 (32)
Female	34	26 (34)
Total	66	40 (66)
Single or Ex-Married . .	217	
N = ...	283	

E. Living Arrangements.

According to the responses made upon application to the University at the time of entrance, 148 (52 per cent) of the graduates intended to live in the University dormitories, 112 (40 per cent) intended to live at home with their relatives, and 16 (eight per cent) intended to live in apartments or other housing. Over the entire period of residence at the University, 184 (67 per cent) of the students lived, at some time, in the dormitory system. However, as the following distribution shows, there is a great deal of variation in the actual time spent in the dormitories.

TABLE 17

LENGTH OF TIME SPENT IN THE DORMITORIES

Never lived in the Dorms	32%
Less than one year	6%
One, but less than two years	22%
Two, but less than three years	14%
Three, but less than four years . . .	13%
Four years or more	11%
Incomplete data	2%
Total	100% (283)

Aside from marriage, which would clearly alter the living arrangements of the students, the distribution at time of graduation is otherwise considerably different from that at time of entrance.

TABLE 18

PLACE OF RESIDENCE AT TIME OF GRADUATION, BY MARITAL STATUS

A. Single Students

Dormitory	35%
Fraternity	9%
With family or relations	28%
Rented room	6%
Rented apartment	18%
Incomplete data	5%
Total	100%*(217)

B. Married Students

University Married Student Housing	26%
Non-University Housing in immediate area	20%
Other Chicago	45%
Incomplete data	9%
Total	100% (66)

*Percentages do not actually total 100 because of rounding.

F. Campus Activities.

Over their entire experience at the University of Chicago, the clear majority (66 per cent) of the graduates report having been active in some recognized student activity--28 per cent of the graduates have been only a

participant or member while 38 per cent have been an officer in one or more of these activities. While it is not possible to document reliably the nature or intensity of such participation over the entire college experience of all the graduates, data are available for the last year of residence as an undergraduate:

TABLE 19

NUMBER OF ACTIVITIES REPORTED HAVING BEEN PARTICIPATED IN DURING SENIOR YEAR

Number of Activities	Number	Per cent
None	97	34
One	83	29
Two	48	17
Three or more	39	14
Incomplete data	16	6
Total	283	100

TABLE 20

TYPE OF ACTIVITIES REPORTED HAVING BEEN PARTICIPATED IN DURING SENIOR YEAR[a]

Type of Activities	Number	Per cent
Arts	38	13
Student Gov't & Similar Activities	15	5
Publications, Radio & Photography	32	11
Social Organizations	64	23
Other	109	39
Total Participating	170	60
Not Participating	97	34
Incomplete Data	16	6
Total	283	100

[a]Since all of these categories are not mutually exclusive, figures total in excess of Total Participating.

TABLE 21

FRATERNITY MEMBERSHIP IN SENIOR YEAR

(Per cent of men who were...)

Active Member	Former Member	Non-Member	Incomplete Data	Total
17	11	65	7	100 (165)
Female				(118)
Total				(283)

TABLE 22

NUMBER OF PHYSICAL RECREATION ACTIVITIES REPORTED HAVING BEEN PARTICIPATED IN DURING SENIOR YEAR

(Per cent reporting ...)

None	One	Two	Three or More	Incomplete Data	Total
43	23	11	16	7	100 (283)

G. Summary.

The social characteristics of the graduates can be briefly summarized by saying that the "typical" graduate was twenty-one or twenty-two years old; his parents were about as likely to have attended college as to have only a high school education or less. His father was probably at least a White Collar worker and had more chance of being engaged in some profession than of being a Blue Collar or service worker while his mother was probably not regularly employed. The "typical" graduate was also likely to be either an only child or the eldest child in a family of two children; his religious preference was probably either Protestant or Jewish. At graduation he was still single, although about one-fifth of his classmates had been married sometime after entering the University. If he had lived in the dormitories, the chances are that he didn't live there for his entire period of residence at the University; thus, not counting his married classmates, just a little over a third were living in the dormitories during their senior year. In his senior year the typical graduate appeared to continue his relatively active extra-curricular life by participating in one or two recognized student activities and some form of physical recreation.

IV. ATTITUDES OF THE GRADUATING CLASS

A. Student Service Ratings.

The data regarding the attitudes of the graduates toward various aspects of their college experience as well as their ratings of Student Services comes entirely from the questionnaire mentioned in Section I. In this questionnaire the graduates were asked, among other things, to rate as Inadequate, Satisfactory, or Excellent (a fourth possible response being "Can't say), thirteen Student Services. The complete distribution of responses is presented below:

TABLE 23

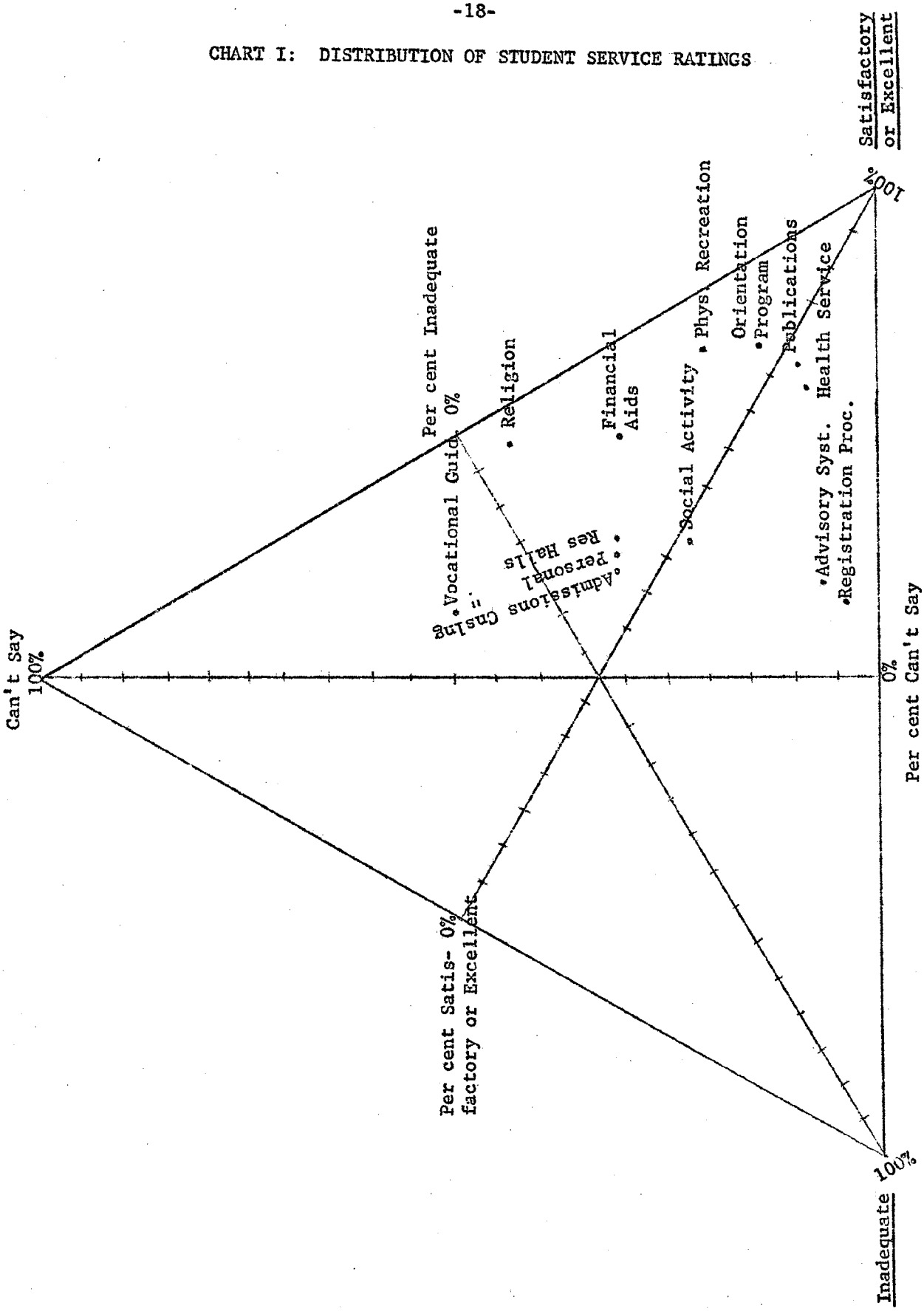
DISTRIBUTION OF RESPONSES TO STUDENT SERVICE RATINGS

(Per cent responding ....)

Student Service	Can't say	In-adequate	Satis-factory	Excellent	Total
Admissions Counseling	31	22	35	12	100 (274)
Orientation Program	13	9	61	17	100 (278)
Health Service	8	16	54	22	100 (278)
Official Publications	9	13	62	16	100 (275)
Residence Halls	31	20	42	7	100 (276)
Physical recreation	21	6	50	23	100 (279)
Social Activities	22	25	47	6	100 (278)
Religious Programs	44	4	35	17	100 (277)
Registration Procedures	3	40	53	4	100 (276)
Personal Counseling	31	24	31	14	100 (276)
Vocational Guidance	50	18	26	6	100 (277)
Advisory System	7	36	47	10	100 (277)
Financial Aids	30	10	31	29	100 (275)

The data in the above table can be presented graphically by the use of triangular coordinate graph paper. The graph consists of an equilateral triangle with a line running from each corner to the opposite side. Each line is divided into one hundred units and is associated with a given proportion. Thus for any three given proportions which total 100 per cent, there is one and only one corresponding point on the graph. The interpretation of the graph is simply a matter of turning the triangle successively to each one of its sides and reading the value of the dimension in question. Chart 1 shows the proportion of students responding positively ("Excellent" or "Satisfactory"), negatively ("Inadequate"), or neutrally ("Can't say"), to each of the above Student Services. By looking at the chart with the "Per cent Can't say" at the Base, the Height of any point may be taken as a measure of saliency (i.e., the higher on the "Can't say" dimension, the less salient are the attitudes of the class as a whole toward the given student service).

CHART I: DISTRIBUTION OF STUDENT SERVICE RATINGS



This type of presentation shows that the least salient attitudes are those toward Vocational Guidance and Religion while the most salient are those toward the Registration Procedures, Advisory System, Health Service, Official Publications and Orientation Programs, in that order. These salient attitudes represent both extremes of the positive-negative dimension: the latter three are the most favorable while the former two are least favorable.

However, it is apparent that most of the graduates rate things generally satisfactory. In order to see whether there was any pattern to the responses (that is, whether there is one group of students who find everything satisfactory and another who are generally malcontent), the ratings of each individual Student Service were correlated with the ratings of every other.

This analysis shows that there are two clusters of intercorrelated attitudes which are independent of one another. These clusters are respectively composed of attitudes toward Campus Activities (Orientation Program, Residence Halls, Physical Recreation Activities, Social Activities, and Religious Programs), and attitudes toward the Counseling and Guidance Systems (Admissions Counseling, Personal Counseling, Vocational Guidance, and the Advisory System). The graduates tend to respond very favorably to Campus Activities in general, and to discriminate between these attitudes and those toward the Counseling and Guidance Systems, which they rate less favorably.

In addition to the rating scale, the graduates were asked to enumerate those aspects of their "total undergraduate experience" that most (and least) fulfilled their initial expectations as well as to describe the most worthwhile feature of their education and to offer their suggestions for improvement. The results of this poll can be summarized as follows:

B. Initial Expectations.

In reference to the most fulfilled expectations, the most frequent responses were those mentioning some facet of the content and organization of the college courses or the teaching methods and competence of the college instructors. The college "comprehensive" courses were slightly more favored than the divisional courses, as shown by the following distribution:

TABLE 24

DISTRIBUTION OF MOST FREQUENT RESPONSES

Courses	Per cent Mentioning ...	
	Teaching Methods and Competence of Instructors	Content and Organization of Courses
"Comprehensives" .	42	45 (Base=283)
Divisional	36	37

Other, less frequently mentioned, responses were the "Atmosphere of the University" (21 per cent), "Self-improvement" (21 per cent), the "Type and quality of fellow students" (12 per cent), and the "Social and other extra-curricular activities" (11 per cent).

The least fulfilled expectations of the graduates are not held so much in common. The most frequent responses are listed below:

Social and other extra-curricular activities . .	48 (17%)
Administrative and Guidance procedure and policy	42 (15%)
Type and quality of fellow students	38 (13%)
Teaching methods and competence of divisional instructors	39 (13%)
Content and organization of divisional courses .	31 (11%)

C. Most Worthwhile Feature of Undergraduate Education.

While the answers to this and the following questions were quite generalized, it was possible to group them into several distinct categories. The most frequent answers were:

The discussion method of instruction	51	(18%)
The comprehensive courses in general	46	(16%)
The atmosphere of academic and social freedom	42	(15%)
The emphasis on individual achievement ("taught to think for oneself," etc.)	32	(11%)

D. Suggestions for Improvement.

The controversy of the change in the "goal" of the University Administration was of primary concern in many of the responses to this question. Since most of the suggestions tended to be quite lengthy it was most feasible to group them according to their stand on this question as well as note the most frequently occurring specific suggestions. In terms of the current debate, then, 73 (26 per cent) of the graduates were in favor of maintaining the "Hutchins System" of education and the old organization and emphasis of the college while 20 (seven per cent) were opposed to this system and welcomed "the change" in the University. Specific suggestions for improvement most frequently mentioned the following:

Reorganization of the Advisory System	33	(12%)
More social and extra-curricular activities	28	(10%)
More coordination between the "college" and the Divisions, between Departments, etc.	28	(9%)
Less social and non-academic control	19	(7%)
More integration with the faculty	17	(6%)
Improvement of the faculty	17	(6%)

E. Summary.

The attitudes of the graduating class may be summarized best by reverting to the construct of the "typical" graduate. With respect to the student services, his attitudes toward the various campus activities tend to be very favorable, while those toward the counseling and guidance systems tend to be considerably less favorable. His initial expectations regarding the courses themselves and the quality and method of instruction were generally well fulfilled as were his expectations regarding the general atmosphere of the University. However, he seems to be somewhat concerned by the perceived threat of what he considers to be a change in the basic orientation of the University.

V. ACADEMIC PERFORMANCE AND FIELD OF SPECIALIZATION

A. Grade Point Average.

Looking at grades alone the following distribution characterizes the performance of the graduates. Instead of letter grades, it was more advantageous to use their numerical equivalents; these equivalents are: A=4, B=3, C=2, D=1.

TABLE 25

COMPREHENSIVE AND DIVISIONAL GRADE POINT AVERAGES

(Per cent attaining given grade point average)

Grade Point Averages	3.0 or better	2.5 - 2.99	2.0 - 2.49	1.5 - 1.99	Less than 1.5	Incomplete Data	Total*
Comprehensive .	30	24	28	9	3	7	100% (283)
Divisional . .	33	30	23	7	1	6	100% (283)

*Totals may equal in excess of 100 per cent because of rounding.

Perhaps a more meaningful way to look at the grades of the graduates is to compare the divisional average with that attained in the comprehensive courses--this gives some indication of the relative improvement (or lack of improvement). From the following table, then, we see that 19 per cent had a divisional grade point average the equivalent of one letter grade higher than their comprehensive grade point average and 17 per cent had the equivalent of one letter grade lower.

TABLE 26

DIVISIONAL GRADE POINT AVERAGE BY COMPREHENSIVE GRADE POINT AVERAGE
(Per cent attaining given Comprehensive and Divisional grade point)

Comprehensive Grade Point Average	Divisional Grade Point Average			Total*
	3.0+	2.0 - 2.99	1.99 or lower	
3.0+	19	10	1	30
2.0 - 2.99	10	33	6	49
1.99 or lower	1	8	2	11
Total	30	51	9	90 (283)

*Percentages do not total to 100 per cent because of the omission of those for whom only incomplete data were available.

B. Field of Specialization.

The distribution of the graduating class by field of specialization at graduation is presented below in groupings by division and sex.

TABLE 27

SEX AND DIVISION AT GRADUATION

Division	Male		Female		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Bio. Sci.	30	18	21	18	51	18
Phys. Sci. . . .	51	31	11	9	62	22
Humanities . . .	26	16	16	14	42	15
Soc. Sci.	47	28	65	55	112	40
Prof. Options . .	7	4	3	2	10	3
Other	4	3	2	2	6	2
Total . .	165	100	118	100	283	100

TABLE 28

SEX DISTRIBUTION WITHIN DIVISIONS AT GRADUATION

Division at Graduation	Total Number in Division	Per cent	
		Male	Female
Biological Sciences	51	59	41
Physical Sciences	62	82	18
Humanities	42	61	39
Social Sciences	112	42	58
Other	16	69	31
Total	283	58	42

However, there is a considerable amount of discrepancy between the intended major field of the graduates at the time of their entrance and the major fields in which they actually graduate. The pattern of these changes is of particular interest for an understanding of the attrition rates of certain fields of study. By grouping the various major fields into their divisional organization, we see the following distributions of change. It should be noted that much of the change in major field is not shown in the first table below in that the change occurs within divisions, for example, as in a change from Microbiology to Biochemistry. Over all, 69 per cent of the class changed their major fields at least once while only 32 per cent made a change from one division to another. The total amount of change, by division groupings, is shown in Table 30.

TABLE 29

MAJOR FIELD, BY DIVISION AT ENTRANCE AND GRADUATION (PER CENT)

Division	Bio. Sci.	Phys. Sci.	Humanities	Soc. Sci.	Other	Total
At Entrance . . .	17	27	13	28	15	100 (283)
At Graduation . .	18	22	15	40	6	100 (283)

TABLE 30

TURNOVER BY DIVISION

Turnover	Bio. Sci.	Phys. Sci.	Humanities	Soc. Sci.
Number at Entrance . .	47	76	38	80
Per cent loss	34	36	45	20
Per cent gain	43	17	55	60
Net change . .	+ 9	- 19	+ 10	+ 40

The most important feature of the distribution of change is the considerable net loss in the physical sciences. It is apparent, however, that this net loss is primarily the result of the inability to recruit others to fill the average number of vacancies left by those who drift off to other divisions. By examining the turnover of the three main departments in the physical sciences it becomes evident that the losses and gains are not evenly distributed. Physics and Chemistry suffer great losses and an insufficient number of replacements, Mathematics makes relatively great gains, but not great enough to offset the other losses. This might imply that the inability to enlist replacements in the physical sciences is due to the absence of people who have the prerequisites for specializing in Physics and Chemistry.

TABLE 31

TURNOVER BY DEPARTMENT, PHYSICAL SCIENCES

Turnover	Chem.	Physics	Math	Physics and Chem.
Number at Entrance . .	13	28	16	41
Per cent Loss	61	57	31	59
Per cent Gain	46	29	88	32
Net Change . .	- 15	- 18	+ 57	- 27

C. Academic Performance by Field of Specialization.

For the class as a whole, the changes in major field produce ambivalent results. When the class is dichotomized into those who do change and those who do not, there is no significant difference in the relationship between the divisional and comprehensive grade point averages. The effect that a change in major field has is thus hard to determine for at least two reasons: there are no data on the original major field of transfer students (who consequently are likely to exhibit no change on our records) and there is no easy way to specify either the time at which a change occurs or how many changes eventually take place. Within these limitations, however, it is possible to get some idea of the relative performance of people in different areas of study or the grading habits in different divisions; for this purpose the divisional grades present the best basis for comparison. In order also to detect the relative performance of men and women, the following distribution is presented separately for each sex.

TABLE 32

DIVISIONAL GRADE POINT AVERAGE BY DIVISION AT GRADUATION AND SEX
(Per cent attaining given G.P.A.)

Division at Graduation	Sex	Divisional G.P.A. 3.0 +	2.5-2.99	2.0-2.49	1.99 or Less	Inc. Data	Total	
Bio. Sci. . . .	Male	37	33	20	7	3	100	(30)
	Female	23	33	33	10	0	100	(21)
Phys. Sci. . . .	Male	27	25	33	10	4	100	(51)
	Female	55	27	18	0	0	100	(11)
Humanities . . .	Male	38	42	8	8	4	100	(26)
	Female	37	44	19	0	0	100	(16)
Soc. Sci. . . .	Male	38	23	25	4	11	100	(57)
	Female	31	31	17	11	11	100	(65)
Total . .	Male	33	28	25	10	4	100	(154)
	Female	32	34	20	8	6	100	(113)

Professional Options = (10)
Other and Uncodeable = (6)

N . . . . . = (283)

TABLE 32--Continued

Division at Graduation	Divisional G.P.A. (Male and Female)					Total
	3.0 +	2.5-2.99	2.0-2.49	1.99 or Less	Inc. Data	
Bio. Sci. . .	31	33	26	8	2	100 (51)
Phys. Sci. . .	32	26	31	2	8	100 (62)
Humanities . .	38	43	12	5	2	100 (42)
Soc. Sci. . .	34	28	21	9	8	100 (112)
Prof. Options.	-	-	-	-	-	100 (10)
Other and Uncodeable . .	-	-	-	-	-	100 (6)
Total .	32	30	23	9	6	100 (283)

A few generalizations can be made from these distributions: There are no major overall differences between the performance of men and women. Overall, people in the Humanities tend to achieve better grades than in other divisions (81 per cent graduate with divisional grades in excess of 2.5; the lowest divisional grades occur in the Physical Sciences--58 per cent in excess of 2.5). However, it should be noted that this difference is mainly due to differences in the proportion of people with just below a "B" average--there is not much inter-divisional variation in the proportion attaining an average of "B" or better. The comparison of the relative performance of men and women in the four major divisions is largely hampered by the small number of women in the Humanities and Physical Sciences. Where the distribution is more nearly equivalent a consistent difference occurs only in the Biological Sciences where men tend to do slightly better than women.

D. Summary

The "typical" graduate, if male, would be slightly more likely to have graduated in the Physical Sciences than any other division; if the "typical" female graduate were to be described she would more probably have graduated in the Social Sciences. Regardless of sex, the typical graduate would have graduated in his field of specialization only after having tried at least one other major field. His grade point average was much more likely to have remained fairly stable or risen through his college experience than to have fallen. His divisional grade point average was close to "B," although the likelihood of this was at its maximum if he graduated in the Humanities and at its minimum if he graduated in the Physical Sciences.

VI. POST-GRADUATION PLANS[4]

A. Career Plans.

Although the career plans of the graduates are quite diverse it was possible to categorize them into several homogeneous groupings based upon the necessity of post-graduate study for their attainment. This categorization, and the number of graduates within each category, are presented below.

PLANS FOR 1960-1961

(A) Careers Necessitating Graduate Study

Traditional Arts and Sciences

Physical Sciences	27	(9%)
Biological Sciences	25	(9%)
Social Sciences	55	(20%)
Mathematics	19	(6%)
Humanities	22	(8%)
Total	148	(52%)

Major Professions

M.D. (including psychiatry)	20	(7%)
Law	6	(3%)
Ministry	1	(-%)
Total	28	(10%)

[4]All of the data regarding the post-graduation plans of the graduates are derived from the aforementioned questionnaire.

PLANS FOR 1960-1961--Continued

(B) Careers Generally Requiring Graduate Study		
Business Administration (if desire for MBA was specified)	8	(3%)
Other (Soc. Work, H. S. Guidance, etc.)	5	(2%)
Total	13	(5%)
(C) Careers Not Necessitating Graduate Study		
Teaching (H.S. and Elementary)	31	(10%)
Music, Graphic Arts, Drama, Etc.	5	(2%)
Technical (Lab Technicians, Drafting, etc.)	6	(3%)
Armed Services	4	(1%)
Other	19	(7%)
Total	65	(23%)
(D) Ambiguous	29	(10%)
Total	283	(100%)

B. Graduate Study.

As implied in the career preferences of the graduates, an exceptionally high percentage were anticipating post-graduate study. Thus, at the time of distribution of the questionnaires, 127 men and 63 women, 68 per cent of the class, were planning to attend graduate or professional school after commencement. Perhaps even more exceptional is the number of students planning to do their graduate work at the University of Chicago; of the 163 who had chosen their schools, 111 (68 per cent) planned to stay at the University of Chicago.

The following table gives the distribution by the anticipated field of study of those planning to do graduate work here and elsewhere.

TABLE 33

GRADUATE (OR PROFESSIONAL) SCHOOL PLANNED, BY AREA OF ANTICIPATED GRADUATE STUDY[a]

Planned Area of Study	Per cent Planning Study in...	Total Number Planning Study in...	Number Planning Study at . . .		
			U. C.	Other	Undecided
Social Science . .	30	57	33	19	5
Bio. Science . . .	12	23	14	6	3
Phys. Science . .	12	22	17	4	1
Humanities	12	22	12	6	4
Medicine	11	21	14	7	0
Mathematics . . .	10	20	8	9	3
Business	4	7	7	0	0
Law	3	5	2	0	3
Other and Undecided	7	13	4	1	8
Total . . .	100*	190	111	52	27

*Percentages do not actually total to 100 because of rounding.

[a]The complete distribution for specific schools is given in Appendix I.

Of those students who had chosen their post-graduate and professional schools, the greatest proportion (81 per cent) returning to the U. of C. were those planning to study in the physical sciences. The other areas of study show the following proportion of "loyal" students: Biological Sciences, 70 per cent; Humanities, 67 per cent; Medicine, 67 per cent; Social Sciences, 63 per cent; Mathematics, 47 per cent. Over all the Arts and Sciences, 66 per cent plan to continue at the U. of C. This figure may be compared to the proportion of the 1959 Harvard Graduates planning to go into the Arts

and Sciences who applied to Harvard graduate schools--57 per cent were "loyal" to Harvard.[5]

When those who were planning on going on to a graduate school are compared to those who probably were not, we find that the former are characterized by a distinctly better level of academic achievement. This can be seen by the distribution of the proportion planning on graduate or professional school in terms of divisional grade point average:

TABLE 34

DIVISIONAL GRADE POINT AVERAGE AND PLANS FOR GRADUATE SCHOOL

Divisional Grade Point Average	Number	Per cent Planning Graduate School
3.0 or better .	92	79
2.5 - 2.99 . .	86	67
2.0 - 2.49 . .	64	66
Less than 2.0 .	25	40
Indeterminate .	16	44
Total .	283	68

In order to acquire some basis for comparison, these figures may again be compared to equivalent data from the 1959 Harvard report.[6]

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[5]Michael Shinagel, "The Class of 1959: Its Performance and Immediate Plans," Harvard University, Office of Student Placement, 1959, mimeo. This figure was computed from Table II, p. 7, and Table IV, p. 11.

[6]Ibid. Figures taken from data in Table I, p. 6.

TABLE 35

ACADEMIC PERFORMANCE AND PLANS FOR GRADUATE SCHOOL, 1959 HARVARD GRADUATES

Type of Degree	Number	Per cent Planning Graduate School
Highest Honors . .	26	77*
Magna Cum Laude .	162	80
Cum Laude	296	69
Regular A.B. . . .	540	40.5
Total . . .	1,024	56

*Does not include recipients of traveling fellowships and scholarships.

C. Summary.

The typical U. of C. graduate is one who is planning a career in the traditional arts and sciences or major professions. Needless to say, he is anticipating graduate or professional study--which is most likely to be at the University of Chicago. When he and his classmates are compared to the 1959 graduates of Harvard, it appears that he is at least as likely to go to graduate school as they are (68 per cent of the U. of C. class as opposed to 56 per cent of the Harvard class). In regard to correlates of post-graduation plans, the University of Chicago graduate must have the equivalent of a "C" to "C+" divisional grade point average before he stands a more than even chance of planning to go to graduate school, while his confrere at Harvard must be a candidate for a Cum Laude degree to stand the same chance.

VII. SUMMARY

In this chapter we have tried to present an answer to the question, "Who were the June graduates and what were they like?" Our answer has covered such topics as the origins of the class, their previous experience and preparation, social characteristics, attitudes, academic performance, and post-graduation plans. Taken together, these topics produce a fairly comprehensive profile of the graduates; but noticeably missing is some "key" to the profile which would identify the characteristics that were actually related to graduating. For example, we know that over 80 per cent of the graduates who entered the University of Chicago as freshmen had waived one or more courses on the basis of their aptitude scores--but we really have no idea whether or not this is a correlate of success since there are no data given for the students who "dropped out" prior to graduating. (If they also were characterized by the same proportion of course "waivers" this wouldn't appear to be a very salient factor.) The identification of the correlates of success will be the task of the following chapter. Instead of looking only at those who did succeed in graduating, we will follow the entire freshman class entering in the autumn of 1956 and pay particular attention to those who drop out along the way. The second chapter, then, will not be concerned as much with description as it will be with analysis, and what description there is will tend to be a description of failure rather than of success.

CHAPTER II

THE ACADEMIC PERFORMANCE AND FINAL OUTCOME OF THE FRESHMAN CLASS OF 1956

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THE ACADEMIC PERFORMANCE AND FINAL OUTCOME OF THE FRESHMAN CLASS OF 1956

I. INTRODUCTION

This chapter attempts to answer two major questions: What are the factors associated with academic success at the University of Chicago, and when, and under what circumstances, do students discontinue? In view of the intimate relationship between academic success (or rather the lack of success) and the tendency to "drop out" these questions cannot easily be approached separately. The organization of this chapter will consequently be a chronological one analyzing the factors as they appear and become relevant at each succeeding stage. But before we begin to outline the major stages of concern, let us shift our focus back to the Autumn of 1956 for a picture of the class as it appeared at entrance.

A. The Class, A Brief Overview and Comparison.

According to the data gathered by the Office of Admissions, 491 freshmen were matriculated in the Autumn quarter of 1956. Of this number no data whatsoever were available for thirty-three. Thus our sample consists of 458[1] students, 289 men and 169 women--a total of ninety-three per cent of the class. In order to gain perspective it might be useful to offer some comparative data for the incoming freshman class of Autumn 1960. The sex distribution above is substantially equivalent to that presented by last year's incoming freshmen; the proportion male in each class is, respectively, sixty-three per cent and sixty-five per cent. One undoubtedly well-known difference is the absolute size: the class of '64 numbered 613 at entrance, representing an increase in excess of twenty-six per cent. Let us examine the rest of the profile, however:

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[1] These 458 students will constitute the base for all subsequent percentages unless otherwise noted. It might be mentioned in this regard that because of rounding, the percentages found in the tables will not always total exactly one hundred.

1) Number of Course Requirements Waived.

The data gathered for this chapter do not include the Scholastic Aptitude Test or College Board Scores per se, but rather the number of course requirements waived. Some number of basic course requirements were waived for over two-thirds of the class. The distribution by number of requirements waived is presented below:

TABLE 1

NUMBER OF COURSE REQUIREMENTS WAIVED

Number of Course Requirements Waived	Number	Per cent
None	130	28
1 - 2	195	42
3 - 4	95	21
5 + ...	35	8
N.A.	3	1
Total . . .	458	100

2) High School Record.

The class had a predominately public high school education--eighty per cent came from public schools and only sixteen per cent from private. These figures are very similar to those presented by the class of 1964: eighty-four per cent from public, and fifteen per cent from private institutions. Although the procedure for evaluation appears to be different, the level of previous preparation, or quality of school record may be briefly compared: in terms of "Quality Grades" A, B, and C, sixty-three per cent of last year's freshmen were evaluated by the Admissions Office as having an "A" record, thirty-six per cent, "B" and four per cent "C." The freshmen of Autumn 1956, evaluated in terms of rank in the high school graduating class were, respectively, sixty-five per cent from the upper fifth, fourteen per cent from the second fifth, and nine per cent from the third

fifth or lower. These data for the 1956 freshmen are summarized in the following table:

TABLE 2

TYPE OF INSTITUTION AND POSITION IN HIGH SCHOOL GRADUATING CLASS

(Per cent in given rank)

Type of Institution	Position in Graduating Class			
	Upper Fifth	Second Fifth or Lower	Indeterminate	Total
Public	71	20	9	100% (367)
Private	40	36	24	100% (73)
Other and Uncodeable .	0	0	100	100% (18)
Overall	64	23	13	100% (458)

3) Age and Entrance Status.

Fifty-two per cent of the class were born in 1938, and were thus about eighteen years old at entrance. Approximately eighty-five per cent were in the age range of seventeen to nineteen, as opposed to ninety-four per cent of the class of 1964. There were slightly more younger students in 1956 (about eight per cent early entrants opposed to five per cent in last year's class) and presumably more older students (about eight per cent were close to twenty years of age or older).

4) Scholarship and Honors.

Seventy-five per cent (342) of those students who matriculated in the Autumn of 1956 applied for scholarship aid or honors and a total of 247 awards was given. Thus, fifty-four per cent of the class (seventy-two per cent of those who applied) were given some sort of award or certificate.

5) Geographic Origin.

The comparative data for the two classes show three major differences: the class of 1960 contained more Chicagoans, fewer from the East Coast, and

somewhat fewer from the suburbs. The difference in the proportion from Chicago proper is by far the most striking; forty per cent of the class of 1960 were Chicago students as opposed to only twenty-one per cent of the class of 1964. Even when the suburbs are taken into account, forty-eight per cent of the class of '60 was from the greater Chicago area in contrast to only thirty-six per cent of the class of '64.

TABLE 3

GEOGRAPHIC ORIGIN (BY AREA)

Origin	Class of 1960	Class of 1964
Chicago	40	21
Suburbs	8	15
Other Midwest . .	20	23
East	15	25
West	10	8
South	4	7
Other and foreign	1	1
No Data	2	0
Total . . .	100% (458)	100% (613)

6) Major Field of Specialization.

At entrance the Division of Physical Sciences accounted for the largest number of intended major fields among the freshmen of 1956 with fifty-three per cent of the class intending to specialize in either Physical Science or Biological Science. Since twenty-three per cent of the class of 1964 were reported as "undecided," there is no fruitful basis for comparison. However, in spite of this large unknown segment, fourteen per cent of the class of 1964 intended to major in the Humanities--as opposed to only eight per cent of those

entering four years previously:

TABLE 4

INTENDED MAJOR FIELD, CLASS OF 1960 (BY DIVISION)

Division	Number	Per cent
Biological Science . . .	92	20
Humanities	39	8
Physical Science	151	33
Social Science	91	20
Other	37	8
Undecided	48	10
Total	458	100

7) Summary.

In looking over the rough outlines of the profile of the freshmen of 1956 and comparing it with that of the freshmen one "generation" later, the one major difference appears to be in the proportion of students from the city of Chicago--Chicago students accounted for nineteen per cent more of the class of 1956 freshmen. The class of 1964 also seems to be slightly more homogeneous with respect to age, and contains a few more students planning to specialize in the Humanities. Differences in the nature of the data, such as the data regarding "aptitude" and the quality of the high school record may obscure other differences, but aside from the difference in community of origin, there appears to be more similarity than dissimilarity.

B. Outcomes of the Class of 1960.

How many of the original members of the class of 1960 lived up to the title? Of the original 458, 136 (thirty per cent) had graduated by the beginning of the Summer quarter of 1960. Eighty-eight, or nineteen per cent were registered in the Spring of 1960 but did not graduate in June (this group will be called those still in residence) and 234, the bare majority of fifty-one per cent, had

discontinued. In order to maintain some semblance of chronological accuracy, however, it is better to visualize the careers of these students not just in terms of these three final outcomes, but rather in the context of several outcomes over a period of time. The presentation of the data in a chronological format shows that about fifteen per cent of the class discontinued before they attained any sort of average grade over their College comprehensive courses. Of those who attained a comprehensive average, close to thirty per cent (twenty-three per cent of the total class) discontinued prior to acquiring a divisional record.[2] Similarly, about twenty per cent of the 281 who acquired a divisional grade average eventually discontinued. (See Chart 1.)

In Chart I we see a schematic view of the class "history" divided into two major stages. The first covers the class from the time of matriculation to the comprehensive grade average. Discontinuation in this stage is limited to the sixteen per cent who leave before they have attained an academic record. The second stage begins after a given comprehensive grade average has been established and contains four possible outcomes: discontinuing prior to the establishment of a divisional grade average, discontinuing with a given divisional average, remaining in residence, and graduating. Although it is not shown in the chart, each stage also contains two outcomes "within the system": receiving a "high" or a "low" grade average. Consequently the following section, which will explore the first stage, has two major tasks: to isolate and explain the factors associated with early discontinuation; and, for those who remained, to explain the factors which contributed to the probability of achieving a successful comprehensive grade average.

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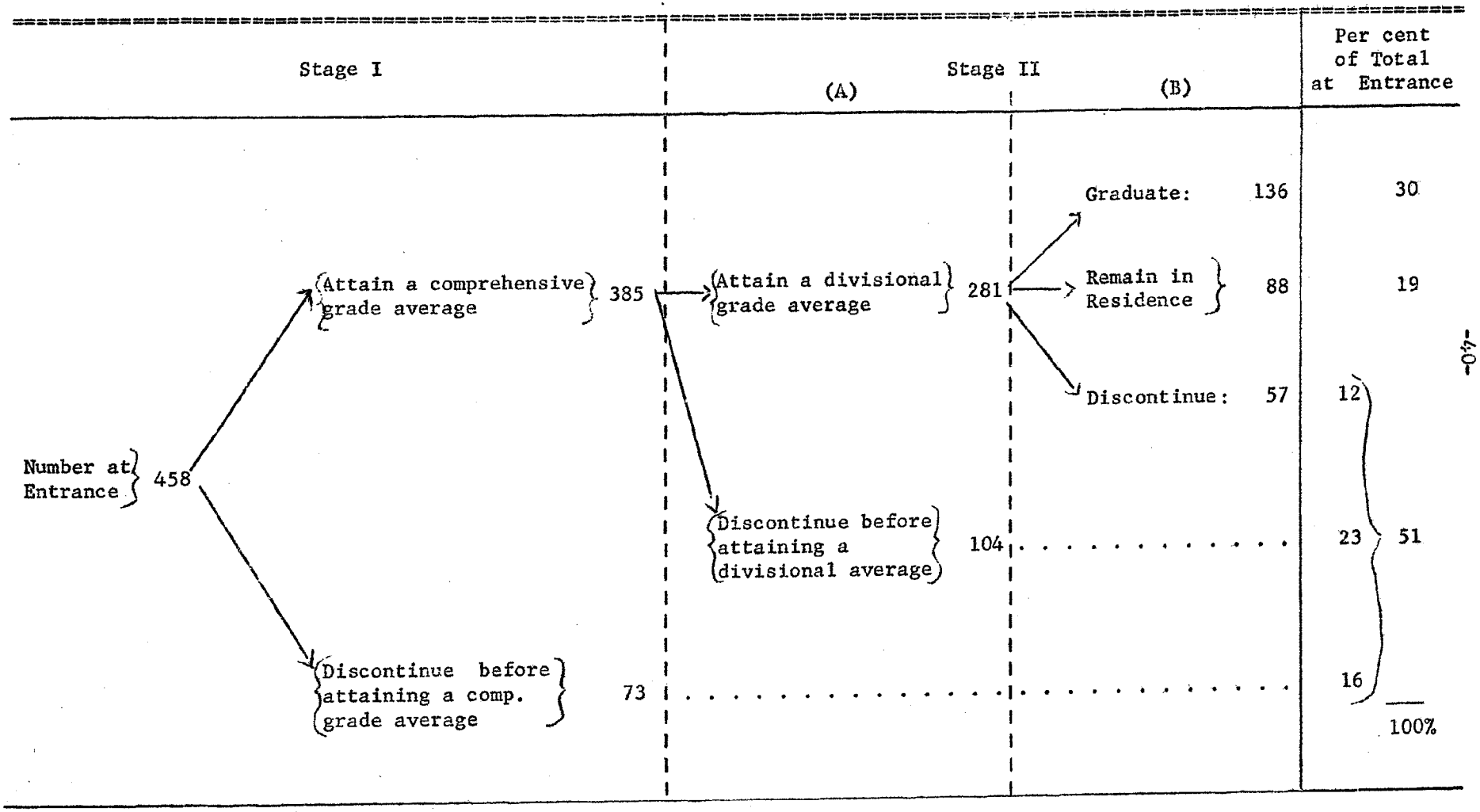
[2]The placement of the numbers discontinuing is not based on the year of discontinuation but rather on the academic level at the time of discontinuation. For example, a person who discontinued in his third year, but whose transcript showed that he had completed at most one or two comprehensive grades, would be among the initial seventy-three "drop outs."

CHART 1

OUTCOME OF THE FRESHMAN CLASS OF AUTUMN 1956



II. FACTORS ASSOCIATED WITH OUTCOMES AT THE FIRST STAGE

(CORRELATES OF SUCCESS AND FAILURE)

We have seen that about sixteen per cent of the class discontinued with no comprehensive average. The next question is, how many of the remaining eighty-four per cent established a successful grade average. The criterion used to dichotomize successful and unsuccessful students is the achievement of a grade point average equal to or greater than 2.0 (where A = 4.0 and F = 0). This dichotomy will be the primary way of classifying academic performance, but attention will also be given to finer distinctions among those who were successful. In returning to the initial question then, about seven out of every ten students who established any average established a successful one. Approximately half of all averages fell in the C to B range--only one out of five achieved an average equivalent to B or better.

TABLE 5

COMPREHENSIVE AVERAGE OF THOSE REMAINING

(Per cent with given average)

B (3.0 or greater)	C (2.0 - 2.99)	D (1.99 or less)	N.A.	Total
20	49	30	1	100 (385)
Previously Discontinued				(73)
Total				(458)

In view of the relatively small number discontinuing and the rather large proportion of the remainder achieving a C or better average, one might predict that either nothing or just about everything is associated with the probability of remaining or the probability of being academically successful. The latter of these two intuitive predictions comes much closer to the truth. Chart 2 provides

the organizing principle: any factor in the upper left hand cell is associated (either negatively or positively) with both discontinuation and academic success; conversely all the factors listed in the lower right hand cell are associated with neither. The remaining two cells list those factors associated with either discontinuation or success, but not both.[3]

CHART 2

BACKGROUND CHARACTERISTICS AND OUTCOME

Associated with Discontinuation	Associated with Comprehensive Grade Average	
	Yes	No
Yes	•High School Record •Courses Waived •Scholarship Award	•High School Type •Age •Number of Siblings •Year of Graduation from High School
No	•Community of Origin •Living Plans •Religion •Father's Occupation •Mother's Occupation •Mother's Education	•Sex •Intended Major Field •Vocational Orientation •Father's Education •Parents' Marital Status

[3]A summary of these associations and their statistical significance is provided in the accompanying Appendix.

A. Background Characteristics Associated with Discontinuation but Not Comprehensive Grade Average.

In the upper right hand cell of the chart we see that there are four factors which seem to relate only to discontinuation: the type of high school (public or private), the age of the student, the year of graduation from high school (which is practically synonomous with age), and the number of siblings.

1) High School Type:

We see in Table 6 that students who were from a private high school were almost twice as likely to discontinue before establishing a grade average than were those from public high schools. We will not explore this statement further at this point other than to note again that the four background characteristics mentioned above have no significant relationship to the grade averages of those students who did attain them.[4]

TABLE 6

DISCONTINUATION BY TYPE OF HIGH SCHOOL

High School Type	N	Number Discontinuing	Per cent Discontinuing
Public	367	49	13
Private	73	18	25
Other and N.A. .	18	6	33
Total . . .	458	73	16

2) Age and Year of Graduation from High School.

Because of the close association between age and the year of graduation from high school we can treat these two factors simultaneously. In the tables below we see that in general the older students and those who entered at least

[4] Incidentally, Table 6 also shows that the dichotomy of public vs. private is not exhaustive. For each characteristic there will be a varying number of unknowns (the "N.A." category) who will be largely left out of the main stream of the analysis because of the fact that in many cases these were "in and out" students, hence there were no data.

a year after graduation from high school were more likely to discontinue than younger students and those who entered immediately after high school.

The clearest cutting points exist between those students who were born in 1938 and those born in 1937 or earlier, and those who graduated from high school in 1956 (or were early entrants) and those who graduated in 1955 or earlier. When these tables are dichotomized on this basis we see that the older and the earlier graduates were respectively about twice as likely to discontinue than the younger and more recent graduates.

TABLE 7

AGE AND DISCONTINUATION PRIOR TO ATTAINING A COMPREHENSIVE GRADE AVERAGE

Year of Birth	N	Number Discontinuing		Per cent Discontinuing	
1940 or later . . .	34	5		15	
1939	127	19	51	15	14
1938	240	32		13	
1937 or earlier . .	57	17		30	
Total . . .	458	73		16	

TABLE 8

YEAR OF GRADUATION FROM HIGH SCHOOL AND DISCONTINUATION PRIOR TO ATTAINING A COMPREHENSIVE GRADE AVERAGE

Year of Graduation	N	Number Discontinuing	Per cent Discontinuing
Non-Graduate (early entrants) .	35	4	11
1956	380	55	14
1955 or earlier . .	40	14	35
No data	3	0	0
Total	458	73	16

It is doubtful that either age or the year of graduation is, in itself, responsible for the difference in the probability of discontinuing. The salient feature is more plausibly the lapse in the continuity of education and the undefined factors associated with this. In any case, both age and year of graduation seem to reflect the same thing so that in the future we will need to examine only one or the other. Since the dichotomy between students born in 1938 or later and those born in 1937 or earlier offers a somewhat better distribution of cases with little loss of association we will adopt this as roughly equivalent to year of graduation from high school.

3) Number of Siblings.

Strangely enough, the number of siblings is related to the probability of discontinuing in this stage. As enticing as it may be to speculate about the possible reasons for this let us merely state the relationship as it existed and save further discussion until later. When we look at Table 9, then, we see that it is clearly the presence or absence of siblings that made the difference. Only four per cent of the students who were only children discontinued compared to seventeen per cent of those who were not.

TABLE 9

NUMBER OF SIBLINGS AND DISCONTINUATION PRIOR TO ESTABLISHING A COMPREHENSIVE GRADE AVERAGE

Number of Siblings	N	Number Discontinuing	Per cent Discontinuing
0	75	3	4
1	180	30	17
2 or more	188	33	18
N.A.	15	7	47
Total	458	73	16

B. Background Characteristics Associated with Comprehensive Grade Point Average but Not with Discontinuation.

Looking back at Chart 2 we will shift to the lower left hand cell and examine the way in which these six characteristics, unrelated to discontinuation, were associated with the comprehensive grade averages of those remaining.

1) Community of Origin.

In Table 10, as in all of the following tables, the association is based solely on the proportion achieving at least a C (2.0) average. Looking at Table 10, then, we see that there was not much variation in the proportion attaining such an average for the major areas outside of greater Chicago, except that students from the midwest were somewhat more likely to be successful.

TABLE 10

COMMUNITY OF ORIGIN AND COMPREHENSIVE GRADE AVERAGE FOR THOSE NOT DISCONTINUING

Community of Origin (by Area)	N	Number Discontinuing Before Attaining a Comprehensive Grade Average	Of Those Remaining, Per cent Attaining a C or Better Comprehensive Average	
Hyde Park	37	6	77	(31)
Other South Side .	85	20	49	(65)
North Side	60	6	56	(54)
Suburbs	36	6	67	(30)
Total Chicago Area	218	38	59	(180)
Midwest	92	12	85	(80)
East	67	13	70	(54)
West	46	6	75	(40)
South	18	3	73	(15)
Other and N.A. . .	17	1	71	(16)
Total	458	73	69	(385)

The major variation in the proportion achieving a successful grade average was found within the Chicago area--less than half of those from the south side exclusive of Hyde Park achieved a C average compared to over three-quarters of those from Hyde Park and two-thirds of those from the suburbs. Yet in spite of this variation within the Chicago area the major break by geographic area seems to be the distinction between students from the Chicago area and those outside of it. Over all, seventy-eight per cent of the non-Chicago students received at least a C average, twenty per cent more than those from greater Chicago.

2) Living Plans.

Closely related to the community of origin is the intended place of residence. Almost all of the students outside of the Chicago area planned on living in the University dormitory system, while on the other hand, almost all of those students not planning on living in the dorms were from the Chicago area. In view of the association noted above, then, it is not surprising that for those not discontinuing about twenty per cent more of the students who were planning on living in the dormitories achieved a successful comprehensive average

TABLE 11

LIVING PLANS AT ENTRANCE AND COMPREHENSIVE GRADE AVERAGE FOR THOSE NOT DISCONTINUING

Planned Residence	N	Number Discontinuing Before Attaining a Comprehensive Grade Average	Of Those Remaining, Per cent Attaining a C or Better Comprehensive Average
Dormitories	264	37	77 (227)
At home and other . .	194	36	58 (158)
Total	458	73	69 (385)

3) Religion.

Religion is another factor which we will find to be related to community of origin but for now we will note only that the major differences in the probability of achieving a successful grade average existed between Catholics and non-Catholics. About five out of ten Catholic students achieved a successful grade average as opposed to seven out of ten non-Catholics. Below is the complete distribution by major religious preference at entrance.

TABLE 12

RELIGION AND COMPREHENSIVE GRADE AVERAGE FOR THOSE NOT DISCONTINUING

Religious Preference	N	Number Discontinuing Before Attaining a Comprehensive Grade Average	Of Those Remaining, Per cent Attaining a C or Better Comprehensive Average
Protestant	176	24	70 (152)
Catholic	74	14	53 (60)
Jewish	138	19	72 (119)
Other	6	0	- (6)
None	48	8	82 (40)
N.A.	16	8	- (8)
Total	458	73	69 (385)

4) Father's Occupation.

When the incoming freshmen of 1956 are distributed with respect to the parental occupational classification, generally a very good indication of social class, the only major difference in the probability of getting a C average is across the manual-non-manual division. We see in Table 13 that while only fifty-five per cent of the children of blue-collar workers who remained got high comprehensive grades, seventy-five per cent of the remaining children of all white-collar or professional fathers attained a C average.

TABLE 13

FATHER'S OCCUPATION AND COMPREHENSIVE GRADE AVERAGE FOR THOSE NOT DISCONTINUING

Father's Occupation	N	Number Discontinuing Before Attaining a Comprehensive Grade Average	Of Those Remaining, Per cent Attaining a C or Better Comprehensive Average
Major Professional	86	10	72 (76)
Semi-Professional	43	8	83 (35)
Big Business, Administrative	31	6	78 (24)
White-Collar	144	19	74 (125)
Blue-Collar	103	18	55 (85)
Other and N.A.	51	12	55 (40)
Total	458	73	69 (385)

5) Mother's Occupation.

Perhaps more interesting is the fact that mother's occupation makes just as much, if not more, difference than father's occupation (although not of the same kind). Whereas the data above suggest that the background offered by a family headed by a blue-collar father reduced the chances of achieving a successful average, the only difference shown when the class is grouped by mother's occupation is up at the high end of the occupational scale. It is the children of professional mothers who have the highest probability of achieving a successful comprehensive average--nine out of every ten remaining children of professional mothers achieved at least a C average.

TABLE 14

MOTHER'S OCCUPATION AND COMPREHENSIVE GRADE AVERAGE FOR THOSE NOT DISCONTINUING

Mother's Occupation	N	Number Discontinuing Before Attaining a Comprehensive Grade Average	Of Those Remaining, Per cent Attaining a C or Better Comprehensive Average
Professional	53	5	90 (48)
White-Collar	68	10	67 (58)
"Blue Apron"	25	4	62 (21)
None	312	54	65 (258)
Total	458	73	69 (385)

6) Mother's Education.

The level of the mother's education is also interesting if only because the level of the father's education makes no difference whatsoever (see Chart 2). Just as a high occupational status of the mother seemed to increase the probability of attaining a successful average, so does the highest maternal education level--again, there does not appear to be any deliterious effect at the lower end of the scale. About sixty-five per cent of the children of mothers who have no college degree achieved a comprehensive average in excess of C compared to eighty-four per cent of the children of college graduate mothers.

TABLE 15

LEVEL OF MOTHER'S EDUCATION AND COMPREHENSIVE GRADE AVERAGE FOR THOSE NOT DISCONTINUING

Level of Mother's Education	N	Number Discontinuing Before Attaining a Comprehensive Grade Average	Percentage of Those Remaining Attaining a C or Better Comprehensive Average
College Graduate .	114	15	84 (99)
Part College . . .	76	8	67 (68)
H.S. Graduate (but no college)	155	24	65 (131)
Less than H.S. Graduate	98	19	62 (79)
N.A.	15	7	- (8)
Total	458	73	69 (385)

C. Background Characteristics Associated with Both Discontinuation and Comprehensive Grade Point Average.

Referring again to Chart 2, in the upper left hand cell we see that three background characteristics are associated with both the probability of early discontinuation and the probability of achieving a low comprehensive average: high school record, number of courses waived, and scholarship or honors award. To the extent that scholarship and honors awards are given on the basis of

performance, these three factors seem to have one thing in common: they are all related to the level of previous preparation:

1) High School Record.

In spite of the fact that there is great variation in the quality of the high schools from which these students came, rank standing in the graduation class leads to a consistent difference in both the proportion discontinuing and in comprehensive grade averages of those remaining. As we have seen in the introduction, the great majority of students graduated in the upper fifth of their high school class. On the basis of numbers alone, the best way to classify the incoming freshmen is to dichotomize them into those who were in the upper fifth and those who were in the second fifth or lower. In Tables 16 and 17 we see that those with the lower rank were about twice as likely to discontinue. In these tables the "No answer" category is particularly large and it might be worthwhile to mention that there are several reasons for the lack of data: for example, the high school transcript may have been missing, the high school may not have offered ranked data, or the students may have been early entrants. The heterogeneity of these students becomes obvious. More students in the N.A. category received a D or lower average than those of any known rank, but the proportion receiving a B average is only ten per cent less than those in the upper fifth. Restricting ourselves to the differences between those in the upper fifth and those lower in rank, we see that over three-quarters of the top high school students received a C or better average as opposed to less than half of the students below the upper fifth. In both cases the proportion in the C range is about fifty per cent; the overall difference in the likelihood of attaining a successful average is due to the fact that about three times as many students from the upper fifth receive a B or better average. In brief, the association between high school rank and outcome in the first stage is such that in comparison to the better high school students, those who ranked in the second or lower fifth of their class were about twice as likely to discontinue and of those who remained the lower ranking students

were almost twice as likely to receive less than a C average in their comprehensive courses.

TABLE 16

RANK IN HIGH SCHOOL CLASS AND DISCONTINUATION PRIOR TO ATTAINING A COMPREHENSIVE GRADE AVERAGE

Rank in H.S. Class	N	Number Discontinuing	Per cent Discontinuing
Upper fifth	294	36	12
2nd fifth or lower . . .	105	24	23
N.A.	59	13	20
Total	458	73	16

TABLE 17

COMPREHENSIVE GRADE AVERAGE OF THOSE REMAINING

(Per cent with given grade average)

Rank in H.S. Class	Comprehensive Grade Average				
	B or Better (3.0 or Greater)	C (2.0 to 2.49)	D (1.99 or Less)	N.A.	Total
Upper fifth	25	51	24	1	100% (258)
2nd fifth or lower.	8	49	43	0	100% (81)
N.A.	15	39	46	0	100% (46)
Total	20	49	30	1	100% (385)

2) Scholarship and Honors Award.

The relationship that scholarship and honors awards had to the likelihood of discontinuation and of achieving a successful average is important in terms of administrative policy so let us first look at the distribution of the class by whether or not a scholarship or honor award was requested, and, if so, whether or not it was actually awarded:

TABLE 18

SCHOLARSHIP OR HONORS APPLICATION AND AWARD AND DISCONTINUATION BEFORE ATTAINING A COMPREHENSIVE AVERAGE

Scholarship or Honors Applied for	Scholarship or Honors Awarded	N	Number Discontinuing	Per cent Discontinuing
Yes	Yes	248	25	10
Yes	No	97	20	20
No	No	109	28	25
N.A.	N.A.	4	0	0
Total		458	73	16

TABLE 19

SCHOLARSHIP OR HONORS APPLICATION AND AWARD AND COMPREHENSIVE GRADE AVERAGE OF THOSE NOT DISCONTINUING

Scholarship or Honors Applied for	Scholarship or Honors Awarded	Per cent Attaining C or Better Comprehensive Average
Yes	Yes	77 (223)
Yes	No	56 (77)
No	No	59 (81)
N.A.	N.A.	- (4)
Total		69 (385)

Looking first at Table 18, we see that the least likely to discontinue early were those who received some form of scholarship or other award and the proportion discontinuing was very similar for those who did not receive an award, whether it was requested or not. Turning to Table 19, we see the same general relationship characterizing those students who remained; the students who received some award are most likely to achieve a successful comprehensive average (about twenty per cent more attained a C or better average). These relationships suggest two major conclusions: first, the scholarships and awards were given to

the "right" people in that these students were least likely to discontinue at this stage, and most likely to achieve a successful grade average. (Alternatively, of course, one could conclude that the act of giving a scholarship or other award led to a lower rate of discontinuation and higher probability of success.) Secondly, and no less important, is the fact that those who requested a scholarship or honors award but were not given one did no worse than those who did not request one, that is, they were no more likely to discontinue and no less likely to achieve a successful average, indicating that there is no apparent disadvantage put on those who apply to receive some aid or honor but who are not awarded it.

3) Number of Courses Waived.

Shortly after they arrived in Chicago the class of '60 took a series of achievement tests to measure their skills in the specific general education fields that are covered by the "comprehensives." On the basis of their success, they were allowed to waive from zero to eight courses. Our data suggest that the results are both a good measure of the student's level of preparation and a vital piece of information in untangling and organizing all the statistical relationships in this section. Tables 20 and 21 show the relationships between placement test results and outcome in the first stage.

TABLE 20

NUMBER OF COURSES WAIVED AND DISCONTINUATION PRIOR TO ESTABLISHING A COMPREHENSIVE GRADE AVERAGE

Number of Courses Waived	N	Number Discontinuing	Per cent Discontinuing
0	130	32	25
1 - 2	195	20	10
3 - 4	95	15	16
5 or more	35	4	11
N.A.	3	2	-
Total . . .	458	73	16

TABLE 21

NUMBER OF COURSES WAIVED AND COMPREHENSIVE GRADE POINT AVERAGE OF THOSE NOT DISCONTINUING

(Per cent attaining given grade average)

Number of Courses Waived	Comprehensive Grade Point Average						
	B or Better (3.0 or Greater	C+ (2.5-2.99)	C (2.0-2.49)	D+ (1.5-1.99)	D or Less (1.49 or Less)	N.A.	Total
0	2	15	27	31	24	1	100% (98)
1 - 2 . . .	20	26	29	17	7	1	100% (175)
3 - 4 . . .	33	21	25	13	8	0	100% (80)
5 or more .	48	23	16	10	3	0	100% (31)
N.A. . . .	-	-	-	-	-	-	(1)
Previously Discontinued							(73)
Total.							(458)

The most important difference with respect to discontinuation is the difference between those who waived some and those who waived none of the basic course requirements. One of every four students who waived no courses discontinued before establishing a comprehensive average while far fewer who waived any courses discontinued regardless of how many were waived. In Table 21 we can see clearly the difference between the academic performance of the "some" and "none" waived. Looking first at the two extremes we can see that practically none of the remaining students who waived no course requirements achieved a B or better average (only two students managed to break this barrier)--in other words, getting a B or better average seemed to presuppose the ability to waive some course requirements. At the other extreme, one-quarter of the students who waived no courses received a comprehensive grade point average below 1.5--altogether over half failed to attain even a low C average. Among the students who waived any number of courses there is some variation in the grade average, particularly noticeable in the proportion achieving a C or better average. But here

again we can say that nowhere is the difference as great as that between the students who waived none and those who waived some course requirements. We can summarize these findings on the basis of this dichotomy in the following table:

TABLE 22

COURSES WAIVED, DISCONTINUATION AND COMPREHENSIVE GRADE POINT AVERAGE

Courses Waived	N	Per cent Discontinuing Prior to Establishing a Comprehensive Average	Per cent Attaining C or Better Average (of those remaining)
None	130	25	47 (97)
Some	325	12	77 (287)
N.A.	3	-	- (1)
Total . .	458	16	68 (385)

D. Summary.

In brief, having come from a private high school, being born in 1937 or earlier, and having some siblings rather than being an only child, were all associated with a greater probability of discontinuing, but had no relationship to academic performance. Being from outside of the Chicago area, planning to live in the dormitories, being a non-Catholic, the child of other than a Blue-Collar worker, having a professional mother and having a mother who was a college graduate are all the characteristics which were associated with a greater probability of achieving a successful grade average but which had no bearing on the probability of discontinuation. The three characteristics associated with both a lower probability of discontinuing and a higher probability of achieving a successful average were: being from the upper fifth of one's high school graduating class, having received a scholarship or honor award, and having waived some courses.

While all of these findings are significant, in the technical sense that the degree of association is greater than that one would expect from chance

combinations of the characteristics, they do not make a great degree of intuitive sense.[5] It seems clear that having a good high school record should be a good omen, but it is not clear why being from Chicago is a bad one. It is perhaps not surprising that students whose fathers were blue-collar workers were less successful, but it is not clear why father's education is not a significant factor. By means of statistical analyses in which the effect of a given characteristic is examined with one or more other characteristics held constant, it is possible to bring to light some patterns. While the final result still leaves a number of questions, the causal patterns which turn up help considerably in simplifying and organizing the findings.

III. THE PATTERN OF PREDICTORS OF SUCCESS IN STAGE I

When we considered various pairs of characteristics and their simultaneous relationships with outcome, it became clear that level of preparation (courses waived) is the key variable in the set. Regardless of the other variables controlled, students who waived one or more courses were less likely to discontinue in Stage I and, among those who received comprehensive grades, "waivers" uniformly got higher averages.

In short, the level of academic preparation of the freshmen is the most important predictor of their success in Stage I.

When, however, level of preparation is controlled:

a) Three characteristics--father's occupation, mother's occupation, and mother's education--still show an association with outcome (with grades, but not discontinuation).

b) One characteristic--only child--has varying relationships with outcome for students with different preparation levels.

c) The remaining eight characteristics which originally were related to outcome--high school type, age, year of graduation from high school, high school record, living plans, community of origin, religion, and scholarship award--are no longer associated with outcome.

We can summarize these findings by drawing another chart similar to Chart 2.

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[5]These associations are evaluated more completely in Appendix II.

CHART 3

BACKGROUND CHARACTERISTICS AND OUTCOME,
CONTROLLING FOR COURSES WAIVED

Associated with Discontinuation	Associated with Comprehensive Grade Average	
	Yes	No
Yes	(Courses Waived)	Number of Siblings
No	• Father's Occupation (Blue Collar Father) • Mother's Occupation (Professional Mother) • Mother's Education (College Graduate)	• High School Type • Age • Father's Education • Year of Graduation from High School • High School Record • Living Plans • Community of Origin • Religion • Parents' Marital Status • Sex • Intended Major Field • Vocational Orientation

Putting it another way, most of the variables which are associated with outcome in Stage I are important only because they happen to be characteristic of students with different levels of preparation for study at the University of Chicago. Because these findings suggest the importance of student selection for later success at Chicago, it may be useful to explore these indices of preparation before we look at the independent contributors. We shall exclude scholarship awards because its correlation with preparation is not particularly surprising.

A. Community of Origin, Residence Plans, Religion, and Courses Waived.

Chicago area students and students who did not plan to live in University dormitories were less likely to receive successful comprehensive grade averages in Stage I. Because when preparation is controlled this relationship disappears, we may assume that Chicago students and non-dormitory students were less well prepared rather than that dormitory living improved grades. However, because Chicago area students were much less likely to anticipate living in a dormitory, it is not clear which factor is more closely related to preparation. In Table 13 we see the simultaneous relation of community of origin and residence plans to preparation.

TABLE 23

COMMUNITY OF ORIGIN, RESIDENCE PLANS, AND COURSES WAIVED

(Per cent waiving courses)

Community of Origin	Residence Plans		
	Dorms	At Home or Other	Total
Chicago area	77 (48)	53 (170)	58 (218)
Non-Chicago area	85 (210)	80 (20)	84 (230)
N.A.	(6)	- (4)	- (10)
Total	83 (264)	55 (194)	71 (458)

Table 23 suggests that neither residence plans nor community of origin in themselves make the difference. Rather, it is the combination of Chicago

residence and living off campus which is the hall mark of low preparation. Chicago area students who planned to live in the dormitories, and non-Chicago students who planned to live off-campus had about the same proportion of comprehensive waivers as non-Chicagoans living in dormitories. Because being from Chicago and living off-campus are tantamount to "living at home," we can think of these less well prepared students as "home bodies."

This patterning, in turn, helps explain why religion is associated with Stage I outcome.

In the original association of religion with academic success, we found that Catholic students were significantly less likely to achieve a successful grade average than any other major religious group. This relationship was found to be due to the fact that Catholic students were less likely to have high aptitude, as indicated by the low proportion waiving courses. "Catholicity" is largely a Chicago phenomenon--about seven out of every ten Catholic students were from the Chicago area. The question to be answered here is whether this is related to the tendency of the home bodies (Chicago students planning to live at home) to be deficient in aptitude. We can answer this question by finding out whether there is a difference in the proportion of Catholic students waiving courses in comparison to non-Catholic students when we control for both living plans and community of origin.

TABLE 24

RELIGION, "HOMEBODYISM," AND COURSES WAIVED

Community of Origin and Residence Plans	(Per cent waiving courses) Religion				Per cent Catholic
	Catholic	Non-Catholic	N.A.	Total	
Home bodies	47 (45)	56 (118)	- (5)	53 (172)	26
Others.	75 (28)	84 (244)	- (8)	82 (276)	10
N.A.	- (1)	- (6)	- (3)	80 (10)	10
Total	58 (74)	75 (368)	44 (16)	71 (458)	16

In answer to our question, then, we find above that the relationship of religion to academic performance is a spurious one. Reading across both the "home bodies" row and the "other" row we can see that there is no significant difference in the proportion of Catholic students who waived courses when we compare them to the non-Catholic students. The difference that does exist is found by reading down the columns. In both cases the difference is between the home-bodies and the other students. What we have found, then, is that religion does not, in itself, affect the probability of waiving courses (and thereby affect the probability of achieving a successful grade average), but religion (i.e., Catholicism) was a correlate of home bodyism. We can see this more clearly, perhaps, by looking at the far right hand column in Table 24: twenty-eight per cent of the home bodies as opposed to only 10 per cent of the others were Catholic at the time of matriculation.

The chain of relationships that we have established here can be represented schematically. In Chart 4 we see that at the far right there are the two general outcomes possible in the first stage: discontinuation or attaining a comprehensive grade average. Working backwards, both of these outcomes are influenced by the ability to waive courses; those who have waived some courses are less likely to discontinue, and, for those who go on, more likely to be successful in establishing a good grade average. What we have shown here is that home bodyism, the characteristic which combines originating from the Chicago area and planning to live at home rather than in the dorms, is associated with a low degree of aptitude--just about half of these students succeeded in waiving any courses and consequently had a high rate of discontinuation and a low record of academic success. We see that this also is associated with a higher proportion of Catholic students. However, the original relationship which characterized Catholic students as much less likely to succeed is shown here to be a spurious relationship caused by the association of Catholicism with home bodyism.

CHART 4

RELIGION, COMMUNITY OF ORIGIN, AND RESIDENCE PLANS

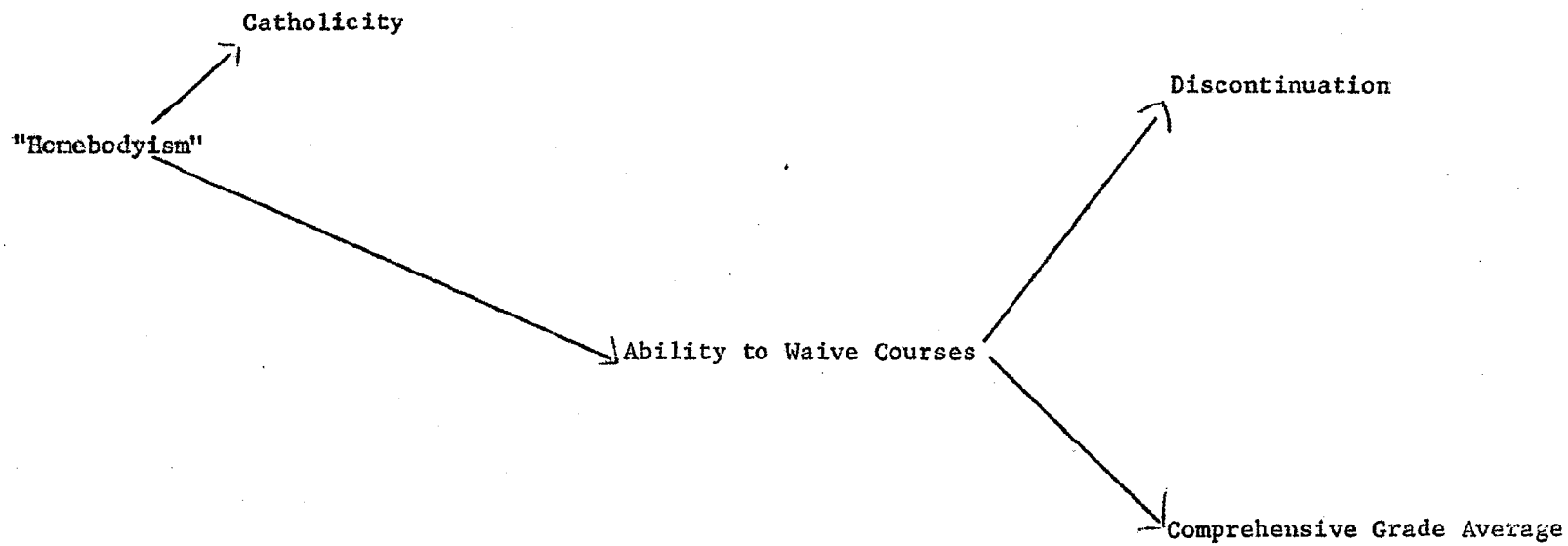


TABLE 26

HIGH SCHOOL TYPE AND COURSES WAIVED CONTROLLING FOR "HOME BODYISM" AND HIGH SCHOOL RANK

Community of Origin and Residence Plans	Rank in High School Graduating Class	Per cent Waiving Some Courses			Per cent from Private High School
		High School Type			
		Private	Other	Total	
Home bodies	Upper Fifth	64 (11)	65 (81)	(92)	12
	2nd Fifth or Lower	33 (15)	42 (42)	(57)	26
	N.A.	- (8)	33 (15)	(23)	35
Others	Upper Fifth	100 (17)	86 (179)	(196)	9
	2nd Fifth or Lower	64 (11)	78 (37)	(48)	23
	N.A.	- (9)	74 (23)	(32)	28
N.A.		- (2)	- (8)	(10)	20
	Total .	(73)	(385)	(458)	16

Table 26 gives us the simultaneous relationships of high school type, rank standing, and community of origin-residence plans with level of preparation as assessed by the waiving of courses. Our interpretation of the table is as follows:

a) High school type does not contribute to preparation when rank in high school graduating class is controlled. Although students from private high schools were no more or less likely to be home bodies than public school students, they were much more likely to come from below the top fifth of their graduating class. In short, the less successful record of private school students in Stage I appears to stem from the fact that in 1956 the University was admitting private school students with lower rank standing than among its public school entrants.

b) Among private and public school students and among home bodies and non-home bodies, students from the top fifth of their high school graduating class were better prepared. Thus, although the nature of the high schools varies widely, rank standing in the high school class (as many studies of college performance suggest) is a good predictor of preparation. However, it is a predictor of preparation only, since it does not relate to outcomes when one controls for success in waiving comprehensives.

c) Home bodies were disproportionately drawn from lower ranks of their graduating classes. Twenty-four per cent of them were in the top fifth of their class, in contrast with sixty-two per cent of the other students. However, this does not explain their low level of success in waiving comprehensive courses. Even when rank in high school class is controlled, those Chicago students who planned to live at home were less likely to waive a course. Whether their schools are low in general achievement and their rank standing is a poor measure of preparation, or whether, within a rank standing, the relatively less prepared students are more likely to become commuting students, is unknown, but taken together these two variables produce considerable range in preparation levels.

TABLE 27

COMMUNITY OF ORIGIN, RESIDENCE PLANS, HIGH SCHOOL RECORD, AND COURSES WAIVED

(Per cent waiving courses)

Community of Origin and Residence Plans	Rank in H.S. Graduating Class			
	Upper Fifth	2nd or Fifth or Lower	N.A.	Total
Home bodies	64 (92)	41 (57)	32 (23)	52 (172)
Others.	88 (197)	74 (47)	59 (32)	82 (276)
N.A.	- (7)	- (1)	- (2)	- (10)
Total	81 (296)	57 (105)	46 (57)	71 (458)

Turning to our final variable--the association of age with early discontinuation--likewise turns out to be spurious due to the fact that the older students were more likely to have graduated in the second or lower fifth of their high school class.

In Table 28, we see that while age can be explained by high school standing, there is still a difference between home bodies and non-home bodies whether they are old (born in 1937 or earlier) or young (born after 1938):

TABLE 28

AGE AND COURSES WAIVED, CONTROLLING FOR "HOMEBODYISM" AND HIGH SCHOOL RANK

Community of Origin-Residence Plans	Rank in High School Graduating Class	Per cent Waiving Courses			Per cent Old
		Old	Young	Total	
Home bodies	Upper Fifth	- (7)	64 (85)	(92)	8
	2nd Fifth or Lower	46 (13)	41 (44)	(57)	23
	N.A.	- (8)	40 (15)	(23)	35
Others	Upper Fifth	88 (16)	88 (180)	(196)	8
	2nd Fifth or Lower	- (5)	76 (43)	(48)	10
	N.A.	- (8)	62 (24)	(32)	25
N.A.		- (0)	- (10)	(10)	0
	Total . .	(57)	(401)	(458)	14

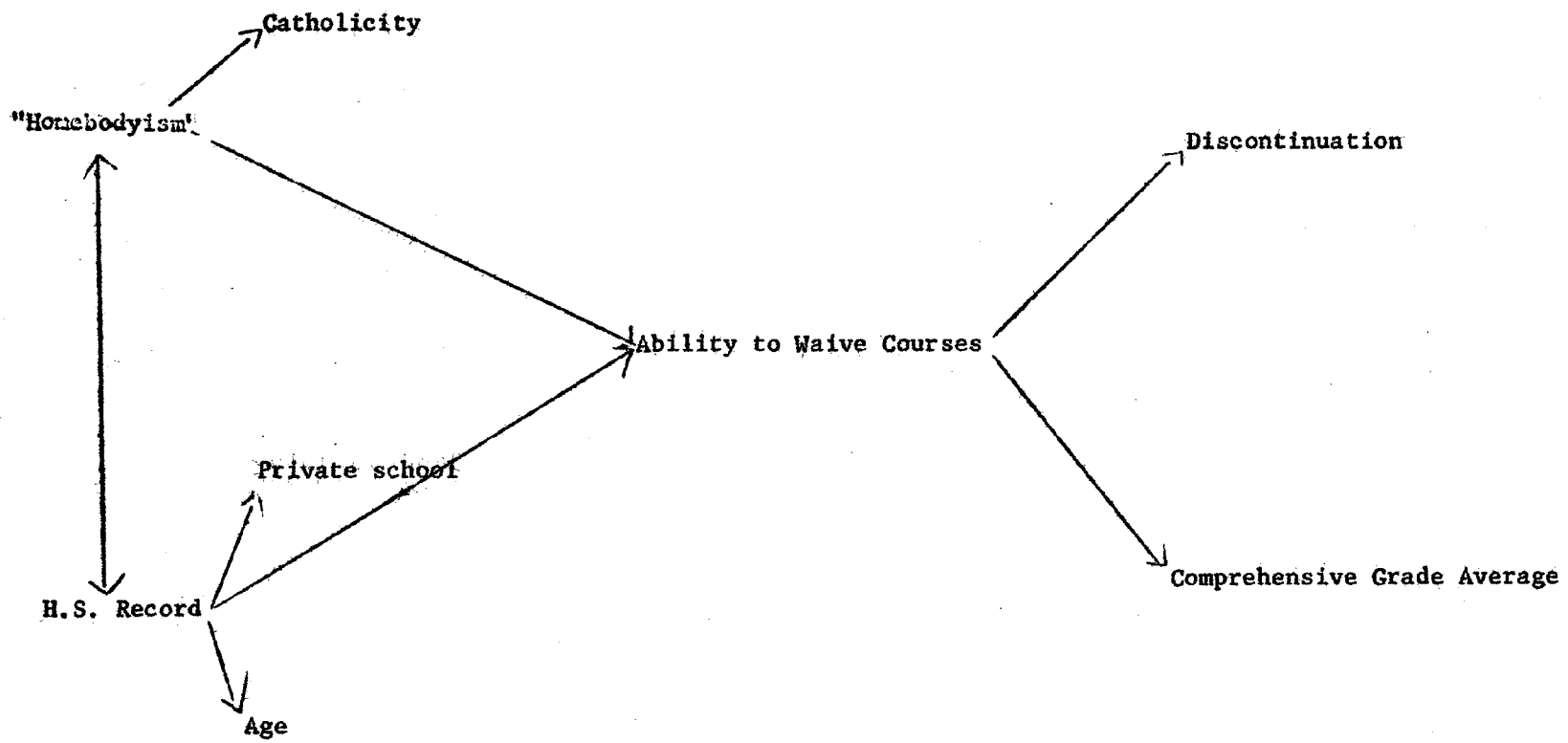
To our new schematic drawing we can now add these interrelationships between high school rank, high school type, and age. What we see in Chart 5, then, are the conclusions we reached above transposed to symbolic relationships.

a) Both home bodyism and rank in high school influence the outcome of students by being associated with the ability to waive courses; but home bodyism and high school standing also influence each other.

b) The offshoots of "home bodyism" and high school record are factors that originally were associated with outcome because of an "accidental" distribution--older students and students from private high schools just happened to be largely from the lower ranks of their graduating class and Catholic students happened to be primarily "home bodies"--these characteristics are not intrinsically related to outcome.

CHART 5

THE CORRELATES OF PREPARATION



We have now completed the picture in regard to the background characteristics which are associated with aptitude or the ability to waive courses, but we still have to examine the factors which contribute independently to academic success, namely, the number of siblings, father's occupation, mother's occupation, and mother's education.

C. Number of Siblings, Father's Occupation, Mother's Occupation and Education.

1) Number of Siblings.

The association of the number of siblings with the probability of early discontinuation is more easily calculated than understood. In the first place, we should remember that the number of siblings had no effect at all on the probability of achieving a successful grade average. In the second place, there is a notable absence of association between number of siblings and any of the other factors affecting discontinuation. Our explanation of the effect this characteristic has on outcome must consequently stand or fall with our ability to relate this to the ability to waive courses.

If the level of previous preparation were an important factor, we would expect to be able to explain our original relationship by the fact that a significantly greater proportion of only children waived courses. But this is not the case--only children were no more likely to waive courses than those with any number of siblings.

TABLE 29

NUMBER OF SIBLINGS AND COURSES WAIVED

Number of Siblings	N	Per cent Waiving Courses
None.	75	73
One	180	71
Two or more	188	73
N.A.	15	40
Total	458	71

The degree of previous preparation does make some difference, however, When we hold this factor constant by controlling the number of courses waived, we find that being an only child leads to a significantly lower probability of discontinuing only among those students who had waived some courses:

TABLE 30

NUMBER OF SIBLINGS, COURSES WAIVED AND DISCONTINUATION PRIOR TO ATTAINING A COMPREHENSIVE GRADE AVERAGE

(Per cent discontinuing)

Number of Siblings	Courses Waived			
	Some	None	N.A.	Total
None	0 (55)	15 (20)	- (0)	(75)
One or more	14 (264)	25 (103)	- (1)	(368)
N.A.	- (6)	- (7)	- (2)	(15)
Total	12 (325)	25 (130)	- (3)	(458)

In table 30 we see that none of the fifty-five only children who waived some courses discontinued before they compiled some comprehensive average as opposed to approximately eight out of every fifty-five students with one or more siblings.

Among those who waived no courses, though, the difference in the proportion discontinuing is not statistically greater than that which would result by chance variation. We can only conclude, then, that while the ability to waive courses does not explain the association of only children with a lower probability of discontinuation, it does specify that this relationship applies solely to those only children with a higher level of previous preparation. Since there are no other associated explanatory factors, we are left with the fact that among those with a relatively high degree of previous preparation, only children were less likely to discontinue than students with any number of siblings--a tantalizing but, within the scope of our data, inexplicable finding.

2) Father's Occupation, Mother's Occupation and Mother's Education.

Three characteristics had no effect on the probability of discontinuation but were associated only with the probability of achieving a successful grade average: father's occupation, mother's occupation, and mother's education. Unlike the previous relationship, we see that these three characteristics are associated with academic performance regardless of number of courses waived. In other words, they were the only factors which contributed directly to academic performance independently of the level of previous preparation. It would doubtless be of great value to find one pattern which would subsume all of them.

As a step in this direction it is apparent that the occupational status of the mother will be associated to some degree with her educational level. Similarly, the father's occupational status is very likely to be related to both of these characteristics of his wife. It is not surprising, then, that when we examine our original dichotomies (Professional and White-Collar vs. Blue-Collar Father, Professional vs. Non-Professional Mother, and College Graduate vs. Non-College Graduate Mother), we find that only four of the eight possible combinations occur with any great frequency:

Type I: Father is a Blue-Collar worker, Mother is not a college graduate and not professionally employed. This type accounted for twenty-two per cent of the class.

Type II: Father is a White-Collar worker or a Professional man, but Mother is neither a college graduate nor a Professional. Type II contained forty-two per cent of the class.

Type III: Father is a White-Collar worker or Professional and although Mother is a college graduate, she is not a Professional. Fourteen per cent of the class fell in this category.

Type IV: Father is a White Collar or Professional person, and Mother is both a college graduate and a Professional. This type accounted for nine per cent of the class.

All other combinations of the three original dichotomies accounted for only two per cent of the total class. There were no data for eleven per cent. The fact that this typology is ordered on the basis of the possession of the "positive" attributes, plus the fact that it is very inclusive, will allow us to think of it as a scale where Type I is "low" and Type IV is "high."

Since none of the three characteristics taken individually related to previous preparation, we would not expect these combinations of them to do so. Nonetheless, the degree of similarity is quite striking in view of the vast range of parental backgrounds represented by this scale:

TABLE 31

PARENTAL CHARACTERISTICS AND COURSES WAIVED

Parental Type	Per cent Waiving Courses	N
I	75	99
II	72	194
III	76	63
IV	77	43
Other and N.A. .	53	59
Total . . .	71	458

If nothing more were known than the facts that these types had practically identical levels of preparation and that there were no significant differences in the probability of discontinuing at this stage, there would be no reason to expect any difference whatsoever in quality of academic performance. When the comprehensive grade averages for each of these types are examined, then, it is not only surprising that there is a difference but that the pattern of the difference is so consistent; regardless of previous preparation, the "higher" the type of parental background the greater the proportion achieving an average of C or better.

TABLE 32

PARENTAL CHARACTERISTICS, COURSES WAIVED, AND COMPREHENSIVE GRADE AVERAGE FOR THOSE NOT DISCONTINUING

(Per cent with average of C or better)

Parental Type	Courses Waived			
	Some	None	N.A.	Total
I	65 (61)	26 (19)	- (0)	(80)
II	79 (123)	41 (39)	- (1)	(163)
III	83 (42)	58 (12)	- (0)	(54)
IV	94 (31)	- (9)*	- (2)	(42)
Other and N.A. . .	75 (28)	34 (18)	- (0)	(46)
Total remaining				(385)
Previously discontinued				(73)
Total				(458)

*Although it would be misleading to percentage such a small number, eight of the nine students in this cell attained a C or better average.

One major point worth remembering in evaluating the above table is that this typology is built mainly on differences in the characteristics of the mother--the only major difference for the father was found to be the distinction between the Blue-Collar and White-Collar occupational categories; his educational level could hardly have been of less importance. Thus, the typology probably does not represent a socio-economic scale as much as it does a scale of mother's "cultural level." The socio-economic differences are in the main limited to the difference between Types I and II, where we can see the effect of the manual-non-manual distinction. However, even between these two types, it is difficult to rule out the possible importance of the mother's cultural level.

In any case, we can see that the role played by the mother's occupational and educational level is consistent in its effect on academic performance

regardless of the degree of previous preparation. In fact, the role played by previous preparation is of decreasing importance as we move up the scale. Subtracting the proportion of the "none waived" who achieve a C or better average from the proportion of the "some waived," we find a thirty-nine per cent difference for the students in Type I, a thirty-eight per cent difference for Type II, and only a twenty-five per cent difference for Type III. (Keeping in mind the small number of cases we might note that the difference would be six per cent for Type IV.)

In other words, at the bottom end of the scale those students who were unable to waive any of the course requirements and who stayed around long enough to accumulate a grade average had only one chance in four of achieving a successful one, while the same type of student with a higher level of preparation had about two chances out of three. At the other end of the scale, though, we find the effect of mother's cultural level is more than enough to compensate for the level of preparation. By combining Types III and IV, we find that those students who were unable to waive some course requirements had the same probability of receiving a successful average as the Type I student with a higher level of preparation.

The importance of the effect of the mother's cultural level has been given some emphasis in the literature. In referring to the probability of getting to college in the first place, Edmund G. King observes that

> ...all experimental evidence that I have ever seen points to the fact that the level of mother's education is more important than either the father's education or the family income in predicting whether or not the child will go to college.[6]

Similar findings by Elizabeth Cohen are reported by Bendix and Lipset. On the basis of a study of 100 working-class high school boys matched for I.Q.,

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[6]Edmund G. King, "Talent Hunting Efforts By Colleges," In The Search for Talent, The College Entrance Examination Board, New York, 1960, p. 92.

ethnicity, and high school, Miss Cohen found that the family background of the mother before marriage was an important determinant of the probability that her sons would go on to college: "Eighty per cent of those sons whose mother had a white-collar family background were going to college, compared to only forty-two per cent with mothers of a working-class background."[7]

Our "mother-scale" suggests that in addition to affecting the probability of going to college in the first place, the cultural level of the mother also affects the academic performance of her children as soon as they arrive. At the very least, we can say that this was the case for the incoming freshmen of 1956 at the University of Chicago.

IV. SUMMARY: THE FACTORS AFFECTING OUTCOME IN THE FIRST STAGE

Let us begin to summarize the major factors affecting the first stage of the college career by looking again at the factors affecting discontinuation. In essence we tried to answer two different questions: What are the factors associated with early discontinuation, and how do we account for this association. The nature and extent of these associations were explored in Section II and are summarized more completely in the Appendix. Briefly, we found that there were seven associated factors--four of them were background characteristics which may be viewed as contributing to the increased likelihood of discontinuing: being approximately nineteen or older at entrance, graduating from a private high school, graduating from high school a year or more before entrance, and ranking below the upper fifth of the graduating class. One other characteristic, namely being an only child, was found to be associated with a significantly lower propensity to discontinue. The remaining two associated factors were the ability to waive some courses and having received a scholarship or honors award. In trying to account for these associations we regarded the number of courses waived as a factor of primary importance inasmuch as it is a measure of aptitude and previous preparation.

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[7] Reinhard Bendix and Seymour Martin Lipset, Social Mobility in Industrial Society, The University of California Press, Berkeley and Los Angeles, 1960, p. 238.

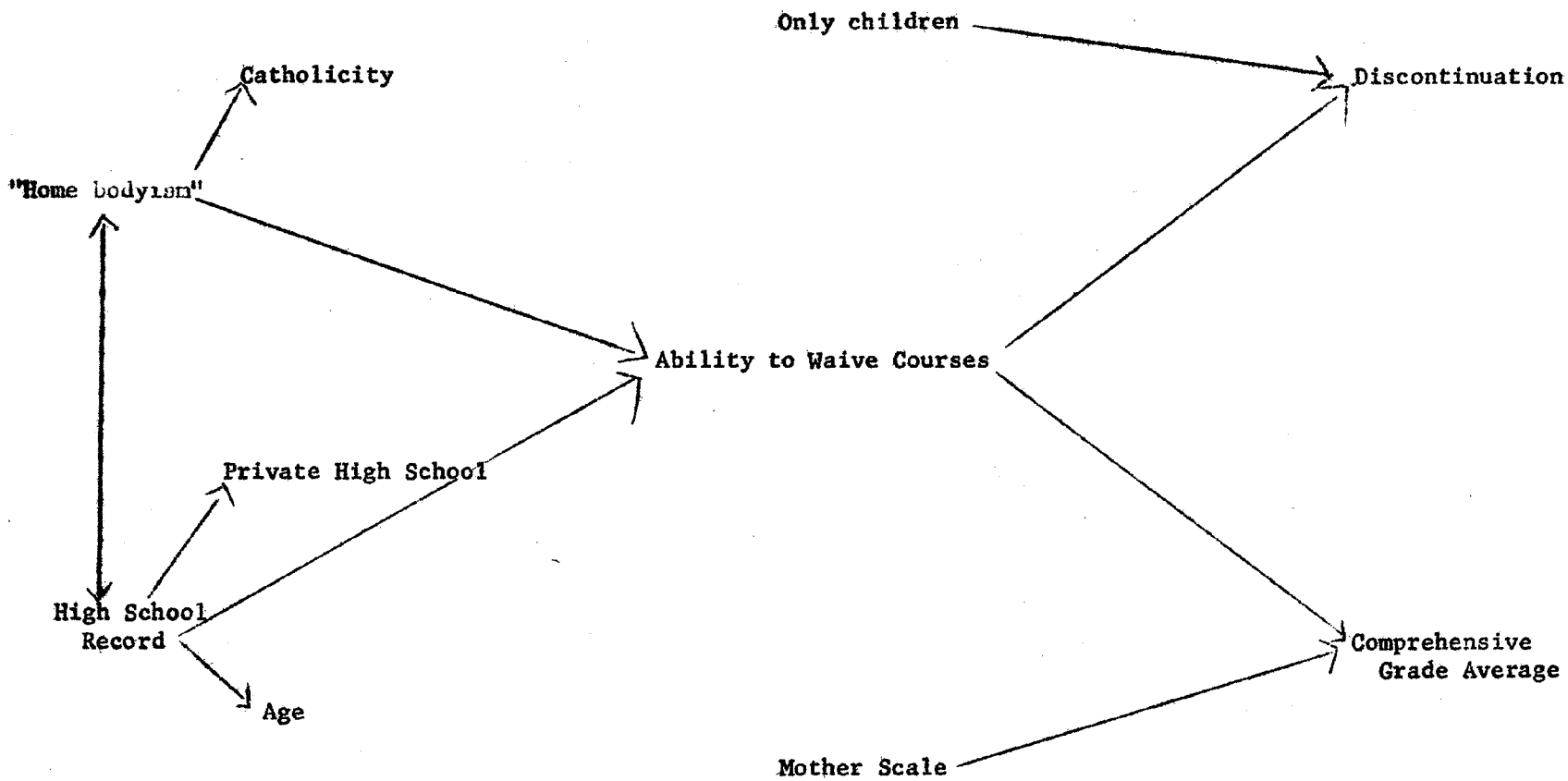
Controlling for courses waived, then, we found that most of our original associations could be accounted for by the fact that they were related to this course waiving ability. When we expanded these factors in greater detail we saw that there is a more indirect chain of relationships: The main factor relating to a low proportion waiving courses is the performance in high school. Being older (or graduating a year or more before coming to college) and being from a private high school are related to discontinuation only to the degree that older students and those from private schools also happened to be characterized by a poorer high school record. This network of interrelationships is demonstrated in the lower left hand "wing" of our familiar schematic diagram below (Chart 6).

The one factor which is not associated with preparation was being an only child. We noted, however, that this attribute lead to a lower rate of discontinuation only for those with a higher level of preparation. Since we could find no other associated factors contributing to this association we had to leave this as an unexplained correlate of discontinuation.

Through much the same procedure we found that for the 385 students who attained a comprehensive average the correlates of receiving successful grades could be largely explained by their association with the ability to waive courses. In the upper left "wing" of our diagram we see that the pattern of these associations with previous preparation was such that there is actually but one primary cluster associated with the lack of preparation--being a native Chicagoan and planning to live at home, with other relatives, or elsewhere other than in the dormitories. This cluster, referred to as "home bodyism" was responsible for the spurious association of Catholicity with a lower probability of success, i.e., the poor performance of the Catholic students probably had nothing to do with their Catholicity but could rather be explained by the fact that a high proportion of the Catholic students also happened to be home bodies.

CHART 6

THE CORRELATES OF OUTCOME



Excluding for the moment then the relationship of only children to low discontinuation we see that the two major factors associated with previous preparation were the academic performance in high school and the degree to which one was a home body--these two factors are interrelated in such a way that controlling for high school performance the home bodies still were less likely to attain a successful average (and controlling for "home bodyism" those of lower rank in high school tend to be less successful).

There were three characteristics which functioned completely independently of the level of previous preparation and were consequently unrelated to courses waived--father's occupation, mother's occupation, and mother's education. We saw that these characteristics formed a scale in which it could be seen that the role of the mother was very important even when the father's occupational level was held constant (we refer to this above as the "mother scale"). In addition to the two major factors associated with level of preparation, then, there is only one which functions completely independently--the "cultural level" of the mother.

In sum, at the most general level there were two major clusters of social factors affecting the outcome of these students in the first stage of their careers: 1) an interrelated set of characteristics associated with the quality of previous preparation, and presumably related to the criteria used in the selection of the class, and, 2) a set of characteristics associated with the general cultural level of the home environment which function independently of the quality of previous preparation. In the next section we will evaluate the effect that these (and other factors) have on the outcome of the remaining members of the class in the next and last stage of their college careers.

V. FACTORS ASSOCIATED WITH OUTCOME IN THE SECOND STAGE

In the stage sequence shown in Chart I (p. 40) we saw that the second stage of the "class history" begins after some comprehensive grade average has been attained.[8] Since 73 students discontinued before they had acquired a comprehensive average there were only 385 students remaining at the beginning of Stage II. Initially, the careers of these 385 students can follow two courses: they either discontinue before they have a divisional level grade average or they remain to achieve a successful or unsuccessful divisional average. The final outcome of the college career is not realized until after a divisonal level average is achieved. At this point the students' college careers end either in graduation, discontinuation, or the blind alley in this study--remaining in residence.

Our task in this section will consequently be to evaluate the extent to which these various outcomes are affected by both the factors which were found to be of importance in the first stage and other factors which were either inapplicable or unrelated to outcome in the first stage. In order to make this task less cumbersome we might look first of all only at the factors affecting the "initial outcome" in Stage II, that is, the factors affecting 1) the probability of remaining to achieve a divisional level average, and 2) the probability (for those who do remain) of achieving a successful divisional average.[9]

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[8] We might note again that since there is both variation in the amount of time taken to attain a comprehensive average (by putting off the comprehensive examinations, for example) and variation in the degree programs such that some students take divisional level courses before others do, the line which delineates the stages cannot be identified with any given point in time. Unlike a strictly temporal criterion, however, (e.g., the completion of two academic years) this divisional criterion allows us to compare students who are homogeneous with respect to the major milestones of their academic careers.

[9] In addition to the following presentation, a summary of these factors and their levels of significance is provided in Appendix III.

VI. FACTORS AFFECTING THE INITIAL OUTCOME IN THE SECOND STAGE

Since the approach we will take here is similar to that taken in the preceding sections, we might begin with a schematic summary of the factors associated with initial outcome in the second stage and then compare this to the summary of factors affecting outcome in the first stage (cf. Chart 2, p. 42).

CHART 7

CHARACTERISTICS ASSOCIATED WITH INITIAL OUTCOME IN STAGE II.

Associated with Discontinuation	Associated with Divisional Grade Average	
	Yes	No
Yes	Courses Waived Comprehensive Grade Average "Homebodyism"	High School Record Intended Major Field Vocational Orientation
No	Religion "Mother Scale"	Sex Father's Education Parents' Marital Status Number of Siblings Scholarship Award High School Type Age

Comparison of Charts 2 and 7 reveals a great deal of change and a basic similarity. While many of the factors which were associated with outcome in the first stage are no longer associated with outcome in the same manner, the key explanatory factors have not undergone much change. For example, the number of courses waived, our index of the level of previous preparation, is still related to both the probability of discontinuing and the probability of achieving a successful grade average. As we might expect, two of the background characteristics which were found to be highly correlated with the ability to waive courses ("homebodyism," and the comprehensive grade average) are also

related to both discontinuation and academic success at the divisional level. Similarly, there is little change in the factors associated only with academic performance. We find again that religion and the "mother scale" (which includes the elements "father's occupation," "mother's occupation," and "mother's education") are still the main factors to be dealt with. On the other hand, the whole cluster of characteristics whose sole effect in the first stage was on the probability of discontinuing, are no longer related to outcome in Stage II. In their place we find two previously insignificant factors: the intended major field and vocational orientation of the student. In short, then, although some of the factors have shifted in their place on the chart, many of the factors which influenced outcome in the first stage are still with us at the outset of the second. The only new items to be included in our explanatory agenda are the two features of the student's academic orientation at the time of entrance: his intended area of specialization, or major field, and his vocational orientation. We will begin with the two factors which were unrelated to outcome in the first stage.

A. Factors Associated with Discontinuation but Not Divisional Grade Average.

1) Intended Major Field.

As we saw previously, discontinuation in the first stage was not related to the major field of the student at entrance. Since the major field was equally unrelated to the comprehensive grade average attained in these various areas, it is doubly surprising that we should now find that this factor did affect the probability of discontinuing after the comprehensive courses were taken. In Table 33 we see the extent of this variation: only 15 per cent of the students planning to major in the Physical Sciences discontinued between Stage I and before attaining a divisional average, but close to half of those planning to major in the Humanities discontinued during this phase. The order of drop-out rates in Table 33 suggests that the proportion discontinuing

increases as the "science-ness" of the subject matter decreases. Rather than assuming the existence of such an underlying dimension, though, it is probably much safer to note that in general the students in the Humanities and Social Sciences were about twice as likely to discontinue in this stage than those in the Natural Sciences.

TABLE 33

MAJOR FIELD AT ENTRANCE (BY DIVISION) AND DISCONTINUATION WITH NO DIVISIONAL GRADE AVERAGE:

Division at Entrance	Number at Entrance	Number Discontinuing in Stage I	Of Those Remaining, Per cent Discontinuing with No Div. G.P.A.	
Phys. Sci. . . .	151	23	15 (128)	19 (208)
Bio. Sci. . . .	92	12	26 (80)	
Soc. Sci. . . .	91	14	34 (77)	37 (110)
Humanities . . .	39	6	45 (33)	
Other and Undecided	85	18	35 (67)	
Total . .	458	73	27 (385)	

2) Vocational Orientation.

The data regarding the students' original vocational orientation were gathered from the responses to the question (paraphrased here): "What are your ultimate vocational plans?" on the form for application to the University. These responses were categorized into the following four major classes on the basis of the educational requirements necessary for the given vocation or career:

1. The Traditional Arts and Sciences: The vocations, or more precisely, professions, in this category consist of the purely academic positions usually requiring the Ph.D. degree.
2. The Major Professions: e.g., M.D., Law, the Ministry, etc.
3. The Semi-Professions: Included here are the vocations usually requiring some post-graduate work, but not to the same degree

as those above. Typical of this category are such vocations as social worker, high school teacher, engineer, etc.

4. Non-Professional and Other Vocations: The varied occupations in this category included all of those usually having no requirements regarding post-graduate education, e.g., "writer," "musician," "artist," "Army officer," "businessman," etc.

Vocational orientation is highly associated with the major field at entrance--88 per cent of those planning to major in the Natural Sciences also planned a career in either the traditional arts and sciences or the major professions while only 26 per cent of those planning to major in the Social Sciences or Humanities were oriented toward this type of occupation. It is thus not surprising that we should also find considerably lower rates of discontinuation among those planning a professional career. In fact, in the table below, we find that students whose vocational orientation leaned toward one of the semi- or non-professional occupations were almost twice as likely to discontinue as those with other vocational orientations.

TABLE 34

ORIGINAL VOCATIONAL ORIENTATION AND DISCONTINUATION WITH NO DIVISIONAL GRADE AVERAGE

Vocational Orientation	Number at Entrance	Number Discontinuing in Stage I	Of Those Remaining, Per cent Discontinuing with No Div. G.P.A.	
Trad. Arts and Sciences	174	26	21 (148)	23 (234)
Major Professions	101	15	27 (86)	
Semi-Professions	41	10	45 (31)	43 (77)
Non-Professional	53	7	41 (46)	
Ambiguous and N.A.	89	15	23 (74)	
Total	458	73	27 (385)	

3) High School Record.

The quality of the high school record, as determined by rank standing in the high school graduating class, is one of the variables whose effect changes. While the high school record was previously associated with the probability of achieving a comprehensive average of "C" or better, the performance in high school is not significantly related to the performance in the divisional courses. However, the high school record is strongly associated with the probability of discontinuing before a divisional average is attained. We see in the table below that four out of every ten who ranked below the upper fifth of their high school graduating class discontinued after having received a comprehensive average, whereas only two out of every ten students of higher rank discontinued in this same phase.

TABLE 35

HIGH SCHOOL RECORD AND DISCONTINUATION

Rank in High School Graduating Class	Number at Entrance	Previously Discontinued	Of Those Remaining, Per cent Discontinuing in Stage II
Upper fifth	294	35	20 (258)
Second fifth or lower	105	26	40 (81)
N.A.	59	12	38 (46)
Total	458	73	27 (385)

B. Factors Associated with Divisional Grade Average.

1) Religion. Unlike the preceding factors, both religion and the other scale are "known entities" in the sense that their association with outcome has undergone no change since the first stage. In Stage I religion affected the comprehensive grade average only insofar as it was associated with the level of previous preparation, while the mother scale operated independently of preparation. Moving somewhat ahead of ourselves, then, it might be noted that

religion had just about the same effect on the probability of achieving a successful divisional average as it did on the probability of achieving a successful comprehensive average, suggesting that the level of preparation was still active as a determinant of academic success in this later stage:

TABLE 36

RELIGION AND DIVISIONAL GRADE AVERAGE

Religion	Number at Entrance	Previously Discontinued	Of Those Remaining, Per cent Achieving a C or Better Divisional Grade Average
Catholic	74	33	68 (41)
Non-Catholic	362	135	79 (227)
Others and N.A.	22	9	77 (13)
Total	458	177	76 (281)

2) Mother Scale.

While religion is related just as highly to academic success at the divisional level as it was at the comprehensive level, the scale of background characteristics diminishes a little in its effect at this later stage. Despite the fact that the extremes of the scale have come much closer together, it is noteworthy that these individual background characteristics taken together still do form a scale, i.e., there is an increasing probability of achieving a successful divisional average as you move from type I to type IV:

TABLE 37

MOTHER SCALE AND DIVISIONAL GRADE AVERAGE

Scale Type*	Number at Entrance	Number Previously Discontinued	Of Those Remaining, Per cent Achieving a C or Better Divisional Grade Average
I	99	38	70 (61)
II	194	81	76 (113)
III	63	22	83 (41)
IV	43	8	89 (35)
Other and N.A.	59	28	77 (31)
Total	458	177	76 (281)

*The definition of the scale types is given on page 70.

C. Factors Associated with Both Discontinuation and Divisional Grade Average.

1) "Homebodyism."

The characteristic referred to as "homebodyism" was defined in the first stage as "being from the greater Chicago area and planning to live at home rather than in the dormitories." The residential intentions were used previously because of the fact that the actual residential history was unavailable for many of the students who discontinued in the very first stages of their college career. However, since some who planned to live in the dorms never lived up to their intentions, and more complete data are available for those who survived the flurry of discontinuation in the first stage, the definition will be altered to specify as "homebodies" only those who were from the Chicago area and never lived in the dormitories. On the basis of this more reliable definition, then, we find that the home bodies were significantly, although not strikingly, more likely to discontinue before a divisional average was established. For those who did go on to establish a divisional record the difference

in the success of these two groups is more noteworthy: while 60 per cent of the remaining home bodies established a divisional average of C or better, over 83 per cent of the other students attained such a level.

TABLE 38

HOMEBODYISM, DISCONTINUATION, AND DIVISIONAL GRADE AVERAGE

Homebodyism	Number Remaining at Outset of Stage II	Of Those Remaining, Per cent Discontinuing Before Attaining a Divisional Grade Average	Of Those Not Discontinuing, Per cent Achieving a C or Better Divisional Grade Average
Home bodies	108	38 (108)	60 (67)
Non-Home bodies . .	260	24 (260)	83 (197)
N.A.	17	0 (17)	76 (17)
Total . . .	385	27 (385)	76 (281)
Previously Discontinued	73		
Total at Entrance	458		

2) Courses Waived.

The primary distinction regarding the number of courses waived is still the large gap between those who waived none and those who waived some of the basic course requirements. We see below that about half of the students who waived no courses but did last through the first stage discontinued before they received grades in some divisional level courses. When we compare this figure to the 20 per cent of the "waivers" who discontinued at this time and consider the fact that this same discrepancy characterized the first stage of the class history, we get some idea of the cumulative effect that the level of preparation has on the probability of remaining in the University: Before a divisional grade average was attained, a total of 30 per cent of the students who originally waived out of one or more course requirements had discontinued. But this seemingly large proportion is dwarfed by the fact that over 60 per cent of the students with no waived courses to their credit departed during the same interval.

TABLE 39

COURSES WAIVED AND DISCONTINUATION

Courses Waived	Number at Entrance	Discontinued in Stage I		Discontinued in Stage II (Before Attaining Divisional Grade Average)		Total Discontinuing Before Attaining Divisional Grade Average	
		Number	Per cent	Number	Per cent	Number	Per cent
None	130	32	25 (130)	47	48 (98)	79	61 (130)
Some	325	39	12 (325)	57	20 (286)	96	30 (325)
N.A.	3	2	- (3)	0	- (1)	2	- (3)
Total . .	458	73	16 (458)	104	27 (385)	177	39 (458)

When we turn to the relationship of preparation to the divisional grade average (Table 40) it becomes apparent that a lower level of preparation does not create as much of a handicap as it did for the comprehensive grade average. In Table 22 (page 56) we saw that 30 per cent more of those with a history of waiving courses attained a C or better comprehensive grade average, while this gap has narrowed to about a 20 per cent difference in the proportion of successful divisional grade averages.

TABLE 40

COURSES WAIVED AND DIVISIONAL GRADE AVERAGE

Courses Waived	Number at Entrance	Total Number Discontinuing Before Divisional Level	Of Those Remaining Per cent Attaining a C or Better Divisional Grade Point Average
None	130	79	59 (51)
Some	325	95	81 (229)
N.A.	3	2	- (1)
Total	458	177	76 (281)

A comparison of Tables 22 and 40 also shows that there were proportionately more successful divisional averages than comprehensive averages. Both this and the narrowing of the gap between the "waivers" and the "non-waivers" is due in part to the intervention of the comprehensive grade average: The rate of attrition is notoriously selective--by weeding out those with unsuccessful grades in the first stage (and this weeding out process reached its apex among those who waived no courses), there are simply fewer weak students remaining long enough to accumulate an appreciable number of low divisional course grades.

3) Comprehensive Grade Average.

As we implied above, the association of the grades achieved in the comprehensive courses to outcome in the second stage is one that will be of particular interest. We saw that in the first stage much of the variation in comprehensive average could be accounted for by the level of previous preparation as measured by the number of courses waived. The only other associated factors that could not be explained as a correlate of preparation turned out to be the cluster referred to as the mother scale. It is not surprising that in this stage we will find that the comprehensive grade average is a factor in and of itself. Thus we find the association of comprehensive grades with discontinuation in Table 41 to be as strong as that of the number of courses waived: 20 per cent of the students who had achieved an average of C or better in their comprehensive courses discontinued before attaining a divisional average as compared to close to half of those students with less than a C average.

The relationship of comprehensive grades to divisional grades is also of major interest. For this reason Table 42 is given in somewhat greater detail, but in general the association is such that for the students surviving to this level, 84 per cent of those who had achieved a comprehensive average of C or better received a comparable divisional average, but only 54 per cent

of the students with less than a C average at the comprehensive level were able to achieve a successful divisional average. While the difference in the divisional performance of these two groups is very significant, it is worth noting that although close to half of the students who started off with comprehensive averages below C discontinued before they attained a divisional average, 54 per cent of the persevering remainder were able to raise their grades to a successful level in their divisional courses.

TABLE 41

COMPREHENSIVE GRADE AVERAGE AND DISCONTINUATION

Comprehensive G. P. A.	Number at Outset of Stage II	Discontinued Before Attaining Div. G.P.A.	
		Number	Per cent
B (3.0) or better . .	78	8	10
C to C + (2.0 - 2.99) .	187	42 (50)	22 (20)
D + (1.99) or less . .	117	54	46
N.A.	3	0	-
Total	385	104	27
Previously Discontinued	73		
Total at Entrance	458		

TABLE 42

COMPREHENSIVE GRADE AVERAGE AND DIVISIONAL GRADE AVERAGE

(Per cent with given comprehensive average attaining given divisional average)

Comprehensive G. P. A.	Divisional G.P.A.			N.A.	Total	
	B (3.0) or Better	C to C + (2.0 - 2.99)	D + (1.99) or Less			
B (3.0) or better . . .	64	29	4	3	100	(70)
C to C + (2.0 - 2.99) .	17	63	17	2	100	(145)
D + (1.99 or less) . .	6	48	44	1	100	(63)
N.A.	-	-	-	-	100	(3)
Total						(281)
Previously Discontinued						(177)
Total at Entrance						(458)

D. Summary.

Among the 385 students who survived to reach a comprehensive grade point average, three characteristics reduced their chances of continuing long enough to attain a divisional grade average: having ranked below the upper fifth of their high school class, intending to enter a semi- or non-professional occupation, and intending to major in the Social Sciences or Humanities. Furthermore, having waived none of the basic course requirements, being a "homebody," or having achieved less than a C comprehensive average not only reduced the chances of remaining long enough to acquire a number of divisional level grades, but also lessened the chances of achieving a C or better average for those who did remain. Two additional factors functioned only to decrease the probability of attaining a successful divisional grade average--Catholics were less likely to achieve a C or better divisional average, and low scores on the "mother scale" reduced the probability of achieving a successful divisional grade average. (These relationships, and their levels of significance, are summarized more completely in Appendix III.)

VII. THE PATTERN OF PREDICTORS OF INITIAL SUCCESS IN STAGE II.

In trying to identify the patterns underlying the relationships of these eight factors to the initial outcome of the second stage, it became obvious that the level of preparation can no longer serve as the single explanatory key. It is still the case that regardless of the other variables controlled, course waivers were less likely to discontinue and more likely to achieve a successful divisional average, but the same relationship also characterizes those who had achieved a comprehensive average of C or better. In other words, instead of one key variable there are two--the level of pre-collegiate preparation and the initial level of achievement in college. Since there is considerably less than a one-to-one correspondence between these two factors, we can profitably evaluate the relative effects of each on the outcome in this phase of the

undergraduate career.

In Table 43 we see that the lowest rate of discontinuation is established by the students who had both waived some courses and achieved a C or better comprehensive grade average. Either having waived no courses or having achieved less than a C average increased the probability of discontinuing to the same extent, while those who had neither waived courses nor achieved a successful comprehensive average were more likely to discontinue than to remain. The comprehensive grade average and the number of courses waived are about equally associated with discontinuation.

TABLE 43

COURSES WAIVED, COMPREHENSIVE GRADE AVERAGE AND DISCONTINUATION
(Per cent discontinuing prior to achieving a divisional grade average)

Courses Waived	Comprehensive Grade Average			Total
	C (2.0) or Better	D + (1.99) or Less	N.A.	
Some	16 (222)	35 (63)	- (2)	20 (287)
None	36 (43)	59 (54)	- (0)	48 (97)
N.A.	- (0)	- (0)	- (1)	- (1)
Total	19 (265)	46 (117)	- (3)	27 (385)
Previously Discontinued				(73)
Total at Entrance				(458)

Even though level of preparation and Stage I performance had already contributed to a pruning out of the weakest grade getters, for those who survive to gain a divisional grade point average, both measures of performance are reliable predictors of divisional grades. Table 44 presents the data. It may be that comprehensive grades make more difference, since the percentage differences are greater in the rows than in the columns, but even after a period of

attrition, and controlling for grades in comprehensives, initial preparation is associated with divisional grades.

TABLE 44

COURSES WAIBED, COMPREHENSIVE GRADE AVERAGE AND DIVISIONAL GRADE AVERAGE

(Per cent achieving a Div. G.P.A. of C or better)

Courses Waived	Comprehensive Grade Average				Total
	C (2.0) or Better		D + (1.99) or Less	N.A.	
Some	87	(186)	58 (41)	- (2)	(229)
None	69	(29)	45 (22)	- (0)	(51)
N.A.	-	(0)	- (0)	- (1)	(1)
Total	-	(215)	- (63)	- (3)	(281)
Previously Discontinued		(50)	(54)	(73)	(177)
Total at Entrance					(458)

The probability of discontinuing prior to the briefest encounter with divisional level courses was almost doubled for those who had either a low level of preparation or a poor comprehensive average, and those who unhappily combined both of these negative characteristics were almost twice as likely to discontinue as those who possessed only one. For the 281 who went on to attain a divisional average, the probability of achieving a successful one was found to be more strongly associated with the previous level of achievement than it was with the level of pre-collegiate preparation.

These two are the major variables associated with outcome in the second stage. Four of the other factors which had a continuing association with outcome (Homebodyism, Religion, High School Record, and the Mother Scale) can be explained by a more intimate relationship with these more "cognitive" elements. Putting it another way, when we control for both the level of previous preparation and the comprehensive average, there are only two factors still related to

outcome in basically the same way: the intended Major Field and the Vocational Orientation. A reversion to the familiar schematic chart seems to be in order. In Chart 8 we see that all of the factors associated with a successful divisional grade average were important only because they were related to the two primary determinants.

CHART 8

CHARACTERISTICS ASSOCIATED WITH INITIAL OUTCOME IN STAGE II, CONTROLLING COURSES WAIVED AND COMPREHENSIVE GRADE AVERAGE

Associated with Discontinuation	Yes	No
Yes	Courses Waived Comprehensive Grade Average	Intended Major Field Vocational Orientation
No		Sex Father's Occupation Parent's Marital Status Number of Siblings Scholarship Award High School Type Age "Homebodyism" Religion "Mother Scale" High School Record

The relationship of Homebodyism, Religion, High School Record and the Mother Scale to outcome in the second stage leaves us with some perplexing questions. It is fairly clear from Section III that three of these factors were operative because of their association with the level of preparation. Thus both those who had been below the upper fifth of their high school class and those who were home bodies were less likely to establish a successful outcome because they were, by and large, insufficiently prepared. Catholic

students were subjected as it were to guilt by association--that is, they were more likely to achieve a poor comprehensive grade average because they tended to be home bodies. At this juncture, then, we begin with the past academic history, including the comprehensive average. Granted the association of the level of preparation and achievement with the probabilities of both remaining to the divisional level and achieving a successful divisional average, the relatively poor performance of Homebodies, Catholics, and students with bad high school record follows from the pattern of relationships already laid down. Similarly, the mother scale was of particular interest because it was highly predictive of the grade average achieved in the comprehensive courses. Its association with the divisional grade record follows from this previous association and consequently disappears when this factor is controlled.

Of more interest are the two factors which are related to the probability of discontinuing independently of the number of courses waived or the comprehensive grade average.

A. Intended Major Field and Vocational Orientation.

Although in Stage I, potential science majors had the same proportion of successes and failures as their friends who planned to study in Social Sciences and Humanities, in Stage II anticipated major field is associated with drop-out rates. Only 15 per cent of the Physical Scientists dropped out between Stage I and the divisional grade point average, while 45 per cent of the prospective Humanists departed.

Perhaps differences in preparation and previous academic success can explain this difference. If so, we would have to find that science majors had better preparation and/or got better grades on the comprehensives. Table 45 provides the necessary information.

TABLE 45

INTENDED MAJOR FIELD, COURSES WAIVED AND COMPREHENSIVE GRADE AVERAGE
(Per cent achieving a C or better average)

Major Field	Courses Waived						Total	Per cent Waiving Courses
	Some		None		N.A.			
Nat. Sci.	77	(166)	38	(42)	(0)		(208)	80
Hum. - Soc.	82	(76)	56	(34)	(0)		(110)	69
Other and Undecided . .	76	(45)	38	(21)	(1)		(67)	68
Previously Discontinued							(73)	
Total at Entrance							(458)	

The answer is "yes and no." Prospective scientists were better prepared for work in the College--80 per cent of them waiving a comprehensive course as compared with 69 per cent of the non-scientists. However, among groups similar in preparation, the scientists tended to have slightly lower comprehensive grade point averages. Obviously we cannot explain the scientists' adhesion to the University in terms of their higher comprehensive grades, since they got lower grades. If academic factors explain the divisional difference, it must come from preparation, not achievement during the first two years.

TABLE 46

INTENDED MAJOR FIELD, COURSES WAIVED, AND DISCONTINUATION
(Per cent discontinuing before achieving a divisional average)

Major Field	Courses Waived						Total
	Some		None		N. A.		
Nat. Sci.	12	(166)	50	(42)	(0)		(208)
Hum. - Sci.	40	(76)	44	(34)	(0)		(110)
Other and Undecided . .	31	(45)	53	(21)	(1)		(67)
Previously Discontinued							(73)
Total at Entrance							(458)

Table 46 shows divisional differences in Stage II drop-outs, controlling for courses waived, but it also refuses to give a clear "yes" and "no" in answer to our question as to whether academic factors explain the divisional difference in drop-out. Table 47 esentially says that among prospective science majors who were well prepared, Stage II drop-out rates were very low, but among the other three types there isn't much difference. Such a table can be interpreted two different ways:

a) In Natural Science, level of preparation makes a big difference, while it is unimportant in other fields.

(or)

b) Among the better prepared students, prospective field of study makes a big difference, but among those with low levels of preparation, field of study has no effect.

We lean toward the first interpretation, not only because it is more final (if we picked the second interpretation we would be obliged to find what factors explain the divisional differences among better prepared students) but because we have some slight further evidence on differential effects of academic variables by division.

Table 47 gives the Stage II drop-out rates by intended major, courses waived, and comprehensive grade point average simultaneously.

TABLE 47

INTENDED MAJOR FIELD, COURSES WAIVED, COMPREHENSIVE GRADE AVERAGE AND DISCONTINUATION

(Per cent discontinuing before attaining a Divisional G.P.A.)

Courses Waived	Comprehensive Grade Average	Intended Major Field (by area)				Total
		Nat. Sci.		Hum. & Soc.		Other & Undecided		
Some . . .	C or better	8	(126)	27	(62)	26	(34)	(222)
	Less than C	24	(38)	57	(14)	45	(11)	(63)
	N.A.	-	(2)	-	(0)	-	(0)	(2)
None . . .	C of better	44	(16)	26	(19)	-	(8)	(43)
	Less than C	54	(26)	73	(15)	54	(13)	(54)
	N.A.	-	(0)	-	(0)	-	(0)	(0)
N.A. . . .	-	-	(0)	-	(0)	-	(1)	(1)
Total								(385)
Previously Discontinued								(73)
Total at Entrance								(458)

The case bases in Table 47 are very small and unreliable, but we can rearrange the information to illustrate a suggestive pattern.

TABLE 48

PERCENTAGE DIFFERENCE IN RATES OF DISCONTINUATION IN STAGE II BETWEEN THOSE PLANNING TO MAJOR IN THE NATURAL SCIENCES AND THOSE PLANNING TO MAJOR IN SOCIAL SCIENCE OR HUMANITIES, BY COURSES WAIVED AND COMPREHENSIVE GRADE AVERAGE

(Per cent discontinuing in Soc. Sci. and Hum. minus per cent discontinuing in Nat. Sci.)

Number of Courses Waived	Comprehensive Grade Average	
	C or Better	Less than C
Some	19	33
None	18	29

The entry in Table 48 is a percentage difference. Thus, the 19 in the upper left corner of the table means that among students with better grades and better preparation, the drop-out rate in Humanities and Social Science is 19 percentage points higher in Humanities and Social Sciences. The key cells in the table are the upper right and lower left, which contrast students with better preparation and worse grades with students who have better grades and worse preparation. What the numbers tell us is that for students with better preparation and worse grades, drop-out rates are higher in Humanities and Social Sciences--but for students with better grades and worse preparation, the drop-out rate is higher in Natural Science. In each comparison the divisional differential is greater for those with poor grades and less for those with poor preparation, but we should reiterate the statistical unreliability due to the small case bases from which this table was derived.

Thus, these data suggest that preparation makes more difference in drop-outs for students who intend to concentrate in the Natural Sciences, comprehensive grades make more difference in drop-outs for students who intend to concentrate in the Social Sciences and Humanities.

Actually, no firm conclusions of any type are justified. The divisional difference in drop-outs does not hold when academic performance is controlled, neither does it vanish. We cannot say that the divisional difference is independent of academic performance (since among low preparation--high grade average students, natural scientists have higher drop-out rates), nor can we say that it is explained by academic performance (since, among the other three types natural scientists still have lower attrition rates).

This pattern makes itself evident again when we examine the original vocational orientation. Previously, we found not only that the person anticipating a career in the traditional arts and sciences or major professions was more likely to remain to the divisional level, but also that the vast majority of people planning a Natural Science major had such career aspirations. Whether the vocational orientation was actually a salient factor in and of itself or was merely related to outcome because of this association, was then a matter of conjecture to be tested later by comparing the rates of discontinuation for given major fields and vocational orientations. When this is done now, we find that both alternatives are partly correct. In other words, the vocational orientation appears to be a salient factor, but only for those with an anticipated major field in the Natural Sciences:

In Table 49 the interaction of major field and vocational orientation is shown fairly clearly. The one foggy spot is the "ambiguous and N.A." category which includes a large proportion of people who indicated an orientation toward "teaching" without leaving any clues as to whether they planned to teach

at the university or elementary and secondary level. If this group is excluded from the analysis we see that there is very little difference in the rates of discontinuation except for the fact that those who were both in the Natural Sciences and oriented toward one of the professional careers were significantly less likely to discontinue.

TABLE 49

INTENDED MAJOR FIELD, VOCATIONAL ORIENTATION AND DISCONTINUATION
(Per cent discontinuing before attaining a divisional G. P. A.)

Intended Major Field	Vocational Orientation						Total
	Trad. A. & S., Major Prof.		Semi- and Non-Prof.		Ambiguous and N.A.		
Nat. Sci.	18	(185)	50	(10)	8	(13)	(208)
Soc. Sci. & Hum. . .	43	(28)	41	(46)	28	(36)	(110)
Other & Undecided . .	38	(21)	43	(21)	24	(25)	(67)
Previously Discontinued							(73)
Total at Entrance							(458)

In sum, then, the intended major field and vocational orientation taken together specify the type of student who was least likely to discontinue in the interim between the establishment of a comprehensive and divisional grade average. When we control for the level of preparation and the comprehensive average this person turns out to be one who had waived some of his course requirements on entrance, planned to major in the Natural Sciences and utilize his education for the attainment of an academic or professional career. Interestingly enough, an unsuccessful grade average at the comprehensive level did not increase the probability that he would discontinue before he had been able to take several divisional level courses.

B. Summary: The Factors Affecting the Initial Outcome of the Second Stage.

At the outset of the second stage the class of 1956 consisted of the 385 students who had remained in residence long enough to have achieved some sort of average grade for their work at the comprehensive level. The question to which we addressed ourselves was twofold: which of these students were most likely to discontinue before they even "got their feet wet" at the divisional level, and, of those who plunged forward, which students were most likely to be successful?

In answer to the first part of this question we saw that most of the factors which were associated with discontinuation in this stage were also salient in the discussion of discontinuation in the first stage. Thus we saw again that the students who had waived none of the basic course requirements were more likely to discontinue than those who had waived some. Similarly, students who were "home bodies," or had graduated below the upper fifth of their high school class, or had achieved less than a C comprehensive average, were also more likely to discontinue. The only new factors associated with the probability of discontinuing were the intended major fields (those planning to major in the Natural Sciences were less likely to drop out than other students) and the general vocational orientation (students planning an academic or professional career were less likely to drop out).

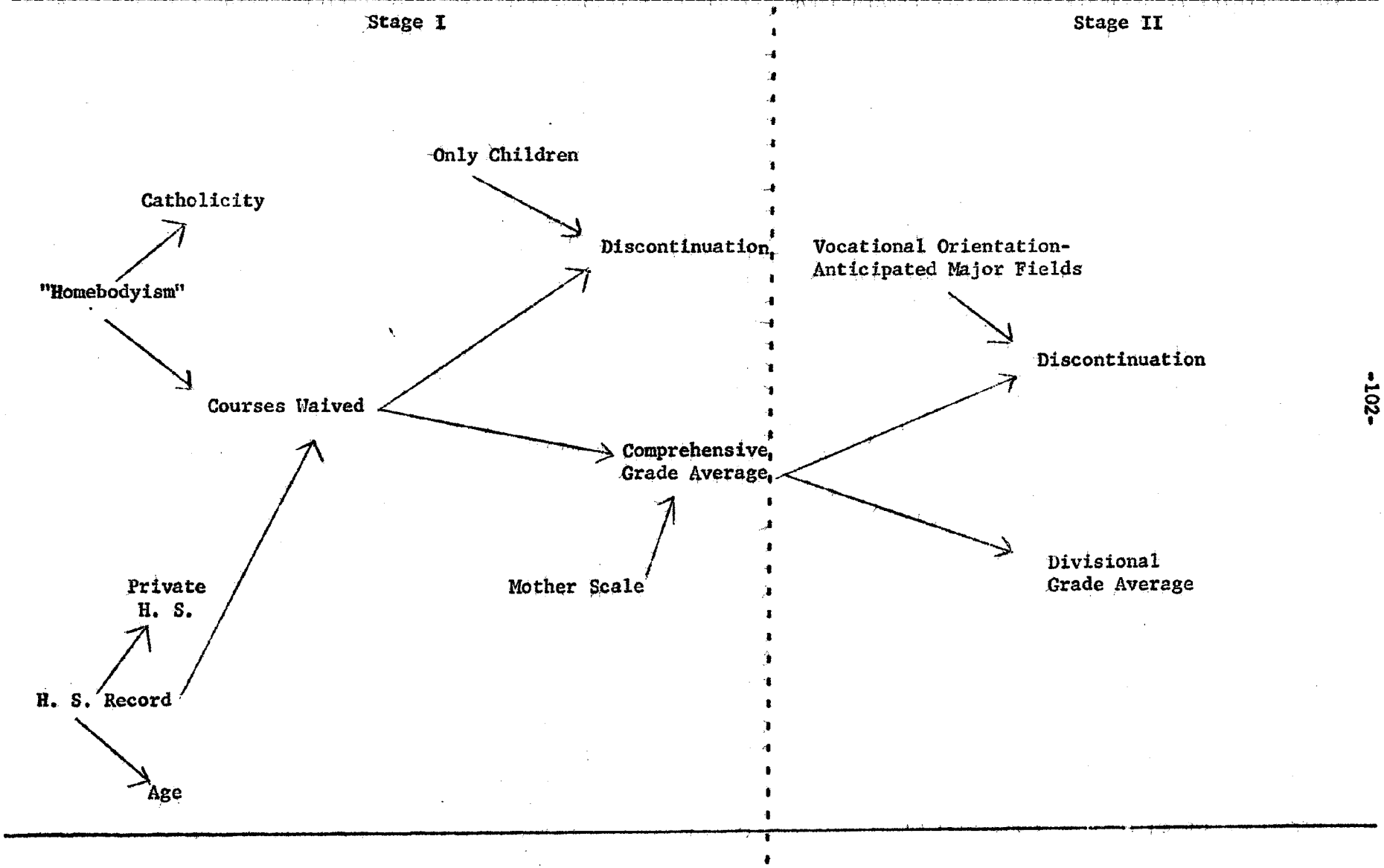
When we attempted to find a pattern to these relationships, the first step was to see whether or not the level of preparation was still the key variable, as it proved to be in the first stage. Since we had already seen that this presumed measure of the level of preparation was strongly associated with the ability to achieve a successful comprehensive average, we expected the comprehensive grade point average to be a relatively good predictor of discontinuation, and we found that the comprehensive grade average was associated with the probability of discontinuing in this stage independently of the number of courses waived. Thus the students who had demonstrated a higher level of preparation were less likely to drop out regardless of their actual achievement, and those who had achieved a successful grade average were less likely to drop out regardless of their level of preparation--the students who fortunately combined a high level of preparation

with a high level of achievement were least likely to drop out in this stage. These two factors taken together accounted for the fact that both the students who had placed lower in their high school class and the "home bodies" were much more likely to discontinue; i.e., the home bodies and those with lower high school records had lower levels of preparation and lower records of achievement on the comprehensive exams.

Neither the level of preparation nor the comprehensive grade average alone were sufficient to account for the fact that both students planning to major in the Natural Sciences and those planning a professional career were less likely to discontinue. In trying to account for this we found that both of our major explanatory variables were still operating; but they operated differently depending largely upon the orientation of the student. In short, the level of preparation appeared to be the major determinant of discontinuation for the potential natural scientists, while the actual comprehensive average attained served to be the criterion for discontinuation among the Humanists and Social Scientists. Vocational orientation proved to be highly correlated with the intended major field so that by considering all of these factors together we were able to show that there was one type of student for whom discontinuation was very improbable--namely, the well prepared student who planned not only to major in the natural sciences but to follow an academic or professional career within this major field of interest. For this person we saw that the comprehensive grade average was of little importance in deciding his immediate fate--the unsuccessful students among them were no more likely to discontinue than the successful. We shall see in the next section that this resistance to discontinuation does not hold after the divisional grade average has been attained, but this fairly remarkable finding can nonetheless be inserted into our schematic pattern even if it must be restricted to this particular stage. In Chart 9, then, we see that there were three factors affecting the likelihood of discontinuing in this stage: 1) intended major field and vocational orientation; 2) the number of courses waived; and 3) comprehensive grade average.

CHART 9

THE PATTERN OF THE PREDICTORS OF OUTCOME



Turning to the factors associated with academic success, we found that the number of courses waived and particularly the comprehensive average, were again the major factors. Thus, while the comprehensive grades appeared largely to be determined by the number of courses waived, the comprehensive grade average was, in and of itself, a more salient factor affecting the probability of continuing success. The three other factors (Homebodyism, Religion, and the Mother Scale) related to the divisional grade average were, in fact, only relevant because they were associated with the level of preparation and/or the record at the comprehensive level. In the chart above, then, we see that there are only two factors directly associated with the probability of achieving a successful divisional average: the number of courses waived and the comprehensive average.

VIII. FACTORS AFFECTING THE FINAL OUTCOME IN THE SECOND STAGE

There are three major reasons for treating the final outcome of the class as a separate part of the second stage. In the first place this allows us to evaluate the entire history of the performance of the students in both their comprehensive and divisional courses. In the second place the limited nature of our data would not otherwise permit a logically consistent evaluation of the change that occurs on several important dimensions. For example, our data regarding the major field and vocational orientation were gathered at only two points in time: shortly before admission to the University (gathered from the initial application form) and at the end of the college career (whether this end came about by graduation, discontinuation, or remaining in residence). Between these two points many changes came about, but it is impossible from our data to delineate at just what point. Thus, in the last section, one factor that would have been of more than passing interest in its relationship to the divisional grade average would be the division in which the grade average was

attained, but since we have no data on the time at which the many switches in major field occurred, we had to satisfy ourselves with the "intended major field." By treating this final stage as a discrete unit, then, we at least have the advantage of knowing that these changes had occurred sometime in the past. Additionally, there were some data (e.g., the history of the number of student activities engaged in) available only at the terminus of the college career which could not logically have been introduced prior to this time.

There is still one logical difficulty left for an analysis of the determinants of final outcome, though--namely the fact that for a sizable number of students (88) the final outcome is unknown. These are the students who had spent four years in residence and should normally have graduated in the Spring of 1960 but who for various reasons did not graduate. Within our data there is no way of determining whether these students eventually received a degree or came to their final resolution by discontinuing after the Spring quarter. Because of this built-in ambiguity, then, we will concentrate on the factors which differentiated the "drop-outs" from those who remained and outline in brief some of the factors differentiating those who remained in residence from the graduates.[10]

A. Discontinuation in the Last Stage.

If we were to look for the "typical" case of discontinuation in this very last stage, we would find a number of factors relevant to our typology. For example, sex would be of importance because we would find males to be more likely to discontinue than females. Similarly, both the comprehensive and divisional grade averages would have to be taken into account because of the higher rate of discontinuation of those with lower grades. As if to upset our previous findings, the intended major field, as well as the actual major field

[10]The ten students who graduated "ahead of schedule" will not be analytically distinguished from the rest of the graduates.

in the final year, are now of special interest because students in the Natural Sciences were more likely to discontinue in this stage than those in the Humanities or Social Sciences. The same reversal applies to the original vocational orientation--students originally planning semi- or non-professional careers were the least likely to discontinue. In addition, we would find that although the "mother scale" as such is unrelated, students whose mothers had graduated from college were less likely to discontinue than students with less highly educated mothers. One previously inapplicable factor also can be brought to bear in this stage: we find that students who had never been members of a recognized student activity were more likely to discontinue.

Although this seems to be a formidable array, there are several factors which are notable in their absence, the place of residence in the final year, for example. Students living in apartments were no more likely to discontinue than those living in dormitories, home bodies were no more likely to discontinue than non-home bodies. In the same vein, married students were no more likely to discontinue than single students and students who held part-time or full-time jobs in their final year were no more likely to discontinue than those who were unemployed (although the few job holders who were employed for more than twenty hours per week were significantly more likely to discontinue than those who worked less). The level of preparation also made little difference in this stage, the few remaining students who had waived no courses were no more likely to leave than those with a higher level of preparation.

In sum, then, the factors which differentiate the student who discontinued in this stage are eight in number--a student was more likely to drop out if: 1) he was male, 2) he had never been a member of a student activity, 3) his mother had less than a college education, 4 and 5) he had attained less than a C average at either the comprehensive or divisional level, 6 and 7) he had intended to major in the Natural Sciences or had actually ended up with a

Natural Science major, and 8) he had originally intended to go into an academic field or major professional occupation. The relationships of some of these factors are quite familiar and unsurprising. On the other hand, it is not clear why non-membership in student activities or being male should, in themselves, be related to discontinuation. Neither does it seem reasonable to find that at this stage students who planned to major in the Natural Sciences and those who planned a professional career should be most likely to discontinue. In order to facilitate an explanation, the relationship of each individual factor with outcome are presented in Appendix IV. Below we will attempt to find the patterns emerging from the inter-relationships of these factors.

B. The Pattern of Predictors of Discontinuation in the Final Stage.

Of the eight factors associated with discontinuation, the most important are probably the two grade averages--regardless of the other factors controlled, the level of academic performance consistently discriminates those who were most likely to discontinue from those who were most likely to remain, although, as we shall see, these factors cannot, in and of themselves, explain all of the others. There is a great deal of association between the comprehensive and divisional grade averages. Consequently the majority of the 281 students surviving to this stage have achieved at least a C average at both levels. By looking at these two factors simultaneously, though, we can see not only that the keynote of discontinuation is a consistently low average, but also that those whose averages fell to below C at the divisional level were more likely to discontinue than those who were successful in raising an initially low average to C or better. In other words, while both averages were ultimately important correlates of outcome, the divisional grade average was somewhat the more decisive of the two:

TABLE 50

COMPREHENSIVE AND DIVISIONAL GRADE AVERAGES AND DISCONTINUATION IN THE FINAL STAGE

(Per cent discontinuing)

Comprehensive Grade Average	Divisional Grade Average			Total
	C (2.0) or Better	D + (1.99) or Less	N. A.	
C (2.0) or better	14 (182)	36 (28)	- (5)	(215)
D + (1.99) or less . . .	21 (34)	54 (28)	- (1)	(63)
N. A.	- (0)	- (0)	- (3)	(3)
Previously Discontinued				(177)
Total at Entrance				(458)

1) Level of Mother's Education and Activity Membership.

Given the importance of the grade averages for predicting the probability of discontinuation, our next logical question would be to ask which of the remaining factors can be explained in terms of their association with the level of academic importance. We would expect the mother's educational level to be in this category since this (being an essential characteristic of the "mother scale") was previously shown to be related to both the comprehensive and divisional grade averages. However, since the total number of students with college graduate mothers is relatively small and the proportion of them achieving an unsuccessful average is smaller still, there are simply not enough cases to fruitfully examine the entire history of academic performance. Short of this, we can use the divisional average alone as our control factor. In Table 51, then, we see that the grade average does seem to account for the higher rate of discontinuation among those whose mothers had less than a full college education, although the children of mothers with a higher level of education were relatively unlikely to discontinue regardless of their grade average. Thus

the level of academic performance doesn't completely account for the association of mothers' education and discontinuation but it does specify that discontinuation is a probable outcome only for the students who were not only unsuccessful but who were also from families where the mother had less than a college education. In sum, while the mother's educational level helped to define the probability of achieving a successful grade average in the first place (even independently of the number of courses waived) we find that in the very last stage of the college career, the student raised by a college graduate mother was unlikely to discontinue even if he actually had achieved an unsuccessful grade average.

TABLE 51

LEVEL OF MOTHER'S EDUCATION, DIVISIONAL GRADE AVERAGE AND DISCONTINUATION

(Per cent discontinuing)

Level of Mother's Education	Divisional Grade Average			Total	Per cent C or Better
	C (2.0) or Better	D + (1.99) or Less	N. A.		
College graduate	13 (62)	20 (10)	- (1)	14 (80)	86
Less than college graduate	16 (142)	51 (43)	- (8)	24 (193)	74
N. A.	-	-	-	- (8)	-
Previously Discontinued				(177)	
Total at Entrance				(458)	

We can apply this finding to the relationship of activity membership and discontinuation. Although the large number of students for whom no data were available allowed no definitive use of this factor as an independent variable, activity membership did not appear to be related in and of itself to the probability of achieving a divisional grade average. Nevertheless, in routinely controlling for the divisional grade average, results very similar to

those regarding the level of mother's education were obtained, i.e. of those for whom data were available, the only group displaying a high rate of discontinuation were those who were never members of a recognized student activity and had also received less than a C divisional average. Additionally, controlling for the level of mother's education, then, we see that the students who were never activity members were no more likely to discontinue than those who were active in a student organization. The fact that the non-members were more likely to discontinue can be largely explained by the fact that the non-members were more likely to be the academically unsuccessful children of mothers who had never completed college. Thus, while only ten per cent of the members fell in this category, about 22 per cent of the non-members did.

In and of itself, this seems to be a very interesting finding, but we must caution that this generalization is limited by two important factors: in the first place, it is based only on the students who survived through the divisional level; in the second place, there were no data available for over 30 per cent of these survivors. It is impossible to say with any degree of certainty that the students who were activity members were either more likely to have higher grade averages or more likely to have come from a home where the mother was a college graduate.

TABLE 52

LEVEL OF MOTHER'S EDUCATION, DIVISIONAL GRADE AVERAGE, ACTIVITY MEMBERSHIP AND DISCONTINUATION

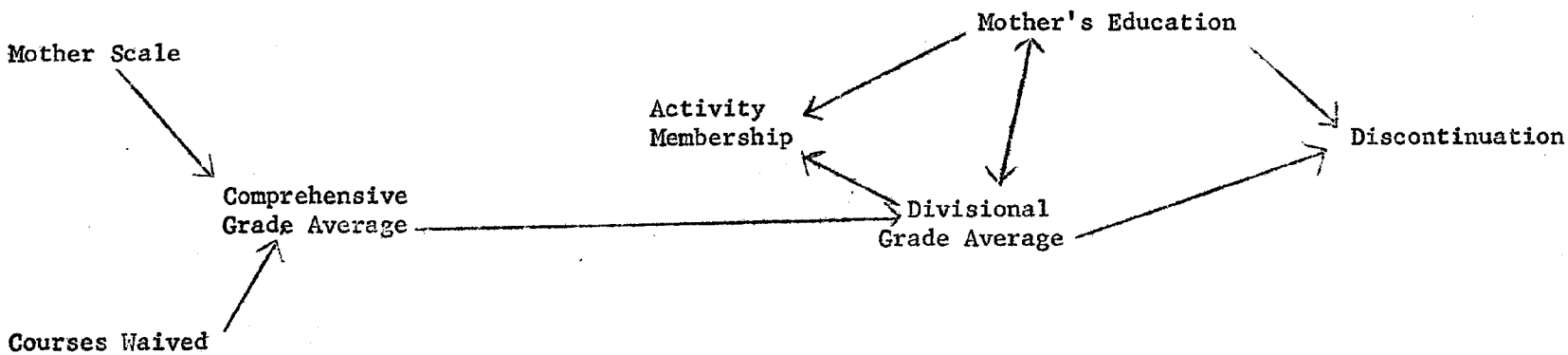
(Per cent discontinuing)

Level of Mother's Education	Divisional Grade Average	Activity Membership (ever a member of a recognized student activity)		Total
		Yes	No	
College Graduate	C or better	11 (46)	0 (10)	(56)
	Less than C	- (5)	- (0)	(5)
Less than College Graduate	C or better	7 (83)	10 (18)	(101)
	Less than C	33 (15)	- (8)	(23)
N.A., Divisional Grade Average or Mother's Education				(16)
N.A., Activity Membership				(80)
Previously Discontinued				(177)
Total at Entrance				(458)

Summarizing what we have established with respect to the variable of academic performance, mother's education, and activity membership, we saw that the level of academic performance and the level of mother's education are related in such a way that the student who was "low" on both variables was typically the one most likely to discontinue. Our original finding that students who were never members of a student activity were more likely to discontinue was explained by the fact that proportionately more of the non-members were neither children of college graduate mothers nor academically successful at the divisional level. Incorporating these results into our schematic diagram, then, we note again in Chart 10 that while mother's educational level helped to determine the ultimate academic record, the record actually achieved specifies the conditions under which discontinuation in this stage was most likely.

CHART 10

DIVISIONAL GRADE AVERAGE, MOTHER'S EDUCATION, ACTIVITY MEMBERSHIP, AND DISCONTINUATION



2) Intended Major Field and Original Vocational Orientation.

The disturbing fact about the relationship of these two factors to discontinuation is that they result in precisely the reverse of our findings in the preceding stage--whereas the students intending to major in the Natural Sciences and those planning a professional career were the least likely to discontinue before establishing a divisional average, they were the most likely to discontinue after the establishment of the divisional grade point average.

As we can see in Table 53, the difference in the rate of discontinuation is mainly one between divisions--vocational orientation is associated only because of the fact that almost all of the students in the Natural Sciences were also planning an academic or professional career.

TABLE 53

INTENDED MAJOR FIELD, ORIGINAL VOCATIONAL ORIENTATION, AND DISCONTINUATION
(Per cent discontinuing)

Intended Major Field	Original Vocational Orientation						Total	
	Trad. A.S. and Major Prof.		Semi- and Non-Professional		Ambiguous and N.A.			
Natural Sciences	24	(151)	-	(5)	33	(12)	27	(168)
Hum. and Soc. Sci.	12	(16)	4	(27)	15	(26)	12	(69)
Other and N.A.	15	(13)	8	(12)	21	(19)	16	(44)
Total	23	(180)	9	(44)	18	(57)	20	(281)
Previously Discontinued								(177)
Total at Entrance								(458)

Using the intended major field as our index of both of these factors, then, we find that the higher rate of discontinuation among the Natural Sciences cannot be explained by a difference in the proportion achieving a successful divisional grade average, e.g., while only nine per cent of the students who originally planned to go into the Natural Sciences and achieved a C or better divisional average discontinued, 20 per cent of the successful students who intended to

go into the Natural Sciences discontinued in the same stage--the difference is even greater among the less successful students. Controlling for the level of mother's education at the same time doesn't reduce the difference between the divisions, either. But these two factors taken together do serve to specify even more the group most likely to discontinue. In the table below, then, we can see that even though these two variables do not explain the reason for the greater probability of discontinuing, they show that a low divisional grade average coupled with a background of having a non-college graduate mother, were sufficient for a high likelihood of dropping out only among those planning to go into the Natural Sciences.

TABLE 54

INTENDED MAJOR FIELD, LEVEL OF MOTHER'S EDUCATION, DIVISIONAL GRADE AVERAGE AND DISCONTINUATION

(Per cent discontinuing)

Mother's Education	Divisional G. P. A.	Intended Major		Total
		Natural Sciences	Other	
College Graduate . . .	C or better	16 (44)	8 (25)	(69)
	Less than C	- (3)	- (7)	(10)
Less than College Graduate . .	C or better	21 (82)	10 (60)	(142)
	Less than C	56 (32)	17 (12)	(44)
N.A. on Level of Mother's Education or Divisional Grade Average				(16)
Previously Discontinued				(177)
Total at Entrance				(458)

While the difference between these two groups still persistently exists, there is one significant factor not yet taken into consideration--sex. When we note that those who planned to major in the Natural Sciences were more likely to discontinue, it is obvious that we are referring primarily to male

students. Let us turn to this factor, then, and see how it affects this and other relationships.

3) Sex.

In our introductory discussion we mentioned that women were less likely to drop out in this stage than men, even though we know that the female students didn't show a higher proportion achieving a successful grade average. When we hold the level of the mother's education constant, though, we get a very interesting result. Although there is no significant difference in the educational level of the mothers of male students vis a vis the mothers of the female students, mother's education appears to be a salient factor only for the men. Looking first at the proportion achieving a successful divisional average, we can see that not having a college graduate mother appeared to reduce the probability of success for men, but not for women:

TABLE 55

SEX, LEVEL OF MOTHER'S EDUCATION AND DIVISIONAL GRADE AVERAGE
(Per cent attaining a C or better divisional G. P. A.)

Sex	Mother's Educational Level		Total
	College Graduate	Less than College Graduate	
Male	87 (46)	70 (126)	(172)
Female	85 (34)	81 (67)	(101)
N.A. on Mother's Educational Level			(8)
Previously Discontinued			(177)
Total at Entrance			(458)

On the basis of this finding, we can now begin to make some sense out of the reversed relationship between the intended major field and discontinuation. Before introducing sex as a potentially salient factor, we were left

with the facts that students planning to go into the Natural Sciences were the most likely candidates for discontinuation, but within this group the divisional grade average and level of mother's education played an extraordinarily large role. When we control for all three of these factors, then, (sex, mother's education, divisional grade average) we find the underlying explanation: In the first place, women were generally less likely to discontinue than men regardless of the other variables controlled--that is, sex appears to be an independent correlate of discontinuation. Naturally there is a large discrepancy in the sex composition of the remaining students who planned to go into the Natural Sciences as opposed to those who planned to go into the Humanities and Social Sciences. In fact over three-quarters of the former were men, while over two-thirds of the latter were women. This factor in itself accounts for some of the difference in the rates of discontinuation of these groups. But as we saw, the mother's education was important for the men, especially in combination with a low divisional average. When we compare the remaining men who planned to go into the Natural Sciences with those who planned to go into the Humanities and Social Sciences, then, we find that although there was no difference in the mother's educational level, over 20 per cent of the male Natural Scientists fell into the category of "low mother's education, low divisional average" while only four per cent of the prospective male Humanists and Social Scientists could be similarly categorized.

TABLES 56 AND 57

SEX, LEVEL OF MOTHER'S EDUCATION, DIVISIONAL GRADE AVERAGE, INTENDED MAJOR FIELD AND DISCONTINUATION

(Per cent discontinuing)

TABLE 56

Individual Control Factors

Level of Mother's Education	Sex	Divisional G. P. A.	Intended Major Field				Total	
			Nat. Sci.		Other			
College Graduate .	Male	C or better	12	(33)	-	(7)	12	(40)
		Less than C	-	(3)	-	(2)	-	(5)
	Female	C or better	27	(11)	6	(18)	14	(29)
		Less than C	-	(0)	-	(5)	-	(5)
Less than College Graduate	Male	C or better	27	(60)	21	(28)	25	(38)
		Less than C	62	(26)	-	(6)	59	(32)
	Female	C or better	4	(22)	0	(32)	2	(54)
		Less than C	-	(6)	-	(6)	25	(12)
N.A. on Mother's Education or Divisional G. P. A.								(16)
Previously Discontinued								(177)
Total at Entrance								(458)

TABLE 57

Grouped Control Factors

Sex, Mother's Education, Divisional G. P. A.	Major Field at Entrance						Total	
	Nat. Sci.		Hum. - Soc.		Other - N. A.			
Male, Less than College Graduate, Less than C . . .	62	(26)	-	(1)	-	(5)	73	(32)
Male, All Other Combinations.	20	(103)	18	(23)	21	(19)	20	(145)
Female, Any Combination . . .	15	(39)	3	(45)	5	(20)	8	(104)
Previously Discontinued								(177)
Total at Entrance								(458)

In Tables 58 and 59 we see that the inter-divisional difference is due to the fact that those planning to go into the Natural Sciences had two strikes against them to begin with: relatively few of them were women, and, of the men, a disproportionate number unhappily combined an adverse background with a lack of academic success. With respect to this last point, we might note that a factor contributing to the lack of success was the very fact that these students were less likely to discontinue before achieving a divisional grade average regardless of their success at the comprehensive level--thus about 55 per cent of the Natural Scientists who had less than a C divisional average also had less than a C comprehensive average compared to only 33 per cent of the Humanities - Social Science students with less than a C divisional average.

These same three factors explain what is actually a more relevant finding, namely, that aside from the major field intentions, those who actually wound up majoring in the Natural Sciences were more likely to discontinue than those in the Humanities or Social Sciences.[11] The underlying reason is that there is a high degree of correspondence between the original intentions and the ultimate major area. Of the 141 students who wound up in the Natural Sciences, 86 per cent had originally intended to major in this area. Furthermore, of those who intended to major in the Natural Sciences, the least likely to change were the males who had achieved less than a C comprehensive grade average, while in the Humanities and Social Sciences the most resistant to change were the female students with a successful comprehensive grade average. Holding constant the three factors which conspire to lead to a significantly higher rate of discontinuation, then, we find that there is no difference between the actual major fields at departure.

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[11] In this relationship the "Other and N.A." category is largely excluded for two reasons: 1) the "Other" group is extremely small, and 2) the N.A. category primarily includes those for whom no data were available because they discontinued.

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TABLE 58

INTENDED MAJOR FIELD, SEX, COMPREHENSIVE GRADE AVERAGE AND MAJOR FIELD AT DEPARTURE

(Per cent from given major area ending up in a different area)

Intended Major Field	Sex	Comprehensive Grade Average			Total
		C or Better	Less than C	N. A.	
Natural Sciences	M	27 (90)	17 (35)	- (4)	(129)
	F	28 (32)	- (6)	- (1)	(39)
Humanities and Social Sciences	M	20 (20)	- (3)	- (1)	(24)
	F	16 (38)	- (5)	- (2)	(45)
Other and N. A.					(44)
Previously Discontinued					(177)
Total at Entrance					(458)

TABLE 59

MAJOR FIELD AT DEPARTURE, SEX, LEVEL OF MOTHER'S EDUCATION, DIVISIONAL GRADE AVERAGE AND DISCONTINUATION

(Per cent discontinuing)

Sex, Mother's Education, Divisional Grade Point Average	Major Field at Departure			Total
	Nat. Sci.	Hum. - Soc. Sci.	Other and N.A.	
Male, Less than College Grad., Less than C	78 (18)	- (8)	- (6)	(32)
Male, All Other Combinations	22 (85)	15 (47)	46 (13)	(145)
Female, Any Combination	10 (38)	7 (61)	- (5)	(104)
Previously Discontinued				(177)
Total at Entrance				(458)

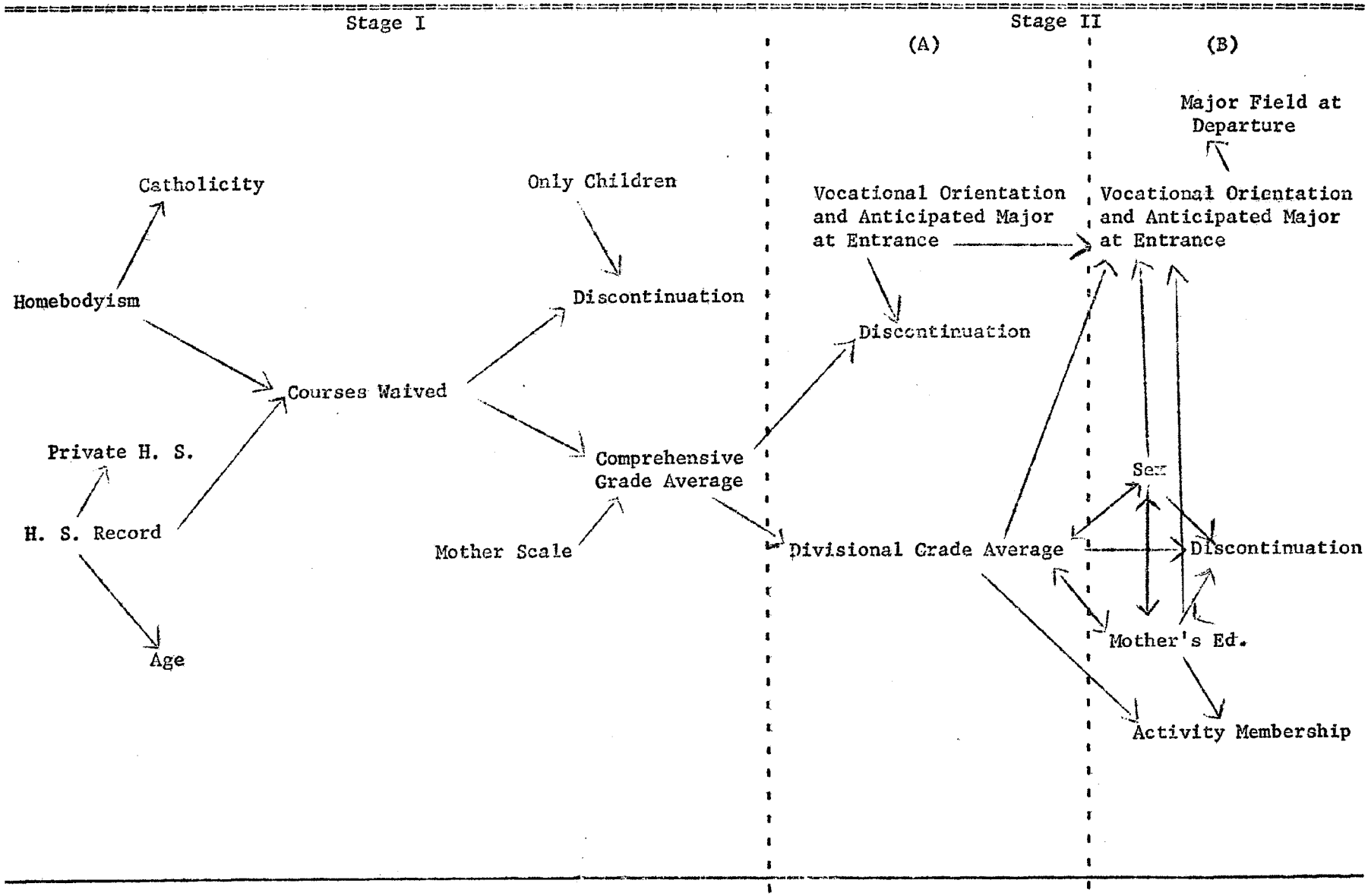
4) Summary: Factors Affecting Discontinuation in the Final Stage.

Briefly we found eight factors associated with the probability of discontinuing in this stage: a student was more likely to discontinue if he was male, if he had never been a member of a student activity, if he had achieved less than a C average at either the comprehensive or divisional level, if his mother had less than a college education, if he had intended to or actually ended up majoring in the Natural Sciences, or if he had originally intended to make a career of an academic or professional occupation. In trying to uncover a pattern to these relationships we noted first of all that there was really no one key variable. The divisional grade average, for example, was found not to explain why the children of college graduate women were less likely to discontinue; instead the interrelationship of these two variables defined, or specified the type of student who was most likely to discontinue--i.e., the student whose mother had less than a college education and whose divisional grade average was less than C. We found that the non-activity members were no more likely to discontinue than those who were, or had ever been members when the proportion of students falling into this category was controlled.

Trying to explain the difference in the probability of discontinuation between the students who had intended to major in the Natural Sciences and those who had planned other major fields pointed out the fact that the mother's educational level wasn't associated with the divisional grade average of the women who remained to this level, nor did the combination of divisional average and mother's education affect the probability of discontinuing among women. In short, then, there are three factors which, in combination, define the probability of discontinuation in the final stage: sex, the divisional grade average, and mother's educational level. Women were unlikely to discontinue regardless of the other factors controlled; among the men the only group subject to a very high probability of discontinuing were those who had neither a college graduate mother nor a high divisional average. Those planning to major in the Natural Sciences were more likely to discontinue essentially because this group

CHART 11

SUMMARY OF FACTORS AFFECTING OUTCOME



contained a significantly higher proportion of men in this latter category. Similarly, those who actually were majoring in the Natural Sciences at the time of departure were subject to a high rate of discontinuation mainly because few of those prone to discontinuation changed their original major field intentions. (We can see these relationships graphically in the final summary chart.

It might seem, then, that in order to identify the factors that contributed to make graduation most likely, all we need do is controvert the factors leading to discontinuation. But this is true only with a few qualifications, for in our data a student's academic fate is not terminated by either graduation or discontinuation--there is also the possibility that a student was still working for his degree at the end of the Spring quarter of 1960 and consequently didn't resolve his undergraduate career at all. Since this essentially constitutes a state of suspended (or at least delayed) animation in our analysis, it might be worthwhile to comment on the factors associated with the probability of remaining in residence and their effect on the probability of graduating. Briefly, those who were majoring in the Humanities or Social Sciences were more likely to remain than those in the Natural Sciences, Home bodies were more likely than non-Home bodies, those with a low divisional grade average more likely than those with a high average, and those who had waived no courses more likely to remain in residence than those who had waived some. Two of these factors were also related to discontinuation (final major field and divisional grade average) but interestingly enough, major field was related in just the opposite way, i.e., those in the Natural Sciences were more likely to discontinue than those with majors in the Social Sciences and Humanities. Consequently, there are no significant differences in the probability of graduation if the major field is the sole criterion--students in the Humanities and Social Sciences who didn't graduate generally remained in

residence, while the non-graduates with Natural Science majors were equally likely to discontinue or remain in residence. Homebodyism and the number of courses waived weren't associated with discontinuation, however; their only adverse effect of the probability of graduation was to increase the probability of remaining in residence for those students who were home bodies and those who had initially waived no courses. If we wanted to give a profile of the factors that seemed to increase the probability of graduating, then, we would find not only that the "best bets" were women (or men whose mothers were college graduates), and/or those with high comprehensive and divisional averages, but also that because of the differences in the proportion remaining in residence both the non-home bodies and course waivers were (independently of their grade average) more likely to graduate than the home bodies and non-course waivers.

C. General Summary and Conclusions.

It becomes obvious at this point that the major factors affecting outcome at any stage are (with a few noteworthy exceptions) primarily academic. The probability of dropping out before a comprehensive average was attained, as well as the probability of achieving a successful comprehensive grade average, was largely determined by the level of previous academic preparation, as indicated by the number of courses waived. The only two other factors directly influencing outcome in the first stage were being an only child and a cluster of factors relating to parental characteristics referred to as the mother scale. Being an only child was one of those relatively inexplicable characteristics that seemed to lose its saliency after its initial effect was made. The mother scale, however, was of interest not only substantively, but because it affected the probability of academic success at the comprehensive level quite apart from the level of previous preparation. This is perhaps doubly important because of the cumulative effect of the comprehensive average, i.e.,

the mother scale influenced the comprehensive grade average which was itself associated with the probability of remaining to the divisional level, the probability of achieving a successful divisional average among those who did remain, etc.

Interestingly enough, none of the components of the mother scale affected outcome in the second stage except as correlates of the comprehensive average. In fact, other than the level of previous preparation and the comprehensive average itself, nothing was directly associated with the probability of success at the divisional level. The probability of surviving to the divisional level was affected by two other related factors, though--the intended major field and the vocational orientation. Students planning to go into the Natural Sciences, and especially those among them who planned a professional or academic career, were less likely to discontinue in this stage regardless of their comprehensive average or their level of preparation.

When we finally got through the divisional level, however, we saw this relationship reversed. In part this was undoubtedly due to the fact that by not losing their unsuccessful students at one level the prospective Natural Scientists just lost them at the next. But it was in this stage that we found two other factors necessary for a definition of the potential drop-outs--sex and mother's education. The relationship of these two factors is of particular interest. In the first place it shows that at least one of the factors we had previously identified as the mother scale was operative in the final moments of the college career above and beyond the actual level of achievement. In the second place, it uncovers a fact which was not evident in the first stage--among the women who went on to achieve a divisional average the level of the mother's education didn't affect the probability of achieving a successful grade average, nor did it alter their probability of discontinuing, even among the few women who had not been academically successful.

Perhaps the question now to be answered is where all of this leaves us--what have we really found out? There are really several major things pointed out in this study. In the first place, we have seen the near truism that "nothing predicts success like success" practically validated once again, and the consequent importance of the relatively academic or cognitive variables cannot be over-emphasized. We have also seen that a number of factors which might otherwise be overlooked are of significant importance--the "mother scale" and its elemental attributes are an example. Perhaps of more importance, though, is the fact that several factors which might intuitively seem to be of great significance didn't seem to have any effect on the outcome of the class. Part of the reason for this is due to the nature of the data itself--thus it would have been extremely interesting to have had annual data on such items as activity membership, marital status, employment, residence, etc. But even with the type of data available for this study, the absence of these characteristics is very suggestive. As a sort of postscript, then, it might be well to look a little more closely at two of the most notably missing factors:

D. Postscript: Two Factors Largely Unrelated to Outcome.

1. Marriage: Of the 458 students who entered as freshmen in the Fall of 1956, only eleven were married. If we were to judge the effects of marital status on academic success on the basis of these eleven students, the consequences would appear very dark indeed, for only one graduated--the other ten discontinued somewhere along the line. But even in these few cases it is difficult to say that the salient feature was the marital status, for these students were also older, generally characterized as having waived no courses, etc. If we look at the students who were single at entrance, we see a somewhat different picture--of those who discontinued only eight per cent were married at the time of discontinuation and less than seven per cent of the others who gave reasons for discontinuation mentioned marriage. A similar

figure (six per cent married) characterized those who remained in residence, but for the graduates who were single at entrance a surprising 15 per cent were married some time during their undergraduate career. All of this does not, of course, imply that marriage is the answer to the drop-out rate, but in spite of the rather inconclusive nature of the data, it would appear at the very least that marriage does not, in and of itself, adversely affect the probability of academic success.

2. Place of Residence. Unlike the data for marital status, there are no data regarding the place of residence at any given time other than during the final year of residence in the University. There were data regarding the intended place of residence at the time of entrance which led us to find that Chicago area students who planned to live at home with their families (Home bodies) were characterized by a syndrome of factors leading to a sustained likelihood of discontinuation and lack of academic success. Apart from this, a chronological or phase-oriented analysis is not possible, but we can compare the place of residence in the final year for the three different types of outcome:

TABLE 60

FINAL OUTCOME AND PLACE OF RESIDENCE IN FINAL YEAR
(Per cent living in designated place of residence)

Final Outcome	Place of Residence in Final Year					Total	
	Dorms	With Parents or Relatives	Rented Apartment or Room	Married*	Other and N. A.		
Graduated	43	21	19	15	3	100	(136)
Discontinued . . .	42	30	12	8	7	100	(234)
In residence . . .	36	36	9	6	12	100	(88)
Total at Entrance -							(458)

*Regardless of type of residence.

The striking thing about the table above is the similarity--taking all of the students who discontinued into consideration and comparing them to all of those who graduated reveals no significant difference in the place of residence: The typical graduate was no more likely to be living in the dorms at the time of graduation than the typical "drop-out" was at the time of discontinuation, or, conversely, the typical "drop-out" was no more likely to be living in an apartment when he left the University than the typical graduate was when he left. While this type of data does not allow us to predict the probable outcome on the basis of place of residence (since it would be necessary to identify the place of residence prior to, not coterminous with, the actual outcome) we can speculate that apart from "Homebodyism," outcome is not affected one way or the other by the place of residence.

APPENDIX I

APPENDIX I

DISTRIBUTION OF GRADUATES BY INTENDED GRADUATE (OR PROFESSIONAL) SCHOOL AND AREA OF ANTICIPATED STUDY

Graduate or Professional School	Number	Phys.	Bio.	Soc.	Hum.	Math.	Med.	Law	Bus.	Other
U. of C.	111	17	14	33	12	8	14	2	7	4
U. of Cal. (unspecified)	3	-	-	2	-	1	-	-	-	-
U.C.L.A.	2	-	-	1	-	1	-	-	-	-
Berkeley	5	1	-	2	-	2	-	-	-	-
Harvard/Rad.	7	1	1	3	2	-	-	-	-	-
U. of Illinois	4	-	-	1	-	3	-	-	-	-
Stanford	3	-	-	-	1	1	1	-	-	-
Princeton	2	-	-	2	-	-	-	-	-	-
Cornell	2	-	-	1	-	1	-	-	-	-
Western Reserve	2	-	-	1	-	-	1	-	-	-
Northwestern	2	-	1	1	-	-	-	-	-	-
Columbia	2	-	1	1	-	-	-	-	-	-
Michigan State	2	1	-	-	1	-	-	-	-	-
New York State Medical.	2	-	-	-	-	-	2	-	-	-
State U. of Iowa . . .	1	-	-	1	-	-	-	-	-	-
Iowa State	1	-	1	-	-	-	-	-	-	-
Med. College of Georgia	1	-	-	-	-	-	1	-	-	-
Women's Med. C. of Pa..	1	-	-	-	-	-	1	-	-	-
U. Wisconsin	1	-	-	-	-	-	1	-	-	-
MIT	1	1	-	-	-	-	-	-	-	-
Tulane	1	-	-	1	-	-	-	-	-	-
U. of Michigan	1	-	-	1	-	-	-	-	-	-
U. of Indiana	1	-	1	-	-	-	-	-	-	-
U. of Minnesota	1	-	1	-	-	-	-	-	-	-
U. of Washington . . .	1	-	-	-	1	-	-	-	-	-
Foreign:										
Inst. All. Mex.	1	-	-	-	-	-	-	-	-	1
U. College of London .	1	-	-	1	-	-	-	-	-	-
U. of Madrid	1	-	-	-	1	-	-	-	-	-
Undecided	27	1	3	5	4	3	-	3	-	8
Total	190	22	23	57	22	20	21	5	7	13

APPENDIX II

APPENDIX II

SUMMARY: BACKGROUND CHARACTERISTICS ASSOCIATED WITH OUTCOME

(a) Factors Associated with Discontinuation but Not with Comprehensive Grade Average

Characteristic	N	Per cent Discontinuing	Level of Significance	
			χ^2	p
High School Type				
Private	73	25	6.28	$<.02$
Public	367	13		
Other and N.A.	18	-		
Total	458			
Year of Graduation (H.S.)				
1956 (and early entrants)	415	14	7.82	$<.01$
1955 or earlier	40	36		
N.A.	3	-		
Total	458			
Age (Year of Birth)				
1938 or later	401	14	5.44	$<.02$
1937 or earlier	57	26		
Total	458			
Number of Siblings				
None	75	4	8.19	$<.005$
One or more	368	17		
N.A.	15	-		
Total	458			

(b) Factors Associated with Comprehensive Grade Average but Not with Discontinuation

Characteristic	N	Number Discontinued Before Attaining a Grade Average	Per cent with a C or Better Avg. (of those remaining)	Level of Significance	
				χ^2	P
Community of Origin					
Chicago area	218	38	60 (180)	13.24	<.001
Other	230	35	77 (195)		
N.A.	10	0	- (10)		
Total	458	73	(385)		
Living Plans					
Dorms	264	37	77 (227)	16.51	<.001
Home and Other	194	36	57 (158)		
Total	458	73	(385)		
Religion					
Catholic	74	14	53 (60)	7.64	<.01
Other (and None) . . .	368	51	73 (317)		
N.A.	16	8	- (8)		
Total	458	73	(385)		
Father's Occupation					
W.C. and Professional.	303	43	75 (260)	10.88	<.001
Blue Collar	103	18	56 (85)		
Other and N.A.	52	12	- (40)		
Total	458	73	(385)		
Mother's Occupation					
Professional	53	5	90 (48)	11.08	<.001
Other and None	405	68	65 (337)		
Total	458	73	(385)		
Mother's Education					
College Graduate . . .	114	15	84 (99)	11.8	<.001
Not College Graduate .	328	51	65 (277)		
N.A.	16	7	- (9)		
Total	458	73	(385)		

(c) Factors Associated with Both Discontinuation and Comprehensive Grade Average

Characteristic	N	Per cent Dis-continuing	Per cent with Comp. G.P.A. of C or Better (of those remaining)	Level of Significance for ...			
				Discontinuation		Comprehensive Average	
				χ^2	p	χ^2	p
High School Record							
Upper 1/5th .	294	12	76 (258)	6.80	$<.01$	11.54	$<.001$
2nd 1/5th or lower . . .	105	23	56 (81)				
N.A.	59	-	- (46)				
Total .	458		(385)				
Courses Waived							
Some	325	12	77 (286)	13.92	$<.001$	38.41	$<.001$
None	130	25	47 (98)				
N.A.	3	-	- (1)				
Total .	458		(385)				
Scholarship or Honors Award							
Awarded . . .	248	10	77 (223)	13.23	$<.001$	16.66	$<.001$
Not awarded .	206	22	58 (158)				
N.A.	4	-	- (4)				
Total .	458		(385)				

APPENDIX III

APPENDIX III

SUMMARY: FACTORS ASSOCIATED WITH INITIAL OUTCOME IN STAGE II

(a) Factors Associated with Discontinuation but Not with Divisional Grade Average

Characteristic	N	Per cent Discontinuing	Level of Significance	
			χ^2	p
1) High School Record				
Upper 1/5th	258	20	13.16	<.001
2nd 1/5th or lower	81	41		
N.A.	46	38		
Total	385*			
2) Intended Major Field				
Natural Sciences	208	19	11.53	<.001
Humanities & Social Sci.	110	37		
Other & N.A.	67	35		
Total	385			
3) Vocational Orientation				
Traditional Arts & Sciences and Major Professional	234	23	11.12	<.001
Semi- and Non-Professional	77	43		
Ambiguous and N.A.	74	23		
Total	385			

*The total is only 385 because 73 students had already discontinued in Stage I. Similarly, in the tables dealing with the divisional grade average the total "N" will be only 281, since the students who discontinued here will be excluded.

(b) Factors Associated with Divisional Grade Average but Not with Discontinuation

Characteristic	N	Per cent Discontinuing	Level of Significance	
			χ^2	p
1) Religion				
Catholic	41	68	2.78	<.10
Non-Catholic	227	79		
Other and N.A.	13	77		
Total	281			
2) Mother Scale				
Scale Type I	61	70	4.95	<.20
Scale Type II	113	76		
Scale Type III	41	83		
Scale Type IV	35	89		
Other and N.A.	31	77		
Total	281			

(c) Factors Associated with Both Discontinuation and Divisional Grade Average

Characteristic	N	Per cent Discontinuing	Per cent Achieving C or Better Divisional Average (of Those Remaining)	Level of Significance for...			
				Discontinuation		Div. G.P.A.	
				χ^2	P	χ^2	P
1) Homebodyism							
Home bodies	108	38	60 (67)	7.13	<.01	9.84	<.01
Non-Home bodies	260	24	83 (197)				
N.A.	17	0	76 (17)				
Total	385						
2) No. of Courses Waived							
Some	286	20	81 (229)	28.83	<.001	14.08	<.001
None	98	48	59 (51)				
N.A.	1						
Total	385						
3) Comprehensive G.P.A.							
C or Better	265	20	84 (215)	30.05	<.001	7.11	<.01
Less than C	117	46	54 (63)				
N.A.	3	-					
Total	385						

APPENDIX IV

APPENDIX IV

SUMMARY: FACTORS ASSOCIATED WITH FINAL OUTCOME IN STAGE II

Characteristic	N	Per cent Discontinuing	Level of Significance	
			χ^2	p
1) Sex				
Male	177	27	13.61	<.001
Female	104	8		
Total	281*			
2) Activity Membership				
Ever Member	158	9	6.33	<.02
Never Member	36	25		
N.A.	87	38		
Total	281			
3) Level of Mother's Education				
College Graduate	80	12	4.81	<.05
Less than College Graduate	193	24		
N.A.	8	-		
Total	281			
4) Comprehensive Grade Average				
C or Better	215	16	10.16	<.01
Less than C	63	35		
N.A.	4	-		
Total	281			
5) Divisional Grade Average				
C or Better	215	15	19.25	<.001
Less than C	57	42		
N.A.	9	-		
Total	281	20		
6) Intended Major Field				
Natural Sciences	168	26	7.09	<.01
Humanities & Social Sciences	69	10		
Other & N.A.	44	14		
Total	281			
7) Original Vocational Orientation				
Traditional A. & S., and Major Professional	180	23	4.34	<.05
Semi & Non-Professional	45	9		
Other & N.A.	56	-		
Total	281			
8) Major Field at Departure				
Natural Sciences	141	26	10.19	<.01
Humanities & Social Sciences	116	10		
Other & N.A.	24	33		
Total	281			

*Since 177 students had discontinued before this stage, the total "N" will will be only 281 (281 + 177 = 458).

APPENDIX V

APPENDIX V

CUMULATIVE EFFECTS OF SOME FACTORS ASSOCIATED WITH OUTCOME

This appendix simply organizes the data for some of the most recurrent factors in a different manner. Instead of presenting the outcome within the stages previously outlined, the following tables show the final outcome of the class as a whole along these several dimensions, regardless of when the outcome occurred.

While we have mentioned that an explanation of the association of any given factor with outcome requires a chronologically oriented approach, there are also some advantages to this type of presentation. In the first place, this allows us to see the gross relationship that is otherwise obscured; e.g., of all the freshmen that entered in the Autumn of 1956, 36 per cent of those who had been in the upper fifth of their high school class graduated from the U. of C. by the end of the Spring quarter of 1960, while the comparable figure for those who had been in the second or lower fifth of their high school class was only 17 per cent. Secondly, this type of presentation also points out that some of the factors which are salient in the chronological approach have little or no effect when we consider the outcome of the class as a whole. For example, there is very little overall difference in the proportions graduating, discontinuing or remaining in residence between those who intended to major in the Natural Sciences and those who intended to major in the Humanities or Social Sciences. As we have seen, this is due to the fact that the association that exists reverses itself in two consecutive phases and consequently cancels itself out in the overall relationship.

The tables below, then, provide an easy reference for some of the most important (or interesting) factors uncovered in this study.

TABLE 1

SEX

Sex	Outcome			Total
	Graduated	In Residence	Discontinued	
Male	26	18	56	100% (291)
Female	35	22	43	100% (167)
Total . .	30	19	51	100% (458)

TABLE 2

HIGH SCHOOL RECORD

Rank in H. S. Grad. Class	Outcome			Total
	Graduated	In Residence	Discontinued	
Upper 1/5th . .	36	19	45	100% (294)
2nd 1/5th or lower	17	19	64	100% (105)
N. A.	24	17	59	100% (59)
Total . .	30	19	51	100% (458)

TABLE 3

TYPE OF HIGH SCHOOL

High School Type	Outcome			Total
	Graduated	In Residence	Discontinued	
Public	30	18	51	100% (368)
Private	28	21	51	100% (72)
Other and N. A..	22	28	50	100% (18)
Total . .	30	19	51	100% (458)

TABLE 4

NUMBER OF COURSES WAIVED

Courses Waived	Outcome			Total
	Graduated	In Residence	Discontinued	
Some	37	19	44	100% (325)
None	12	21	68	100% (130)
N. A.	-	-	-	- (3)
Total . .	30	19	51	100% (458)

TABLE 5

INTENDED MAJOR FIELD AT ENTRANCE

Intended Major	Outcome			Total
	Graduated	In Residence	Discontinued	
Natural Sciences	31	20	49	100% (243)
Humanities and Soc. Sci. . .	32	15	52	100% (130)
Other and N. A..	21	22	56	100% (85)
Total . .	30	19	51	100% (458)

TABLE 6

COMPREHENSIVE GRADE AVERAGE

Comprehensive G. P. A.	Outcome			Total
	Graduated	In Residence	Discontinued	
B or better (3.0 +)	63	13	24	100% (78)
C to C + (2.0 - 2.99) .	38	27	35	100% (187)
Less than C (1.99 or less) . . .	12	22	65	100% (117)
N.A. on Comprehensive G.P.A.				(3)
Discontinued with no Comprehensive G.P.A.				(73)
Total				(458)

TABLE 7

HOMEBODYISM

Home bodies*	Outcome			Total
	Graduated	In Residence	Discontinued	
Yes	16	21	63	100% (139)
No	35	18	47	100% (294)
N. A.	65	29	6	100% (17)
Total . .	30	19	51	100% (458)

*Defined in terms of actual, not intended, residence (cf. p. 85)

TABLE 8

RELIGION

Religion at Entrance	Outcome			Total
	Graduated	In Residence	Discontinued	
Catholic	19	14	70	100% (74)
Protestant . . .	25	20	55	100% (176)
Jewish	38	8	53	100% (138)
None	34	9	57	100% (48)
Other and N. A..	43	18	36	100% (22)
Total . .	30	19	51	100% (458)

TABLE 9

MOTHER SCALE

	Outcome			Total
	Graduated	In Residence	Discontinued	
I	30	16	54	100% (99)
II	22	23	55	100% (194)
III	36	22	41	100% (63)
IV	58	12	30	100% (43)
Other and N. A..	25	15	59	100% (59)
Total . .	30	19	51	100% (458)

APPENDIX VI

APPENDIX VI

EXHIBIT: THE QUESTIONNAIRE

THE UNIVERSITY OF CHICAGO

Office of the Registrar

April, 1960

Dear Graduate,

After a number of quarters at the University of Chicago, you are probably conditioned to filling in blanks for this office. I hope you will not mind spending a few minutes on this questionnaire, since the information it gives us will be both novel and helpful.

Will you please complete and return this with the other enclosures in the envelope provided, whether or not you now think you will receive your degree at the end of this quarter?

Sincerely,

William J. Van Cleve
Registrar

VC:m

- -

1960 GRADUATE SURVEY

PLEASE LEAVE BOXES BLANK

1. Your name ______________________________

2.1 Degree expected ______________________________

2.2 Area of specialization ______________________________

3. __________ Quarter of 19____ Year, I first began studying for this degree at the U. of C.

4. Check one _____ Married _____ Single

5. Year Born 19____

6.1 When you applied for admission, what field of specialization did you then intend to study (e.g., history, mathematics, pre-law; please be as specific as you can)

____

Over, please

6.2 If your answer in 6.1 is different from that in 2.2 (above), please give the reason for the change here

_____

_____

During the time you have worked for this degree, have you

7.1 Lived in a University residence hall?

_____ Yes; how long _____: _____ No; where _____

7.2 Received in-patient (overnite stay) care from U. of C. clinics?

_____ Yes; _____ days: _____ No

7.3 Participated in the activities of a recognized student organization? _____ Yes: _____ No

7.4 Held office in a recognized student organization?

_____ Yes: _____ No

7.5 Been on active duty in the Armed Forces? _____ Yes: _____ No

8. In what state - or country - were you legally residing just before you entered the University? _____

9.1 Pre-collegiate preparation: _____ public _____ private school

9.2 Matriculated as ___ freshman ___ early entrant ___ transfer student with ____ years of advanced standing from (name of institution) _____

Post-graduation plans (check one category)

10.1 _____ work in _____ as _____

10.2 _____ graduate study at _____ field _____

10.3 _____ Armed Forces in _____ branch

10.4 _____ other (what? _____)

Student Services ratings (check as appropriate)

		Can't Say (1)	Inade-quate (2)	Satis-factory (3)	Excel-lent (4)	
11.1	Admissions counseling . . .					
11.2	Orientation program					
11.3	Health Service					
11.4	Official publications . . .					
11.5	Residence halls					
11.6	Physical recreation					
11.7	Social activities					
11.8	Religious programs					
11.9	Registration procedures . .					
11.10	Personal counseling					
11.11	Vocational guidance					
11.12	Advisory system					
11.13	Financial aids					

If you would like to comment specifically on any of the ratings you have made above, please do so here: _____

11.14 _____

_____

_____ [ ]

_____

12.1 Which aspects of your total undergraduate experience most fulfilled the expectations you had for them when you entered the College?

(1) _____ [ ]

(2) _____ [ ]

(3) _____ [ ]

12.2 Which aspects of your total undergraduate experience least fulfilled the expectations you had for them when you entered the College?

(1) _____ [ ]

(2) _____ [ ]

(3) _____ [ ]

Over, please

Instructors and Programs

13.1 Name your "best" undergraduate instructor: _____

Comment: _____

_____

13.2 Name your "best" undergraduate course: _____

Comment: _____

_____

13.3 Describe the feature of undergraduate education on the Quadrangles you found most worthwhile: _____

_____

_____

14. What suggestions would you like to offer those responsible for developing and strengthening both the academic and non-academic portions of the undergraduate programs?

_____

_____

_____

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A B C D E F G