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Our Contributors

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Note taking seems to be a most popular avocation especially to Jesuits in studies. MR. CHARLES W. POLZER and MR. ELMER H. LUTHMAN, both California Province, say their method has been proven tried and true.

BROTHER JAMES KENNY, the business manager at Fordham University, is our perennial Brother author.

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The Superior Student

EUGENE E. GROLLMES, S.J.

In an attempt to collect all the good ideas that educators have had for the training of superior students, a letter was sent to the public relations department of 850 American universities and colleges requesting a brochure and whatever other materials were available describing the school's undergraduate honors program. This number included every university in America, every private liberal arts college, the leading state and city supported colleges, and the most prominent technical schools. In a most gratifying response, 622 schools answered. Their response took the form of anything from a catalogue to an honors committee report to the faculty. A total of 356 reported having at least some special provision for superior students. With possibly two or three exceptions, the schools which did not respond are not commonly regarded as major.

Of the twenty-seven Jesuit institutions of higher learning in America, twenty-two have at least some provision for training the honors student. No less than eleven reported having a complete four-year program. Though there cannot be an identification of completeness with quality, the figure eleven becomes especially significant when one considers only ninety-eight such programs were reported across the country.

Though the methods employed for training the superior student fall into such well known categories as independent study, colloquia, special classes, etc., a number of features were reported within each of these categories that seem worthy of more general consideration than yet received. Several, as will be evident, merit attention simply because of their potential to mark the limits of human endeavor.

Across the nation honors programs attempt to free the superior student from ordinary requirements. The student may be freed from all requirements whatever, except for a 128 total hours of credit, or, if certain course requirements must still be met, he is given the privilege of taking more courses in a given field than ordinarily allowed. Wanting to provide the honors student with ample time to pursue all of his subjects in depth, one private school provides a "Four Course System" in which a student takes no more than four

courses in any one semester. If honors students find an honors program rule contrary to their interests, they know they may ask for an exception or modification. To insure perfect freedom in their choice of courses, honors students are admitted a day or so early to general registration.

Perhaps not too surprisingly, the most common means of training the superior student remains ordinary class. However, even here there are commendable attempts to make provision for the superior student, such as, homogeneous grouping or limiting the number in an honors class to ten, with exceptions up to twelve made only on the recommendation of the Honors Director with the approval of the instructor. There are also "In-Course" projects, that is, projects in connection with a regular course, which bring with them additional credit of one or two hours. To separate the gold from the pyrite, honors students may be required to pass through the fire of writing *five* critical papers a week for a complete semester. They may even be asked, in order to "insure motivation of love of learning and joy of intellectual fellowship," to participate in the honors program without credit! Lest they become too much like machines, honors students are required, at least during part of their program, to attend weekly classes in music and art. Another method permits the superior student to audit courses of his choice without extra charge.

For enrichment honors students may have to meet an interdepartmental-study requirement. At some schools they have the privilege of electing honors courses in other departments as well as in the department of their major. Honors groups are organized in such areas as science, humanities, and social science, with the students encouraged to enter a group outside their own field. The simplest technique reported along these lines is for each academic department to conduct one discussion-session for honors students each semester.

Although the most popular method reported by Jesuit schools was the honors seminar, the method most commonly functioning as the heart of an honors program is supervised independent study. The superior student may, even as an underclassman, be allowed to follow an approved plan of study of his own devising, or in senior year, independent study may substitute for one or two semesters' credit. In schools where it may be difficult to provide an adequate number of directors, self-directed independent study might sometimes substitute for regular course work. Also put to

us are so-called "Pyramid Projects," in which honors seniors help the underclassman. At one small eastern college, the entire student-body takes off the month of January for independent study.

To provide the students with an opportunity for comparing ideas, and often serving as the core of the honors program, colloquia are held anywhere from twice a week to fifteen a year. Schools in the same vicinity cooperate in a "Great Issues" colloquia involving students and faculty-panels of the various colleges in joint sessions. The honors students may meet twice a month to discuss a book with Adult Education students, or they may be encouraged to attend seminars and colloquia formerly reserved for faculty and graduate students.

Honors seminars meet weekly to discuss a book pertaining to anything from physics to religion. Reports of each seminar are published shortly thereafter and distributed to honors students and faculty. These seminars are often held in the faculty member's home. In unusual circumstances, an outstanding student may, with the approval of the Honors Council, schedule one or more honors seminars without committing himself to the whole program.

The methods employed in the training of the superior student need not be limited to the campus. Each week at one university, the honors students receive a *Bulletin* which contains current information regarding interesting reading, scholarships and fellowships, lectures, concerts, plays, films, art exhibits, TV, radio, seminars, and colloquia. The students may even be required to attend lectures and activities off campus as designated by the director or the student's adviser. Some faculty encourage attendance at professional meetings by simply providing transportation. Supplementary to their work, honors students are to keep a detailed autobiographical scholar's journal as record of their reading, reports, and research during undergraduate training.

An individualized reading program is another tool for training the superior student. In fact, independent reading may be held in such high regard as to substitute for any regular honors course. One-week or even two-week free reading periods are offered before final examinations. In preparation for their training, honors program candidates at one school are given a list of books that are required reading during the summer preceding freshman year.

One school describes as the key of its program "good advisers with 4 to 7 students and with authority to waive or modify rules to give students more opportunities." At another school every honors

student is superintended by a faculty committee of *two* which will not only advise on the student's honors work but will make sure that more general studies are not neglected. A variation of the same method provides each student with two counselors—one in humanities, one in science—to help him in his program.

There are opportunities for honors students to have bi-weekly conferences with a tutor of their choice and also to work as "Junior Colleagues" on research programs being conducted by members of the faculty. In at least one instance, work done as a research-assistant will earn partial tuition, unless the student already holds a full scholarship.

Supplementary to the ordinary atmosphere of the campus and serving as a support to the scholarly life of the superior student, an "honors dorm," or some special housing, may be provided by the school. One such dorm is equipped with "works of art, a hi-fi record player with a good collection of records representative of the whole field of music, and an 'educated gentleman's library.'" The purpose of the honors house at an eastern college, as described by its catalogue, is simply the "exchange of ideas."

A feature related to the honors program on many campuses is the early admission of extra-talented high school students. High school seniors may take and receive credit for college courses. In the summer after their junior year, high school students may take college summer-session courses. Moreover, qualified students having completed their junior year of high school may enroll as full time college freshmen; one school requires that these students reside on campus. Through cooperative planning with area high schools, one midwestern university conducts an "Advanced College Credit Program" which provides college courses in high school classrooms. Another method pertinent to early admissions consists in inviting thirty academically talented high school Juniors to the campus for six weeks of the summer to study English and mathematics and to work out special problems in the area of the student's choice under the supervision of a faculty member. These sessions, according to the honors brochure, are "not a duplication of any high school course or any work in the first year of college."

Besides providing every possible opportunity on campus, and even requiring attendance at off-campus functions, some schools offer their students a "non-resident term" in which they spend as much as nine weeks a year doing work off campus related to their college major. At the completion of this term, both the student and

his employer submit a written report to the college, upon which the student's grade is based.

All these methods, not to mention such things as opening graduate courses to undergraduate honors students and financing honors students' publications, indicate the scope of the effort being made by American schools to provide an adequate challenge to superior talent. From the most important schools to almost the least significant, there is an awareness of the obligation to train every student in accordance with his capacity. It is indeed to the credit of the Society that the vast majority of its schools are not lagging in taking positive steps towards this obligation's fulfilment.

However, though individual schools are doing much for the honors student, the present study points to the lack of and the great opportunity for cooperation among schools in training the superior student. For any large-scale program of cooperation, the practical difficulties would of course be enormous. But the presence of already successful plans for inter-college colloquia, the sharing of teachers, and the exchange of students, is evidence of the possibility. In this direction, if not capitalizing on its nation-wide system, then at least on a provincial and local scale, Jesuit education, as well as American education, would do well to find its future.

News from the Field

GONZAGA UNIVERSITY announces a new $3,900,000 men's residence. The 12-story building will accommodate 718 students. A two-story dining hall and recreation area will project from the main structure.

XAVIER UNIVERSITY received a $350,000 gift from Harry J. Husman, a Xavier alumnus and Cincinnati businessman as a start towards a $1,250,000 residence hall for 300 male students. Ground for the structure was broken in December.

ST. LOUIS UNIVERSITY has received a $1,500,000 loan from the Housing and Finance Agency for construction of a student center. The center will be named the Busch Memorial Center since so much of the funds have been raised under the chairmanship of August A. Busch, Jr.

The New Recommendations for College Physics

WALTER J. RHEIN, S.J.

For several decades the American Institute of Physics has been recognized throughout the United States as the agent which defines the standards for the bachelor's degree in physics. These standards have been lenient and informal. According to them a college offered a *bona fide* degree in physics to those students who completed a standard collegiate program that included 22 semester hours in physics, 8 of which made use of calculus.[1] The Institute made no attempt to accredit or approve the physics courses of individual colleges, as has been done by the engineering societies and by the American Chemical Society for their respective programs.

It became clear during the 1950's that these physics standards were inadequate. The graduate schools especially were demanding better preparation of undergraduates.

THE COMMISSION OF COLLEGE PHYSICS

For this purpose the American Association of Physics Teachers in cooperation with the American Institute of Physics established the Commission on College physics in 1960. The work of the commission was supported by the National Science Foundation with a grant of $130,000 for two years. The grant was renewed in 1962.

The activities of the Commission have followed these general lines:

1. recommendation of curricula for physics majors;
2. stimulation of new introductory physics courses;
3. study of methods of teaching particular fields of physics (such as relativity, plasma physics, quantum mechanics);
4. encouraging the production of teaching aids (such as films, bibliographies, inexpensive books for students, apparatus for modern physics);
5. cooperation with other academic groups (such as the Committee on the Undergraduate Program in Mathematics and the Commission on Engineering Education);

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[1] Memo from the Director of the American Institute of Physics to the Chairman of Physics Departments, October 20, 1960.

6. stimulating programs for better preparation of college teachers.[2]

The most extensive work of the Commission has been with undergraduate curricula. Some of the details of this activity and an outline of the resulting recommendations will be described in the remainder of this paper. These recommendations will, no doubt, be the new guide lines for acceptable college curricula in physics.

THE FIRST CONFERENCE ON CURRICULA

The Commission organized three conferences on curricula with nation-wide participation. The first conference was held at Denver in August of 1961 and had a very broad representation from the colleges of the United States. One hundred seventy eight participants represented 174 non-PhD granting colleges. It was mainly a working conference with every representative giving at least one paper on the teaching of physics.[3]

The conferees were able to agree on a rather large body of policies and recommendations for improving the undergraduate curriculum. Some of the main recommendations were:

1. The introductory physics course should begin in the freshman year and should employ the concepts of calculus and be accompanied by a laboratory.

2. Intermediate courses should cover the areas of mechanics, electricity, magnetism, optics, thermal physics, statistical physics, electronics, atomics, relativity, nucleonics and quantum mechanics. These courses should be taught at a level which makes use of differential equations and vector analysis, where applicable.

3. A minimum of four semesters of intermediate laboratory is desirable.

4. Student research and independent study are encouraged, but not at the expense of a firm foundation in physics.

5. The required physics curriculum should consist of between 1/4 and 1/3 of the overall requirements for graduation (roughly between 30 and 44 semester hours of physics.)[4]

THE SECOND CONFERENCE ON CURRICULA

The second conference in the series, held at the University of

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[2] "Progress Report of the Commission on College Physics," *American Journal of Physics* 30, 665 (1962).

[3] The Jesuit colleges were represented at this conference by Xavier, Spring Hill, Seattle, Scranton, Loyola of New Orleans, Le Moyne, Detroit, Canisius, and Boston.

[4] "Report of the Denver Conference on Curricula for Undergraduate Majors in Physics," *American Journal of Physics* 30, 153 (1962).

Michigan in May of 1962, was attended by 51 participants representing 47 institutions, all but one of which offer the PhD in physics. They deliberated mainly along the lines of preparing the undergraduate for graduate school.[5]

This conference outlined the level of understanding which the beginning graduate student should have:

1. mechanics through Lagrange's equations;
2. electricity and magnetism through Maxwell's equations;
3. wave phenomena including physical optics and electro-magnetic wave theory;
4. thermodynamics and statistical mechanics;
5. modern physics including atomics, nucleonics, solid state physics, relativity and quantum theory through the Schroedinger equation;
6. facility in the laboratory based on introductory and intermediate experience, including electronics and use of instruments of modern physics;
7. mathematics through vector analysis, partial differential equations and advanced calculus.

The conference also indicated the level of graduate physics courses that a physics major should be ready to undertake in his first year of graduate school:

1. classical mechanics through Hamilton's equations, canonical transformations, Hamilton-Jacabi theory, Lagrangian and Himiltonian formulation for field;
2. electrodynamics through wave equations, Lienard-Wiechert potentials, radiations from an accelerated charge, etc.;
3. quantum mechanics through the matrix formulations, scattering, perturbation theory and the Dirac equation;
4. mathematical physics, including field equations, variational methods, Green's functions, approximate methods, Laplace's and Poisson's equations, diffusion, etc.[6]

THE SUMMARY CONFERENCE ON CURRICULA

The third conference, at the University of Michigan in November of 1962, was attended by 74 participants, almost all of whom had attended one of the first two conferences.[7] It was guided by the deliberations of the two earlier conferences and aimed to produce

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[5] Jesuit universities were represented at the conference by Fordham.

[6] Crane, H. R., "The First Ann Arbor Conference on Curricula for Undergraduate Majors in Physics," published by the University of Michigan, August, 1962.

[7] Four Jesuit schools were invited to the third conference: Spring Hill, Loyola of New Orleans, Fordham and Detroit.

recommendations that would be consistent with the needs and potentialities of both graduate and undergraduate institutions.

CURRICULUM R

The summary conference recommended that two different major programs be offered by the colleges of the United States. One, called Curriculum R, would have as its primary objective direct preparation of students for graduate schools and for scientific research and development. It would suffice to allow the students to enter immediately into the four key graduate courses listed above.

The report of this conference listed about 200 subject matter topics that should be used as guides for preparing courses within this curriculum. It recommended that about 80% of these topics be covered in depth.

Many of the conferees thought that it would take a minimum of 36 to 40 semester hours of physics and 18 to 20 semester hours of mathematics starting with calculus to prepare physics majors satisfactorily in Curriculum R. Many other conferees thought that more than 40 hours in physics would be needed. Within the 36 to 40 hours of physics should be included a minimum of 6 semester hours of laboratory—2 with the first course and 4 with intermediate courses. One semester hour of laboratory means one laboratory period of about three hours per week for one semester.

CURRICULUM S

The summary conference recommended that another course, called Curriculum S, be taught at those colleges and universities which have different aims and resources from those associated with Curriculum R. Curriculum S would emphasize the synthesis of physics with the adjoining sciences and with other components of our culture.

The requirements of this curriculum would be set in physics at about 26 semester hours, in mathematics at about 15 semester hours starting with calculus, and in related fields (chemistry, astronomy, biology, geology, history of science, philosophy of science) at about 18 semester hours. It seemed likely that about 60% of the 200 subject matter topics which were listed for Curriculum R could be covered in depth in Curriculum S.

This latter curriculum should provide good preparation for prospective high-school teachers; for pre-medical students; for students in cross-field areas such as bio-physics, astro-physics, geo-physics,

space studies; and for students who want a general cultural education with an emphasis in physics.

Many liberal arts colleges will choose to offer Curriculum S instead of R because of their commitment to the liberal arts or because of faculty shortage in the physics department. The graduates from such colleges will still be able to enter graduate schools of physics provided they do independent study or take extra courses in their first year graduate school. It is anticipated that students from Curriculum S will have to spend one more year for the PhD than students from Curriculum R.

GENERAL RECOMMENDATIONS

The third conference heartily endorsed the traditional liberal arts background of physics curricula. It moved that nothing in its recommendations be construed as advocating any weakening of the other liberal arts components of the physics students' undergraduate program. It was generally agreed that physicists should avoid the path taken by engineers in this country of setting up their own technical colleges with consequent deliberalizing of the engineering program of education.

Along these lines the conference recommended that no physics program should have a total set of requirements (including physics, mathematics, chemistry, etc.) that comprises more than half of the total four-year college work.

The conference encouraged development of Curriculum S in order to meet broader educational responsibilities (relative to preparing school teachers and for bridging the gap between "the two cultures") and to avoid over-specialization among professional physicists. It urged that strong graduate departments recognize that many excellent physicists may not desire to specialize heavily as undergraduates or may not have the opportunity to do so.

The summary conference voted almost unanimously against setting up an accrediting agency for the physics degree. Representatives from the prestige universities and from colleges having experimental programs were particularly outspoken in their opposition to any accreditation.

The two curricula are compared schematically at the end of this article. It is thought that a few large universities will be able to teach both curricula but that most colleges will select only the one that best fits their aims and resources.[8]

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[8] "Recommendations of the Second Ann Arbor Conference on Undergraduate Curricula for Physics Majors," *American Journal of Physics* 31, 328 (1963).

The three conferences on curricula will have gone a long way to improve college physics teaching if they stimulate a vigorous national discussion by educators. The Commission on College Physics invites comments on the recommendations of the conferences. It suggests that these comments be addressed to the communities of physicists and educators through letters to the Editor of the *American Journal of Physics.*[9]

[9] Letter of E. D. Lambe, Executive Secretary of the Commission, to Chairmen of Physics Departments, March 1, 1963. Letters to the Editor of the Journal should be sent to Dr. Walter C. Michels, Editor, *American Journal of Physics,* Bryn Mawr College, Bryn Mawr, Pennsylvania.

Comparison of the two physics courses, showing their immediate aims.

NAME OF CURRICULUM	REQUIREMENTS: A STANDARD COLLEGE COURSE PLUS THE FOLLOWING SEMESTER HOURS	PREPARATION FOR:
"R" (for research)	36 to 40 in physics 18 to 20 in mathematics (after algebra and trig.)	Ph D program Industrial or government research and development
"S" (for synthesis)	26 in physics 15 in mathematics (after algebra and trig.) 16 in adjoining fields	General culture High school teaching Graduate work in astrophysics biophysics geophysics space studies M S degree Extra graduate courses leading to Ph D program

News from the Field

Construction is already underway for the $3,250,000 Harney Science Center at the UNIVERSITY OF SAN FRANCISCO. Completion of the five-story center is expected for December of 1964. It will provide teaching and research facilities for all sciences and math departments.

IBM Note System

CHARLES W. POLZER, S.J.

ELMER H. LUTHMAN, S.J.

The need for notes is an early awareness in the life of a Jesuit. Obediently we take them. And later we scowl at the complexity, vacuity, or inefficiency of years of "materialized" intellectual accretion. The ashcans of tertianship times are loaded with the expensive freight of notes, notes, notes. Since the modern Jesuit is a broadly educated philosopher and theologian, an acutely trained specialist, and frequently a wide-ranging lecturer, can the process of note-taking be made more meaningful and less burdensome? Certainly there are few giants among us who can remember all they have read or where they tucked away a quotable quote.

Private, portable computers are absurd impossibilities, but there is a system related to these electronic brains now widely available to Jesuits in general. We have improperly tagged this as the "IBM Note System." The reason for the name is simply that the notes are entered on IBM data-processing cards which have been previously punched with 100 holes near the outer edge. Rather than use a machine sorting device, the cards are sorted with a needle passed through these holes. Because the information on the card has been recorded, or "addressed," by punching certain combinations of these holes through to the edge, relevant information will fall out of the pack of cards.

There is nothing startlingly new in this basic method. Similar systems have been patented through the years. But they were rather expensive luxuries; IBM cards can be obtained for 10% of the cost of some other systems, cheaper even than some supplies of 3x5 cards. And the data-processing card brings the added advantages of space, flexibility, compactness, durability, and variety of color.

System design is a personal matter. Main-line approaches, however, are commonly divided into two types: mathematical and categorical. The math systems are quite well known and have been the subject of books and articles. Category systems are less discussed because they are more difficult to generalize—"categories" seem too general to be useful, or too specific to be suitable. The category system, however, seems more suitable for the uses of notes Jesuits might demand; therefore the bulk of this article will be concerned with an explanation of this system. But it would be unwise to short-

change the mathematical approach, particularly for those to whom this whole genre of note of note-systems is new, perhaps even novel.

THE MATHEMATICAL SYSTEM*

Libraries are a most familiar phenomenon to the scholar. Since classification is a major library problem, many have adapted their solutions such as the Dewey decimal classification to their note needs. Just as a book might be classified by "673.01," so too the card. Usually twenty-five holes would be utilized for punching in these number addresses—ranging from 000.01 to 999.99. These twenty-five holes would be divided into five "banks" of five holes each. These five holes in every bank would be respectively designated 7-4-2-1-0; each bank would stand for a numerical group: hundreds, tens, units, tenths and hundredths. (The placing of the decimal is arbitrary and dependent on the fineness ration desired by the classifier. That is, he could limit his system to 673 or expand it to 673.0000084, thus using fifteen or fifty holes for his addresses.)

In the example number mentioned, 673.01, the numeral "6" would be punched into the hundred-bank by notching out "4" and "2" to the edge; "7" in the ten-bank by merely notching "7"; "3" in the unit-bank by notching "2" and "1"; the decimal falls where it is by design since the next numeral is expressed in tenths—in this case "0" and notched simply for that; "1" in the hundredths-bank is notched only at "1." This entire process reads as if it were laborious or complicated, but in reality it is quite easy and rapid. A specific piece of information is now recorded ("addressed") and cannot be lost regardless of where it is tossed into the stack of note-cards.

Persons using this system modify and improve it in various ways by limiting or extending the significance of the numbers. Some use a series of restricted number groups to signify different bits of information. Thus, one entire series of banks may be Dewey decimal classifications, another may be a cross-reference series limited to the hundred's division of the Dewey system, etc. Frequently scientists use these systems to sequence and date observations of experimental phenomena.

The obvious advantage of the mathematical system is a nearly infinite refinement of numerical addresses thus enabling precise selectivity. To the extent that the system is made more selective, however, the cross reference use is of proportionately less value.

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*N.B.: We assume throughout this paper the use of the 100-hole IBM data processing across card. Forty holes have been punched the top, forty across the bottom, and ten holes down each side.

THE CATEGORY SYSTEM

We have coined the term "Master-Card System" to describe this apparent monstrosity. The term and the system were born out of the fear that any categorical division would soon devour the 100 holes and render the whole meaning of the holes sterile and impractical. Fear has triumphed; the holes are undevoured; the system works!

Before we explain, let us briefly outline the advantages. A large number of holes can be devoted to meaningful categories which recur throughout the content of the notes. This makes cross-filing or cross-reference workably broad and automatic. If information on a card is pertinent to a category, the proper hole is punched; when this hole is "needled," any card pertaining to that category of information will drop out. This eliminates the need for repeating the information on another card which might be located elsewhere in the file system; the cross-filing is manifestly different from the kind one might imitate in a card catalogue. This category system draws all cross references onto one card that cannot be lost regardless of the position in the "bunch," a proper description for a cluster of ungrouped, carded information.

The person who seeks some information need only know vaguely what he is looking for. There is a fundamental difference in approaching this system from any other we knew. Usually the question is: "Where did I file that quote of Pius XII?" or "I wonder if I took a note on any talks about taxation?" The odds of finding any such information in a traditional system are low, at least they are only as good as one's memory. But the category system does the remembering (within limits) for you. Any quest of information can be begun at any level of general or specific inquiry, whether people, places, times, titles, or things. With a few movements of the needle information tucked away 15 years before is filtering out on the desk.

Considering the vast amount of information we are exposed to during the length of our training, some system that offers any advantages in overcoming the drawbacks of drenched memories should get serious attention. But we are aiming not so much at salesmanship as at the explanation of an obviously useful system of note-taking. Let's see how this system is designed—minus the tailored specifications for individual use.

Information of any nature can be basically classified into some

category. The major areas of interest of the person should probably determine these categories. Then, in turn, each of these major areas have within them general species of difference, e.g. Theology: De Revelatione, De Ecclesia, De Deo Una et Trino, etc. And each of these in turn have distinct sub-divisions. It is also true to say that each of these have elements within them that appear generically throughout related disciplines, e.g., Christ will show up in each of the above mentioned sub-divisions of theology. Familiarity with the broad outlines of study will indicate what categories of knowledge are distinct or distinguishing and which are relational and repetitive. The problem of system design is one of decision about which categories will make meaningful cross references and which will be useful as distinguishing classifications. The meaning of this last statement will become clear in the example systems described in this article.

SOME BASIC CONCEPTS

Regardless of the system chosen for general information, there are some fundamental principles on which these systems are designed. The first is: NEVER USE MORE HOLES THAN ARE ABSOLUTELY NECESSARY. An application of this is seen in the 7-4-2-1-0 number bank which uses five holes to give nine numerals and zero. Bibliographical entries require the use of an alphabet for either or both author and title; consequently alphabet banks have been designed to give maximum workability with minimum hole-use. This scheme is as illustrative as any of this principle and it may be well to elaborate somewhat on its composition and design.

The alphabet is arranged into three banks; the first bank (with a complete alphabet) will contain certain groups of letters, e.g., a-b-c-d; the second bank will contain a complete alphabet grouped in a different way; the third bank utilizes another alphabet grouped the same as the first.

a e i n t	a b c d	a e i n t
b f j o u	e f g h	b f j o u
c g k p v	i k l m	c g k p v
d h l q w	j o q s	d h l q w
m r x	n p r y	m r x
s y	t u w z	s y
z	v x	z

This alphabet utilizes fourteen holes of the 100, but it will permit

the addressing of the first two letters of an author's name or book's title. Let us assume we are looking for "CArter." "C" in the first bank is needled; all cards addressed "A, B, C, D" fall out. From the *fallen* cards "C" in the second bank is needled; all and only cards addressed "C" will fall. From the fallen "C" cards the letter "A" is needled in the third bank; all cards addressed "CA, CB, CC, CD" drop out.

Although alphabetical charts will vary, notice in this one that the first bank separates letters of high initial frequency and that the five groups in the third bank each contain one vowel. In practical situations an author is swiftly sorted out by inspection after the first "pull" or needling; but the fourteen holes provide ample expandability for the over-all system. Note that this technique permits the addressing of two letters by using only fourteen holes, not fifty-two.

Rule Two might be expressed: MAKE CERTAIN EACH HOLE IS MEANINGFUL. If there is any way of eliminating the use of a hole with an equally meaningful combination, do so. For example, if a series of holes were devoted to *distinguishing* categories such as the Ten Commandments, it would be foolish to have a *cross-reference* hole devoted to "Commandments."

THE MASTER CARD SYSTEM—AN EXAMPLE

Let us set up a model system for the social sciences, a tremendously complex, interrelated, and ill-defined area of study. We may divide the distinguishing categories into government, sociology, economics, psychology history, and social philosophy. Each of these will be assigned a hole in a bank located on the side of the card that will permit only *one* punch, i.e., the carded information will *basically* pertain to only one discipline, e.g., sociology. Across the top of the card are located a large series of cross-filing categories in a continuing bank. They may be a repeat of these distinguishing categories plus other recurrent ideas, e.g., government, sociology, economics, culture, church, constitution, family, labor, organization, etc.

A card which is *primarily* sociological will be punched for sociology in that special distinguishing bank on the side. Conceivably the information on the card may pertain also to government, economics, and the family; these categories would be punched in the cross-filing bank across the top. Hence if I wanted only *purely sociological* information, I would sort the cards through the distinguishing bank; if I wanted general information on sociology, I would sort through the cross-filing bank on the top. If I wanted economic sociology, I

would sort out economics and then sociology in the cross-filing bank and so on.

Notice that this system works one set of classifications against another; it is analogous to the way we worked the alphabets—one series of holes seems to jumble the information (e.g., a cross-filing hole), but it is sorted out by using another series, e.g., all sociological notes in the system are quickly reduced to only those bearing on economics, and those in turn to that regarding the family. This approach will work within a rather broad range of categories, but obviously it cannot apply to *all* knowledges because of the physical limits of the cards. As note systems grow we have found it practical to keep the distinct classifications separated, although all the cards remain workable in the general system. This brings us to the explanation of the "Master Card" itself.

A "Master Card" is a card that displays the meanings of the holes. It is never notched; it is always placed at the front of the pack to be sorted. With the note system's expansion one area of knowledge usually becomes larger than another. With the increase in size comes a need for finer classifications if the system is to remain workable. We have found that we can change the limits of a system by introducing a Master Card. This labels all of the holes that sustain a definite meaning throughout the *whole* system; a certain number of holes on each card are reserved for Master Card uses only. In other words there is a Master-Card bank that has meaning only within the limits of that special area which is reached through a series of distinguishing categories. If a needle were run through a hole within this bank, information of widely differing nature would fall out; it would only be sorted when the proper sequence is followed from the Master Card. For example, in the social science system sketched above it could happen that a man worked extensively in Constitutional Law. This is a sub-division of government. A Master Card for Constitutional Law could be made indicating the specialized meaning of the Master Card Holes (e.g., court decisions, case card, regulation of commerce, etc.). Thus a piece of information would be punched for the *whole* system (i.e., government, constitutional law, and pertinent cross-filing) and then for the special meanings recorded on the Master Card (e.g., regulation of commerce, case card). The meaning of a given hole X on each card would be determined only by the definition on the Master Card. If hole "X" were needled, information on the Trinity, school segregation, and meterology might drop out; but by using the distinguishing holes first, the

exact information will be acquired. Although this all sounds most confusing, a little experience with the working system will readily clarify the technique and demonstrate that the system is almost without limits.

VARIATIONS AND SPECIAL PROCEDURES

Some systems have incorporated a small bank of numbers that apply in conjunction with a Master Card. In this way highly specific information can be addressed with accuracy approaching that of the mathematical systems, but the number groupings differ in arrangement and use in order to achieve greater efficiency and speed in sorting. Once a card has been addressed so that it belongs to a Master Card group, the specific information or information title is written on the Master Card and numbered. For example, the constitutional law card above may indicate information on the "Brown school case: 03–4." The "03–4" refers to the number code, less precise than the 7-4-2-1-0 but adequate and rapid for most note-system applications.

1) Two banks of numbers each contain five numerals:
   0 1 2 3 4 0 1 2 3 4
2) Specific information is coded within the two banks, two numbers from one bank and from the other: 03 and 4, or 1 and 24

When used with the Master Card concept these simple numerals provide an almost infinite extension within the finite limits of human intelligence. It is a simple, hole-conserving method that prevents stagnation of the system although age and expansion threaten limitations.

THE USE OF COLOR

Data processing cards are available in many colors. Although manila and white cards are most common, more than ten varieties of color can be obtained. These are available in solid colors or in stripes printed anywhere on the card.

Some systems utilize these various colors to classify information, e.g., blue may indicate scientific information; red, theology, etc. Others specify literary genre, green–poetry, brown–novel, etc. Perhaps the most common use of color is for bibliographical differences: primary source–blue stripe, periodical–yellow, newspaper–pink, etc. Its use is not necessary, but it is well to know the expansions possible within the confines of the systems.

ADAPTATION TO VERTICAL FILES

In case one wants to incorporate vertical files of notes, clippings, and reprints, the IBM cards can record the usual categorical information, but the card would refer the searcher to a particular section of the file rather than contain the information on the card itself. The same procedure is true of microfilm records, although presently a process is being worked out to include microfilmed information on the cards themselves.

ADVICE FOR THE BEGINNER

When and if you are about to venture off into the wide world of IBM note-taking, don't set up an *a priori* set of categories that you think might work. Be real. We have found that it is best to start taking notes on the cards for a reasonable period of time before categories are devised and before any punching is done. Be wary of the dream-design, beautifully devised, but practically useless. Keep always in mind, when you begin, to design a *useful* system; make that a principle-premise.

APPENDIX

We have tried to point out the versatility of this system in the body of the article. Perhaps this would best be shown by illustrating its uses in several widely disparate disciplines. A partial master-card for sociology has been described in the text. Other areas of interest for the authors have been theology and engineering. Thus, engineering like the social sciences or theology encompasses vast materials. Is the scholar an electrical, mechanical, or chemical engineer? Is he primarily concerned with electronic circuits and devices or is rotating machinery his specialty? His specialization will necessarily dictate the notes he takes and the books he reads. The limitations of time limit the area of understanding and permit only cursory investigations into all the areas impinging on the particular discipline of the scholar.

The engineering master-card might have as distinguishing categories: electrical, mechanical, nuclear, general engineering, and aeronautical. These would correspond to specific holes along the side of the card. In the cross-filing bank along the top of the card the following areas might be used: solid state devices, computers, servomechanisms, network theory, engineering ethics, and engineering education. Like the social science master-card, this engineering

division is only partially developed. The complete listing of the distinguishing categories and cross-filing categories might only serve as an element of confusion for the reader.

Theology, although of great interest and value, is not the principal burden of study for the authors. For this reason we have only developed a broad and general master-card for this area of study. The professional theologian would need a more specialized design. A rather complete division of this area of study can be taken from the "Elenchus Bibliographicus" as found in *Ephemerides Theologicae Louvaniensis*, volume 37, 1961.

SUMMARY

When one has reviewed the characteristics and techniques of the IBM note system, the overview is overwhelming. In reality the systems are quite usable and simple; complexities may grow with the system's age but neither the fear of complications nor the fear of limitations should impede the recognition of this method as one eminently suited to the multiplex character of a Jesuit's education and work.

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A rather intensive search was made into the available literature on punch card systems. While books and articles abound on the use of data-processing cards for private note systems, little mention is given to the Master Card system as treated in this article. However, many may be interested to see some of the literature describing data-processing cards as private notes.

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Enrollment Statistics

EUGENE F. MANGOLD, S.J.

HIGH SCHOOL STATISTICS
FOUR YEAR ENROLLMENTS

Forty-nine American Jesuit high schools furnish the statistics for this year's study on enrollment. The official listing of American Jesuit high schools actually lists 51 high schools but the difference in time of the school year forces us to omit Colegio San Jose of Arequipa, Peru and Colegio San Mateo of Osorno, Chile from our listings. According to the wishes of the respective American Provincials each of these schools is to be considered as an American high school.

With five exceptions, all high schools report on full four year enrollments. The exceptions are: the new high school, Jesuit High of Sacramento, California, with Freshmen only; Bishop's Latin of Pittsburgh, with Freshmen, Sophomore, and Junior years; Brebeuf Prep of Indianapolis, with Freshmen and Sophomore; Xavier High of Concord, with Freshmen and Sophomore; and Jesuit College Prep of Houston with Freshmen, Sophomore, and Junior years.

As an aside, looking to the future, Missouri Province is actively planning a new high school in St. Louis, and Detroit Province is planning two new high schools in Cuyahoga Falls, Ohio, and Toledo, Ohio.

Enrollments in the 49 schools appearing in this year's statistics range from the smallest, Loyola High of Missoula, Montana with a four year enrollment of 140 students to Loyola Academy of Wilmette, Illinois with 1592 students.

The eleven largest high schools total 12,716 students or 37.6 percent of the total American Jesuit high school enrollment of 33,828 students. The eleven largest high schools in order of total enrollment are Loyola Academy, Wilmette, 1592; Boston College High, 1311; St. Xavier of Cincinnati, 1254; St. Ignatius, Cleveland, 1171; St. Ignatius, Chicago, 1140; St. Ignatius, San Francisco, 1118; Creighton Prep, Omaha, 1044; University of Detroit High, 1032; Brooklyn Prep, 1027; Xavier, New York, 1027; and St. Peter's Prep of Jersey City, 1000.

On the basis of full four year enrollment, this year's report deals with 44 high schools only since the five schools which do not have the full four years will show only the normal increase of adding another year of classes. Of the 44 American Jesuit high schools, 23

show an increase in total four year enrollment; 21 show a decrease.

Schools showing a notable *numerical increase* in total four year enrollment are: (in order of numerical size) Loyola Academy, Wilmette, with 81 students; Rockhurst of Kansas City with 79 students; St. Ignatius of Cleveland with 62 students; Regis of Denver with 61 students; Colegio San Ignacio of Puerto Rico and Loyola of Los Angeles with 58 students; Gonzaga High of Washington, D.C., with 43 students; and St. Xavier of Cincinnati with 42 students.

Percentage increase based upon full four year enrollment is shown by the following schools: (in order of percentage) Colegio San Ignacio of Puerto Rico with 16.8 percent; Rockhurst of Kansas City with 11.5 percent; Regis of Denver with 9.1 percent; Loyola of New York with 8.9 percent; Loyola of Missoula (our smallest school) with 7.7 percent; Loyola of Los Angeles with 6.5 percent; Gonzaga of Washington, D.C. with 6.4 percent; and Georgetown Prep with 6.2 percent.

Evident *numerical decreases* are manifest in the enrollment figures of the following schools: Jesuit High of New Orleans with 93 students; Chaplain Kapaun of Wichita with 57 students; Jesuit High of Shreveport with 37 students; Fairfield Prep with 30 students; Loyola High of Towson with 26 students; Boston College High with 25 students; Brooklyn Prep with 24 students; Jesuit High of El Paso with 24 students; and St. Joseph of Philadelphia with 24 students.

The schools showing the largest *percentage decrease* are: Jesuit High of Shreveport with 11.1 percent; Jesuit High of New Orleans with 10.9 percent; Chaplain Kapaun of Wichita with 9.6 percent; and Jesuit High of El Paso with 7.2 percent.

HIGH SCHOOL FRESHMEN ENROLLMENT

Total high school enrollment for all 49 American Jesuit high schools for freshmen class only shows an increase of 109 freshmen. Total freshmen enrollment for the year 1962-1963 was 9349; for 1963-1964 it is 9458. For purposes of comparison we shall use the statistics of 48 high schools since we have no basis of comparison for Jesuit High of Sacramento which is enrolling its first freshmen class this year. Of these 48 high schools, 24 schools show an increase in the freshmen class, 22 show a decrease. Two schools, Marquette U. High and Regis of New York, retain the same freshmen enrollment as last year.

The high schools showing the more notable *increase numerically* in freshmen enrollment for the current year are: Brooklyn Prep with

46; Boston College High with 37; Gonzaga of Washington, D.C. with 36; McQuaid of Rochester with 33; Colegio San Ignacio of Puerto Rico with 29; St. Ignatius of Chicago with 27; St. Ignatius of Cleveland with 25; and Jesuit College Prep of Houston with 22. All the schools noted above have added equivalently a full class to their previous freshmen enrollment.

Percentage increases are more outstanding in our survey of this year's freshmen classes. Colegio San Ignacio of Puerto Rico practically doubled its enrollment of the previous year with an increase in its freshmen class of 49.1 percent. Jesuit College Prep of Houston took a sizeable spurt with an increase of 21.1 percent. Gonzaga High of Washington, D.C. showed an appreciable gain with an increase of 19.5 percent. Brooklyn Prep and McQuaid of Rochester also made noticeable gains of 18.9 percent and 16.2 percent respectively. Other schools showing percentage gains were: Bishop's Latin of Pittsburgh with 13.5 percent, Boston College High with 11.3 percent, and Jesuit High of Tampa with 11.3 percent.

Seven schools show *numerical decreases*, equivalent to the loss of an entire class. The comparison is with last year's freshmen class. Schools showing these losses are: Creighton Prep, a loss of 40; St. Joseph, a loss of 40; Jesuit High of Dallas, a loss of 34; Xavier of Concord, a loss of 31; Jesuit High of El Paso, a loss of 30; Jesuit High of New Orleans, a loss of 27; St. Peter's a loss of 24.

Ten high schools report *percentage decreases* of 10 percent or over for this year's freshmen class. Schools with the percentage of loss over last year's freshmen class are: Jesuit High of El Paso, a drop of 28.8 percent; Xavier of Concord, a drop of 26.3 percent; Jesuit High of Dallas, a drop of 19.9 percent; St. Joseph of Philadelphia, a drop of 19.6 percent; Creighton Prep of Omaha, a drop of 15.6 percent; Seattle Prep, a drop of 13.6 percent; Jesuit High of New Orleans, a drop of 12.3 percent; Loyola of New York, a drop of 12.2 percent; Jesuit High of Shreveport, a drop of 11.0 percent; Jesuit High of Tampa, a drop of 11.0 percent.

SUMMARY OF HIGH SCHOOL STATISTICS

With 49 of the 51 American Jesuit high schools reporting enrollment figures for the 1963-1964 scholastic year we find the following statistics in summary form. The all-over *four year enrollment* plus special students for all 49 schools for the school year 1963-1964 is 33,828 students, or a numerical increase of 884 students and a percentage increase of 2.7 percent over the enrollment figures of 32,944

for the school year 1962-1963. Increases both numerical and percentage are evidenced in Freshmen, Junior, and Senior Years. Decreases both numerical and percentage are noted in Sophomore Year and in Specials. *Freshmen* year enrollment this year is 9458 Freshmen, an increase of 109 students or 1.2 percent. *Sophomores* total 8568 students, or a loss of 10 students or 0.1 percent. In the *Junior* Year, the increase is 55 students. The figures are 7508 Juniors this year; 6764 for last year. The increase is 0.6 percent. The *Senior* year evidences the greatest enrollment gain with an increase of 744 seniors or 10.9 percent over last year's figures. The totals are 7508 Seniors this year and 6764 Seniors last year. *Specials* took a drop of 14 from last year's total of 298. The figure for this year is 284 or a drop of 4.9 percent.

COLLEGE AND UNIVERSITY ENROLLMENT
FOUR YEAR ENROLLMENT

It is necessary each year to lay down a few ground rules for the proper understanding of the tables and statistical information supplied in this JEQ article. All information used in the articles and tables is supplied by the various registrars and no adjustment is made in these figures by the compiler. This warning is given since in some cases different statistics are released from the various schools and these statistics are at variance with the JEQ figures. The Grand Totals used in both tabular materials and in commentary refer to full and part time enrollment plus extension and no tuition courses. Many schools in publicity releases and in reports use only the full and part time enrollment without adding the figures of extension and no tuition enrollment. For those with an eagle eye, we also give warning that freshmen figures in the Composite Table and in the Freshmen table are in some cases at variance. Figures in the Composite table under Freshmen list ALL freshmen regardless of school. Figures in the separate Freshmen table list only Freshmen enrolled in Liberal Arts, Engineering, and Commerce.

Statistics in this article are based upon the enrollments in the 28 American Jesuit colleges and universities. Grand Total enrollments showed increases in 19 colleges and universities and decreases in 9 colleges and universities. In Freshmen enrollment, 14 colleges and universities show increases, 13 show decreases, and 1 has the same enrollment in Freshmen as last year.

The *numerical increase* in Grand Total enrollment was most in evidence with the following schools: St. Louis, 1181 students; St.

Joseph of Philadelphia, 696 students; Loyola Chicago, 482 students; Georgetown, 351 students; Canisius of Buffalo, 344 students; Loyola Baltimore, 326 students; Loyola New Orleans, 321 students; and John Carroll of Cleveland, 264 students.

The *percentage increase* (over ten percent) in Grand Total enrollment was reported by the following schools: Loyola College of Baltimore with an increase of 16.1 percent; St. Joseph College of Philadelphia with an increase of 14.2 percent; Canisius College of Buffalo with an increase of 12.6 percent; St. Louis University with an increase of 11.2 percent; and Loyola University of New Orleans with an increase of 10.2 percent.

As a glance at the composite table will show, decreases in most of the colleges were so small that they could be safely ignored. One school only reported a sizeable loss and three other schools showed appreciable loss. The schools involved in *numerical loss* are: University of Detroit with a loss of 2665 students; Boston College with a loss of 388 students; Xavier of Cincinnati with a loss of 159 students; and Rockhurst of Kansas City with a loss of 101 students.

The loss in *percentage* indicates that the University of Detroit has suffered a 24.7 percent loss in Grand Total enrollment. Rockhurst has lost 4.9 percent. Boston College reports a 4.4 percent loss. Xavier of Cincinnati has a 4.3 percent loss.

The loss of students reported above for the University of Detroit has taken Detroit out of first place position as the largest American Jesuit school, a position it has occupied for several past years. The new alignment of the largest American colleges and universities is:

Loyola University, Chicago	12,154
Marquette University	11,967
University of Detroit	10,795
St. Louis University	10,305
Fordham University	10,018
Boston College	8,797
Georgetown University	7,142

The previous ranking for last year for the largest schools was: University of Detroit, Marquette University, Loyola of Chicago, Fordham, Boston College, and St. Louis University. These seven schools have a total Grand Total enrollment of 71,182 students. The combined enrollment of these schools comprises 54.7 percent of the entire enrollment in Grand Totals of all 28 American Jesuit colleges and universities.

INDIVIDUAL SCHOOLS AND DEPARTMENTS

The Master Tabular Table Number ONE contains fourteen specific categories plus the category Miscellaneous which contains all schools and departments not listed under the fourteen specific categories. Admittedly it would be the ideal situation if we could list all schools and departments and do away with the Miscellaneous category but with the complexity of 28 colleges and universities this is manifestly impossible. In a later paragraph we shall give specific listings for the numbers indicated under the Miscellaneous category.

For the benefit of those who would prefer not to wade through the complexities of the various charts or whose eyes protest at the smallness of numbers and type faces we will give in summary form the various figures and percentages appearing in the various tabular charts. *Liberal Arts, Day* has an enrollment in all 28 schools of 41,365 students, an increase of 1482 students, and an increase in percentage of 3.7 over last year's totals. *Liberal Arts, Night* in 19 schools shows an enrollment of 15,354 students, an increase of 621 students, or 4.2 percent. *Commerce, Day,* in 20 schools has an enrollment of 10,454 students, an increase of 106 students, or 1.0 percent. *Commerce, Night* in 16 schools shows up with a decrease of 651 students for a total of 7516 students. This loss is 8.4 percent. *Dentistry* in 7 schools increased enrollments by 32 students to a total of 2069 potential dentists. The increase is 1.6 percent.

Education—University College shows a decrease but this is probably more apparent than real. Both Fairfield University and University of Scranton reported under this category last year but do not report in this category this year. Both apparently have transferred the students formerly in this category to that of Liberal Arts, Night. *Engineering* in 7 schools continues to take a decrease in enrollment. This loss in Engineering enrollment has been apparent in the last several enrollment reports. The loss this year is 701 students and a loss of 16.4 percent. The Engineering enrollment for this year is 4273 students. *Graduate* students form the second largest category after Liberal Arts. Twenty-two schools report on Graduate students and indicate an enrollment of 18,823 students. This is an increase of 2237 students and an increase of 13.9 percent over last year's enrollment.

Both Law schools, Day and Night show an increase. Medicine on the other hand shows a slight decrease. Dentistry, as stated above, showed a slight increase. *Law, Day* in 12 schools has a present en-

rollment of 2705 students. This is an increase of 333 students and an increase of 14.0 percent. *Law, Night* in 11 schools reports an increase of 64 students for a current enrollment of 2056 aspiring lawyers. The increase is 3.2 percent. *Medicine* takes a loss of 28 students and reports present enrollment as 2056 in 5 medical schools. The loss indicated is 1.5 peraent.

Nursing and Pharmacy both report losses; Social Work reports a gain. *Nursing* in 9 schools has a loss of 49 students and presently reports an enrollment of 3219 students. The loss is 1.9 percent. *Pharmacy* in 3 schools has a drop of 45 students. The loss is 9.7 percent. Present enrollment in the Pharmacy schools in 464 students. *Social Work or Service* in 4 schools has an enrollment of 930 students. There was a very slight increase of three students this year, or an increase of 0.3 percent.

Figures reported under *Miscellaneous* are, as was mentioned earlier in this article a mixtum gatherum which could not be included under the regular categories. Some schools such as Georgetown in their Foreign Service and Institute of Languages have sizeable numbers but we could not fit in a specific bank in our table which would give statistics on one institution only. Figures in parentheses will give total listed for the individual school under miscellaneous listing and then the actual breakdown of this figure will be given in each case. *Boston College* (394) Graduate School of Business, 394; *Canisius College* (142) Pre-clinical Nurses, 142; *Georgetown University* (1664) Foreign Service, Day, 861, Foreign Service, Night, 55, Institute of Languages, Day, 611, Institute of Languages, Night, 137; *Gonzaga University* (178) Pre-Law, 50, Pre-Med, 77, Medical Technician, 38, Music Education, 13; *College of the Holy Cross* (6) Special, 6; *Loyola College of Baltimore* (52) Non-credit College Courses, 52; *Loyola University Chicago* (272) Institute of Industrial Relations, 161, CPA Review, 111; *Loyola University Los Angeles* (151) Advanced Placement 26, Evening Division, 125; *Loyola University New Orleans* (235) Music, 96, Dental Hygiene, 46, Criminology, Night, 93; *Marquette University* (1635) Engineering, Night 544, Nursing, Night, 124, Journalism, 278, Speech, 198 Medical Technology, 154, Physical Therapy, 91, Jesuit College 126, Dental Hygiene, 120; *Seattle University* (570) Pre-Majors, 245, Transient, 71, Sister Formation, 254; *University of Detroit* (811) Colombiere College, 62, Engineering, Night, 148, General Studies, 531, Dental Hygiene, 70; *University of San Francisco* (406) College of Science, 330, Presentation College, 34, Mt. Alverno College, 42; *University*

of Scranton (587) Natural Science, 444, Non-Matriculating, Night, 143; *Xavier University* (79) Milford Novitiate, 79.

COLLEGE FRESHMEN ENROLLMENT

In dealing with this section it is well to realize that we have, in some cases, two sets of figures. For the moment, the figures which are quoted are those appearing in the Composite Table, Table FOUR. These figures represent total Freshmen enrollment. It is also well at this time to repeat a warning that has been previously given that we are giving figures exactly as the various registrars send them in to us. If a curious reader should check some of the enrollment figures given last year and compare them with the figures reported this year as the correct enrollment for 1963 he would find several discrepancies. It is mainly in this area of freshmen enrollment that the registrars seem to adjust previous recorded figures.

The 28 colleges and universities in reporting statistics for entering freshmen show that 14 schools have *increased* freshmen enrollment and 13 have *decreased* freshmen enrollment. One school, Loyola of New Orleans, has the same freshmen enrollment as last year.

Most of the increases and decreases are too small to call to the attention of the reader but here are several worthy of notice. In *Numerical increase* John Carroll of Cleveland has 157; University of Detroit has 125; Loyola of Chicago has 107; Loyola of Baltimore has 81; and University of San Francisco has 57. In *Percentage increase,* John Carroll has an increase of 28.1 percent, Loyola of Baltimore 27.2 percent, University of San Francisco 14.3 percent, University of Detroit 10.2 percent, and Loyola of Chicago 7.6 percent.

Notable *decreases Numerically* are found at Seattle University with a loss of 68 freshmen, Loyola of Los Angeles with 56, Rockhurst of Kansas City with 48, and Fairfield with 39. *Percentage decreases* for the same schools are: Rockhurst, 19.8 percent, Loyola of Los Angeles, 16.5 percent, Fairfield, 11.6 percent, and Seattle, 9.8 percent.

Table THREE, the Freshmen enrollment table for the schools of Liberal Arts, Engineering, and Commerce shows that there is but a fractional (1.0 percent) increase in Liberal Arts, a continued loss (7.6 percent) in Engineering, and a loss (1.9 percent) in Commerce. The total for these three schools is a loss of 0.5 percent. Table FOUR, the Composite table, includes freshmen of all schools. This table shows an increase, slight though it may be, of 1.8 percent.

SUMMARY OF COLLEGE AND UNIVERSITY STATISTICS

The fourteen categories used in Table ONE, the Master Table, show that 8 categories have reported increases in the 28 colleges and universities, and 6 have reported decreases in enrollment. The categories showing *increases* are: *Liberal Arts, Day,* with an increase of 3.7 percent or 1482 students; *Liberal Arts, Night,* with an increase of 621 students or 4.2 percent; *Commerce, Day,* an increase of 106 students or 1.0 percent; *Dentistry,* an increase of 32 students, or 1.6 percent; *Graduate,* an increase of 2237 students or 13.9 percent; *Law, Day,* an increase of 333 students or 14.0 percent; *Law, Night,* an increase of 64 students or 3.2 percent; *Social Work,* an increase of 3 students or 0.3 percent.

The six categories showing *decreases* are: *Commerce, Night,* a loss of 631 students or 8.4 percent; *Education,* a loss of 813 students or 18.7 percent; *Engineering,* a loss of 701 students or 16.4 percent; *Medicine,* a loss of 28 students or 1.5 percent; *Nursing,* a loss of 49 students or 1.5 percent; *Pharmacy,* a loss of 45 students or 9.7 percent.

In the full totals for all 28 colleges and universities, *full-time* enrollment has an increase of 2331 students or an increase of 3.1 percent. *Part-time* enrollment also has an increase of 1200 students or 2.8 percent. *Full and Part Time* enrollment has an increase of 3531 students or 2.9 percent. *Grand Total* enrollment, that is, Full and Part time plus Extension and Low Tuition enrollment, has an increase of 1897 students or 1.5 percent.

Generally we make some reference in this article to the annual enrollment statistics appearing in *School and Society* and relate the percentages to our comparable Jesuit enrollment. However printer's deadline and the fact that the article on the national statistics will not appear for some weeks preclude a full comparison. An advance Associated Press release dated December 1, 1963 gives a preliminary report on the annual study. It reports that there is an increase of 6.4 percent in *full time* students. Jesuit increase was 3.1 percent. *Liberal arts* is predicted for a 4.4 percent increase; Jesuit increase was 3.7 percent for Day and 4.2 percent for Night. *Nursing* is supposed to show an increase of 6.4 percent. Jesuit nursing schools report a loss of 1.5 percent. *Engineering* should have an increase of 1.2 percent; Jesuit schools show a 16.4 percent loss. *Commerce* will have a 3.0 percent rise. Jesuit schools show a 1.0 percent increase. A partial explanation for the discrepancy in Jesuit figures with national

figures lies in the fact that the percentage of female enrollment is moving at a greater rate than male enrollment. Such a fact would of course affect enrollment figures in many of our schools. Dr. Garland C. Parker, the director of this annual survey, predicts that there will be an enrollment rise of 20 percent in 1964 with an additional increase of 12 percent in 1965.

ENROLLMENT IN EDUCATIONAL HOUSES OF OURS

TERTIANSHIPS: *AURIESVILLE*–42 Tertians; *CLEVELAND*–26 Tertians; *DECATUR*–23 Tertians; *POMFRET*–30 Tertians; *Port Townsend*–35 Tertians. The total number of Tertian Fathers in the United States Tertianships is 156 Tertians. There are 16 Tertian brothers in the Tertianship at Cleveland.

THEOLOGATES: *ALMA*–23 in First Year; 27 in Second Year; 24 in Third Year; 34 in Fourth Year, for a total of 108 Theologians. *ST. MARYS*–50 in First Year; 43 in Second Year; 37 in Third Year; 51 in Fourth Year, for a total of 181 Theologians. *WEST BADEN*–25 in First Year; 28 in Second Year; 24 in Third Year; 18 in Fourth Year, for a total of 95 Theologians. *WESTON*–22 in First Year; 30 in Second Year; 35 in Third Year; 30 in Fourth Year, for a total of 117 Theologians. *WOODSTOCK*–64 in First Year; 58 in Second Year; 57 in Third Year; 64 in Fourth Year, for a total of 243 Theologians. Assistancy totals for the five theologates are: 184 in First Year; 186 in Second Year; 177 in Third Year; 197 in Fourth Year, for a total of 744 Theologians.

PHILOSOPHATES: *ASSUMPTION HALL*–35 in First Year; 27 in Second Year; 23 in Third Year–a total of 85 Philosophers. *FUSZ MEMORIAL*–70 in First Year; 57 in Second Year; 58 in Third Year–a total of 185 Philosophers. *LOYOLA SEMINARY*–77 in First Year; 64 in Second Year; 62 in Third Year–a total of 203 Philosophers. *MOUNT ST. MICHAEL*–44 in First Year; 45 in Second Year; 51 in Third Year–a total of 140 Philosophers. *WEST BADEN*–35 in First Year; 39 in Second Year; 34 in Third Year–a total of 108 Philosophers. *WESTON*–38 in First Year; 11 in Second Year; 18 in Third Year–a total of 67 Philosophers. The six Philosophates of the American Assistancy have the following totals for the scholastic year 1963-64: 299 in First Year; 243 in Second Year; 246 in Third Year, for an Assistancy total of 788 Philosophers.

JUNIORATES: *PLATTSBURGH*–15 in First Year; 24 in Second Year, a total of 39 Juniors. *COLOMBIERE*–6 in First Year; 11 in Second Year, a total of 17 Juniors; *ST. BONIFACIUS*–32 in First

Year; 26 in Second Year, a total of 58 Juniors. *MILFORD*–21 in First Year; 16 in Second Year, a total of 37 Juniors. *WERNERSVILLE*–25 in First Year; 12 in Second Year, a total of 37 Juniors. *LOS GATOS*–35 in First Year; 27 in Second Year, a total of 62 Juniors. *ST ANDREW*–27 in First Year; 23 in Second Year, a total of 50 Juniors. *GRAND COTEAU*–16 in First Year; 13 in Second Year, a total of 29 Juniors. *SHERIDAN*–19 in First Year; 14 in Second Year, a total of 33 Juniors. *FLORISSANT*–31 in First Year; 30 in Second Year, a total of 61 Juniors. *SHADOWBROOK*–17 in First Year; 24 in Second Year, a total of 41 Juniors. Assistancy totals for the eleven Juniorates are: 244 in First Year; 220 in Second Year, a total of 464 Juniors.

NOVITIATES: *PLATTSBURGH*–24 in First Year; 22 in Second Year, with a total of 46 Novices. *COLOMBIERE*–32 in First Year; 14 in Second Year, with a total of 46 Novices. *ST. BONIFACIUS*–40 in First Year; 27 in Second Year, with a total of 67 Novices. *MILFORD*–32 in First Year; 20 in Second Year, with a total of 52 Novices. *WERNERSVILLE*–23 in First Year; 33 in Second Year, with a total of 56 Novices. *LOS GATOS*–40 in First Year; 24 in Second Year, with a total of 64 Novices. *ST. ANDREW*–33 in First Year; 30 in Second Year, with a total of 63 Novices. *GRAND COTEAU*–25 in First Year; 19 in Second Year, with a total of 44 Novices. *SHERIDAN*–37 in First Year; 26 in Second Year, with a total of 63 Novices. *FLORISSANT*–30 in First Year; 21 in Second Year, with a total of 51 Novices. *SHADOWBROOK*–28 in First Year; 34 in Second Year, with a total of 62 Novices. Assistancy totals for eleven Novitiates are: 344 in First Year; 270 in Second Year, with a total of 614 Novices.

House totals for the various Novitiate-Juniorates are: *BELLARMINE*–46 Novices; 39 Juniors, total of 85. *COLOMBIERE*–46 Novices; 17 Juniors, total of 63. *ST. BONIFACIUS*–67 Novices; 58 Juniors, total of 125. *MILFORD*–52 Novices; 37 Juniors, total of 89. *WERNERSVILLE*–56 Novices; 37 Juniors, total of 93. *LOS GATOS*–64 Novices; 62 Juniors, total 126. *ST. ANDREW*–63 Novices; 50 Juniors, total of 113. *GRAND COTEAU*–44 Novices; 29 Juniors, total of 73. *SHERIDAN*–63 Novices; 33 Juniors, total of 96. *FLORISSANT*–51 Novices; 61 Juniors, total of 112. *SHADOWBROOK*–62 Novices; 41 Juniors, total of 103.

To recapitulate, the House of Formations of the American Assistancy have the following enrollments for the scholastic year 1963-1964: *TERTIANSHIPS*–156; *THEOLOGATES*–744; *PHILOSO-*

PHATES – 788; *JUNIORATES* – 464; *NOVITIATES* – 614. The *GRAND TOTAL* for all House of Formation of Ours in the American Assistancy is 2766. As a point of comparison, the Grand Total for last year was 2776 men in training.

MINOR SEMINARIES: Students in these seminaries are preparing for the diocese and not for the Society. The Major Seminary at Mundelein has never appeared in our statistical survey, possibly because while we teach at the Seminary, we do not administer the Seminary. *AIBONITO*–32 in First Year; 25 in Second; 23 in Third; 10 in Fourth for a total of 90. *CORPUS CHRISTI*–34 in First; 22 in Second; 23 in Third; 12 in Fourth; 10 in Fifth; 4 in Sixth, total of 105. *RYAN*–23 in First; 11 in Second; 8 in Third; 7 in Fourth, a total of 49. The total of all Minor Seminarians is 244.

The SCHOOL OF ST. PHILIP NERI (for delayed vocations) has 51 day students at Boston and 33 boarding students at Haverhill for a total of 84.

STUDENTS UNDER JESUIT INSTRUCTION
AMERICAN ASSISTANCY
1963-1964

Colleges and Universities	130,210
High Schools	33,828
Houses of Ours	2,766
Minor Seminaries	244
Delayed Vocations	84
GRAND TOTAL	167,132

News from the Field

McQUAID JESUIT HIGH (Rochester) is one of 13 high schools to be included in a 1963-64 Teacher Research Experience Program (TREP) for secondary school science teachers. Supported by the National Science Foundation, the program is sponsored by Cornell University.

The aim of the program is to make high school science teaching more true to science as a process of inquiry. A consultant scientist–in this instance from the nearby University of Rochester–facilitates the participant's research. Student assistants are the first beneficiaries.

Jesuit Educational Association
College and University Enrollment, 1963-1964

TABLE ONE	Liberal Arts		Commerce		Dentistry	Education Univ. College	Engineering	Graduate	Law		Medicine	Nursing	Pharmacy	Social Work Social Service	Miscellaneous	Full Time Totals	Part Time Totals	Full and Part Time Totals	Extension Low Tuition	Grand Total	Summer School	
	Day	Night	Day	Night					Day	Night											Graduate	Undergrad.
Boston College	2,179	847	1,615	370	....	858	....	1,152	361	63	....	783	....	175	394	6,853	1,944	8,797	....	8,797	1,188	1,799
Canisius College	956	704	295	222	....	....	....	723	....	....	....	....	....	....	142	1,542	1,500	3,042	32	3,074	458	881
Creighton University	1,680	84	371	30	180	....	....	379	117	....	292	307	128	....	....	2,655	913	3,568	....	3,568	507	517
Fairfield University	1,290	....	....	....	....	....	....	804	....	....	....	....	....	....	....	1,300	794	2,094	....	2,094	448	324
Fordham University	2,280	....	761	380	....	2,121	....	1,846	531	306	....	....	261	409	....	5,630	3,265	8,895	1,123	10,018	1,302	2,058
Georgetown University	1,531	....	491	66	368	....	....	1,168	515	645	423	271	....	....	1,664	5,671	1,471	7,142	....	7,142	665	2,536
Gonzaga University	1,131	23	211	....	....	263	227	77	....	141	....	181	....	....	178	2,034	398	2,432	....	2,432	262	690
Holy Cross College	1,809	....	....	....	....	....	....	11	....	....	....	....	....	....	6	1,826	....	1,826	....	1,826	....	....
John Carroll University	2,023	1,235	197	119	....	....	....	623	....	....	....	....	....	....	....	2,473	1,724	4,197	....	4,197	427	2,604
Le Moyne College	1,430	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1,370	60	1,430	93	1,523	....	368
Loyola College	837	948	....	....	....	....	....	447	....	....	....	....	....	....	52	887	1,397	2,284	61	2,345	415	825
Loyola Univ., Chicago	3,583	2,572	850	....	364	....	....	1,537	144	115	329	447	....	230	272	6,150	4,293	10,443	1,711	12,154	1,433	5,274
Loyola Univ., Los Angeles	903	....	199	....	....	....	199	205	179	197	....	....	....	....	151	1,474	559	2,033	53	2,086	251	493
Loyola Univ., New Orleans	929	35	334	535	222	....	....	349	138	143	....	....	75	....	235	1,799	1,196	2,995	480	3,475	123	906
Marquette University	3,155	651	894	638	450	....	977	1,127	206	....	394	298	....	....	1,635	7,402	3,023	10,425	1,542	11,967	1,787	2,239
Regis College	753	257	....	....	....	....	....	....	....	....	....	....	....	....	....	740	270	1,010	....	1,010	....	274
Rockhurst College	572	....	193	1,289	....	....	....	....	....	....	....	....	....	....	....	747	1,307	2,054	....	2,054	....	325
St. Joseph's College	1,589	3,538	....	....	....	....	....	208	....	....	....	....	....	....	....	1,920	3,415	5,335	254	5,589	47	2,159
St. Louis University	2,687	446	693	624	208	....	964	2,618	154	141	416	512	....	116	....	6,437	3,142	9,579	726	10,305	2,243	2,347
St. Peter's College	1,036	257	457	558	....	....	....	....	....	....	....	....	....	....	....	1,775	533	2,308	225	2,533	....	1,330
Seattle University	1,473	37	405	59	....	591	266	331	....	....	....	209	....	....	570	3,129	812	3,941	281	4,222	518	901
Spring Hill College	1,187	177	....	....	....	....	....	....	....	....	....	....	....	....	....	940	424	1,364	....	1,364	....	535
University of Detroit	1,992	1,727	700	1,208	277	....	1,366	1,278	112	99	....	....	....	....	811	5,036	4,534	9,570	1,225	10,795	1,132	3,238
University of San Francisco	757	1,320	329	739	....	289	....	115	177	150	....	211	....	....	406	2,277	2,216	4,493	74	4,567	186	2,306
University of Santa Clara	1,274	....	400	....	....	....	274	1,334	71	56	....	....	....	....	....	2,049	1,360	3,409	255	3,664	562	434
University of Scranton	602	152	436	252	....	212	....	432	....	....	....	....	....	....	587	1,517	1,156	2,673	17	2,690	486	781
Wheeling College	565	....	....	....	....	....	....	....	....	....	....	....	....	....	....	546	19	565	....	565	....	....
Xavier University	1,162	344	623	427	....	....	....	1,519	....	....	....	....	....	....	79	1,919	2,235	4,154	....	4,154	986	1,049
Totals 1963-1964	41,365	15,354	10,454	7,516	2,069	4,334	4,273	18,283	2,705	2,056	1,854	3,219	464	930	7,182	78,098	43,960	122,058	8,152	130,210	15,426	37,193
Totals 1962-1963	39,883	14,733	10,348	8,147	2,037	5,147	4,974	16,046	2,372	1,992	1,882	3,268	509	927	6,322	75,767	42,760	118,527	9,786	128,313	14,211	33,922
Increase or Decrease	+1,482	+621	+106	—631	+ 52	— 813	— 701	+2,237	+ 333	+ 64	— 28	— 49	— 45	+ 3	+ 860	+2331	+1200	+3531	—1634	+1897	+1215	+3271
Percent	+ 3.7	+ 4.2	+1.0	—8.4	+1.6	—18.7	—16.4	+13.9	+14.0	+3.2	—1.5	—1.5	—9.7	+0.3	+13.6	+ 3.1	+ 2.8	+ 2.9	—20.0	+ 1.5	+ 8.5	+ 9.6

Jesuit Educational Association
High School Enrollment 1963-1964

TABLE TWO

	Freshmen	Sophomores	Juniors	Seniors	Specials	Totals 1963-1964	Totals 1962-1963	Decrease or
Bellarmine College Preparatory, San Jose	267	222	202	201	....	892	872	+
Bellarmine High School, Tacoma	118	97	81	70	....	366	372	—
Bishop's Latin School, Pittsburgh	59	48	41	....	....	148	98	+
Boston College High School, Boston	365	294	345	307	....	1,311	1,336	—
Brebeuf Preparatory, Indianapolis	172	147	....	....	....	319	168	+
Brooklyn Preparatory School, Brooklyn	289	221	219	298	....	1,027	1,051	—
Brophy College Preparatory, Phoenix	164	159	134	122	....	579	566	+
Campion Jesuit High School, Prairie du Chien	172	160	141	111	....	584	591	—
Canisius High School, Buffalo	245	200	223	209	....	877	888	—
Chaplain Kapaun Mem. High School, Wichita	141	134	172	148	....	595	652	—
Cheverus High School, Portland, Maine	121	107	101	89	....	418	407	+
Colegio San Ignacio, Puerto Rico	88	66	49	48	151	402	344	+
Cranwell Preparatory School, Lenox	52	61	57	50	6	226	231	—
Creighton Preparatory School, Omaha	256	282	274	232	....	1,044	1,010	+
Fairfield College Prep. School, Fairfield	220	211	219	204	....	854	884	—
Fordham Preparatory School, New York	227	195	202	198	....	822	824	—
Georgetown Preparatory School, Garrett Park	61	59	60	57	55	292	275	+
Gonzaga High School, Washington, D.C.	220	176	157	159	....	712	669	+
Gonzaga Preparatory School, Spokane	224	194	190	172	....	780	793	—
Jesuit College Preparatory, Houston	126	106	93	....	....	325	190	+
Jesuit High School, Dallas	171	171	153	123	....	618	631	—
Jesuit High School, El Paso	104	95	66	70	....	335	359	—
Jesuit High School, New Orleans	218	217	225	216	71	947	1,040	—
Jesuit High School, Portland, Oregon	134	138	121	128	1	522	505	+
Jesuit High School, Sacramento	90	....	....	....	....	90	....	+
Jesuit High School, Shreveport	98	90	80	66	....	334	371	—
Jesuit High School, Tampa	104	94	104	88	....	390	371	+
Loyola Academy, Wilmette	421	418	382	371	....	1,592	1,511	+
Loyola High School, Los Angeles	273	260	230	206	....	969	911	+
Loyola High School, Missoula	44	48	23	25	....	140	130	+
Loyola High School, Towson	187	184	196	203	....	770	796	—
Loyola School, New York	49	58	51	37	....	195	179	+
Marquette Univ. High School, Milwaukee	262	245	239	226	....	972	975	—
McQuaid Jesuit High School, Rochester	236	182	191	200	....	809	806	+
Regis High School, Denver	178	158	139	136	....	611	560	+
Regis High School, New York	174	164	151	131	....	620	615	+
Rockhurst High School, Kansas City	211	200	198	158	....	767	688	+
St. Ignatius High School, Chicago	312	271	278	279	....	1,140	1,116	+
St. Ignatius High School, Cleveland	332	283	278	278	—	1,171	1,109	+
St. Ignatius High School, San Francisco	294	293	272	259	....	1,118	1,088	+
St. Joseph's Preparatory School, Philadelphia	204	216	215	173	....	808	832	—
St. Louis University High School, St. Louis	236	224	208	212	....	880	876	+
St. Peter's Preparatory School, Jersey City	257	263	233	247	....	1,000	1,015	—
St. Xavier High School, Cincinnati	327	308	332	287	....	1,254	1,212	+
Scranton Preparatory School, Scranton	129	98	103	86	....	416	393	+
Seattle Preparatory School, Seattle	140	134	117	107	....	498	511	—
University of Detroit High School, Detroit	288	254	244	246	....	1,032	1,042	—
Xavier High School, Concord	118	112	....	....	....	230	149	+
Xavier High School, New York	280	251	221	275	....	1,027	1,029	—
Totals 1963-64	9,458	8,568	8,010	7,508	284	33,828		
Totals 1962-63	9,349	8,578	7,955	6,764	298		32,944	
Increase or Decrease	+109	—10	+55	+744	—14			
Percent	+ 1.2	— .1	+ .6	+10.9	—4.9			

Jesuit Educational Association
Freshmen College Enrollment
1962-1963, 1963-1964

TABLE THREE	Liberal Arts		Engineering		Commerce		Total		Increase Decrease
	1963-1964	1962-1963	1963-1964	1962-1963	1963-1964	1962-1963	1963-1964	1962-1963	
Boston College	669	664	----	----	516	492	1,185	1,156	+ 29
Canisius College	280	280	----	----	83	90	363	370	+ 7
Creighton University	542	529	----	----	107	98	649	627	+ 22
Fairfield University	335	374	----	----	----	----	335	374	— 39
Fordham University	553	527	----	----	216	198	769	725	+ 44
Georgetown University	425	424	----	----	138	151	563	575	— 12
Gonzaga University	394	378	59	74	52	51	505	503	+ 2
Holy Cross College	493	664	----	----	----	----	493	507	— 14
John Carroll University	716	559	----	----	----	----	716	559	+157
Le Moyne College	327	350	----	----	----	----	327	350	— 23
Loyola College	379	298	----	----	----	----	379	298	+ 81
Loyola University, Chicago	1,170	1,106	----	----	245	240	1,415	1,346	+ 69
Loyola University, Los Angeles	241	286	53	50	45	59	339	395	— 56
Loyola University, New Orleans	276	290	---	---	87	73	363	363	+ 0
Marquette University	796	836	208	232	181	164	1,185	1,232	— 47
Regis College	226	213	----	----	----	----	226	213	+ 13
Rockhurst College	187	209	----	----	55	81	242	290	— 48
St. Joseph's College	1,063	1,025	---	----	----	----	1,063	1,025	+ 38
St. Louis University	927	890	269	289	342	362	1,538	1,541	— 3
St. Peter's College	287	299	---	---	132	150	419	449	— 30
Seattle University	569	623	57	71	68	68	694	762	— 68
Spring Hill College	342	370	----	----	----	----	342	370	— 28
University of Detroit	470	535	283	319	149	165	902	1,019	—117
University of San Francisco	200	153	134	117	59	72	393	342	+ 51
University of Santa Clara	452	453	74	72	128	90	654	615	+ 39
University of Scranton	298	314	----	----	112	144	410	458	— 48
Wheeling College	174	165	----	----	----	----	174	165	+ 9
Xavier University	453	455	----	----	179	201	632	656	— 24
Totals	13,244	13,112	1,137	1,224	2,894	2,949	17,275	17,285	— 10
Plus or Minus	+132		— 87		— 55		— 10		
	+ 1.0		—7.6		—1.9		—0.5		

Jesuit Educational Association

Composite College Statistics, 1963-1964

TABLE FOUR	Grand Total Enrollment 1963-1964	1962-1963	Increase—Decrease Numerical	Percentage	Freshmen Enrollment 1963-1964	1962-1963	Increase—Decrease Numerical	Percent
Boston College	8,797	9,185	— 388	— 4.4	1,185	1,156	+ 29	+
Canisius College	3,074	2,730	+ 344	+12.6	363	370	— 7	—
Creighton University	3,568	3,313	+ 255	+ 7.7	649	627	+ 22	+
Fairfield University	2,094	2,155	— 61	— 2.9	335	374	— 39	—1
Fordham University	10,018	10,054	— 36	— 0.4	769	725	+ 44	+
Georgetown University	7,142	6,791	+ 351	+ 5.2	994	962	+ 32	+
Gonzaga University	2,432	2,288	+ 144	+ 6.3	505	503	+ 2	+
Holy Cross College	1,826	1,827	— 1	— 0.1	493	507	— 14	—
John Carroll University	4,197	3,933	+ 264	+ 6.7	716	559	+ 157	+2
Le Moyne College	1,523	1,518	+ 5	+ 0.3	327	350	— 23	—
Loyola College	2,345	2,019	+ 326	+16.1	379	298	+ 81	+2
Loyola University, Chicago	12,154	11,672	+ 482	+ 4.1	1,517	1,410	+ 107	+
Loyola University, L.A.	2,086	2,013	+ 73	+ 3.6	339	395	— 56	—1
Loyola University, N.O.	3,475	3,154	+ 321	+10.2	363	363	0	
Marquette University	11,967	11,878	+ 89	+ 0.7	1,185	1,232	— 47	—
Regis College	1,010	998	+ 12	+ 1.2	226	213	+ 13	+
Rockhurst College	2,054	2,155	— 101	— 4.9	242	290	— 48	—1
St. Joseph's College	5,589	4,893	+ 696	+14.2	1,063	1,025	+ 38	+
St. Louis University	10,305	9,124	+1,181	+11.2	1,538	1,541	— 3	—
St. Peter's College	2,533	2,544	— 11	— 0.4	419	449	— 30	—
Seattle University	4,222	4,072	+ 150	+ 3.7	694	762	— 68	—
Spring Hill College	1,364	1,445	— 81	— 5.9	342	370	— 28	—
University of Detroit	10,795	13,460	—2,665	—24.7	1,355	1,230	+ 125	+1
University of San Francisco	4,567	4,363	+ 204	+ 4.7	456	399	+ 57	+1
University of Santa Clara	3,664	3,437	+ 227	+ 6.6	654	615	+ 39	+
University of Scranton	2,690	2,531	+ 159	+ 6.3	446	484	— 38	—
Wheeling College	565	521	+ 44	+ 8.4	174	165	+ 9	+
Xavier University	4,154	4,172	— 159	— 4.3	632	656	— 24	—
Totals	130,210	128,313	+1,897	+ 1.5	18,360	18,030	+ 330	+

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College Business Management as a Profession

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We live in a fast, competitive world and running our colleges and universities today requires sound thinking, wise decisions, specialized knowledge, definite skills and continuous effort to achieve the objectives of our Institute. We cannot hope to solve all of our problems at once but exploration may alert us to the various facets of the problems and provide necessary motivation for continuing study. One thing is certain: obtaining the best possible information on methods, procedures and techniques of administration is our most important problem and it will not solve itself.

Everyone realizes that our Jesuit institutions are non-profit and that, therefore, they cannot be expected to compete with commerce and industry. At the same time, it would be unreasonable for the Society engaged in education in this country to expend several hundred million dollars annually without availing itself of methods and procedures based on the most advanced and tested techniques developed by modern business. This is not submitted as a profound observation but, judging from the amount of attention generally given to it, one might be tempted to think that just because it is obvious it tends to be overlooked. If it is overlooked, stringent financial problems will be created and will affect even our daily routine operations. This is what we very much need to avoid.

The term "Business Officer" should be interpreted throughout my remarks to mean the treasurer, controller, business manager, purchasing agent, bursar, as well as the individual who happens to be the chief business officer of an organization.

Special attention will here be given to the following aspects of professional business management.

1. The place of the business officer in the academic institution.
2. Some requisites for effective functioning of the business officer and his staff, particularly:
   a) The wise delegation of not responsibility alone but responsibility joined to a suitable share of authority
   b) the keeping abreast of new procedural developments
   c) the consulting of experts outside the institution
3. The business officer as one who shares in the specific educational function of his institution.
4. The business officer as a man of service and expediter as a team member.

The business officer is indispensable in any effective institutional operation. He is as essential to the total program as the chief administrator or any other divisional head of the institution. Organization charts may be concentric or vertical; titles may be altered; functions may be regrouped and reassigned but the business functions continue as a major segment of institutional administration.

This statement is true, however, in a functional sense—not in a personal one. If the business officer regards himself as indispensable as a person, then, of course, he can be a drag on his institutional effectiveness. The business officer who does not share his responsibilities with a competent staff, who aggregates to himself all final decisions, who insists that he alone through his signature or spoken word must pass upon every action of his institution, is inviting trouble. The continuity which his office should provide is not only endangered by his own limitations but his associates are stultified and become robots in a mechanical procedure. There is no more important or fundamental concept than the delegation of authority and the assumption of responsibility. It is common, of course, for managers to delegate responsibility. It is not uncommon for them to forget to delegate some genuine authority along with the responsibility. An efficient organization requires both delegations.

The business office, more than any other division, should represent the best in sound personnel administration. Here the staff members are more closely interdependent and are, therefore, as a group creative or static. A great portion of an institution's procedural controls originate in the business office and they become either instruments for getting a job done or restrictive red-tape—a form of bureaucracy. This latter is truly dangerous for "bureaucracy" as Lloyd George once said is "like malaria; once it gets into your blood, you never seem to get rid of it."

The business officer has little excuse for not informing his division of the best business practices. He has access to professional consultants and friends who are eager to contribute their counsel. Part of our failure to practice what we preach arises from not recognizing that our Jesuit institutions are fast becoming in a sense "big businesses."

We must be concerned with the principles of scientific management because our enterprise needs the application of sound principles to function effectively. The business officer cannot tolerate dogsled tactics in a jet age. He should study carefully the techniques and equipment which will improve the efficiency of his office. The

defense which rests its resistance to change on the grounds that "we have always done it this way" is really indefensible.

Because we have grown up in our academic communities, we may not always recognize just where conventional business practice is applicable to our organization. To be sure, there are many aspects of our business which are unique and there are countless ways in which the precepts of ordinary business management do not apply. But this fact should not stop the search for professional assistance from the specialist and help from our friends in the business world.

It is interesting to note in this connection that everyone is eager to assist when asked to do so. I believe every religious community should have a panel of consultants called upon individually or as a group for appraisal of current organization and practice and for suggestions for improving the business operation. A very important by-product of such a procedure is the value of good public relations developed by involving the interest and enthusiasm of important people in the intimate workings of our institutions. For too long a period of time, Catholic institutions by and large completely disregraded or by-passed the whole concept of public relations—as if it were entirely irrelevant. Fortunately, this is not the case today. By public relations I don't mean a course in bally-hoo but an awareness and sensitivity to the fact that the opinions of others do count in the conduct of human affairs.

The business officer, if his indispensable function is to be exercised with maximum effectiveness, must use his staff creatively and be continually engaged in appraisal with the best professional assistance for management improvement.

The business officer of a college or university ought to have the attitudes of an educator. This premise, however, is not always reduced to action. For one thing, the business officer should be ceaselessly educating himself. To paraphrase a current advertising slogan, "Give me the man who reads—and I'll show you the man who leads." The average business officer does not do enough reading. In a community of scholars he is conspicuous by his lack of study. By his professional reading, the business officer gains the breadth he needs to understand more effectively the implications of his job as it relates to the future objectives of his institution. Again, just as the business officer likes to have his work respected, so he should appreciate the vocation of the teaching personnel.

No one objects to each person's regarding his kind of work as having unique importance in the scheme of things. This basis is essen-

tial to the satisfactions of people. It keeps them striving to improve their own work. Different kinds of vacation privileges; difference in rates of pay for equally responsible kinds of work; differences in sick leave and retirement allowances should not exist. Professional personnel should be treated as professional personnel whether they are assigned to the Classics Department, the Library, or the Business Office. And all should receive the same benefits of employment.

On the other hand, I would remind the business officer that he can irritate the academic personnel if he assumes the business man's condescension to things academic. When his attitude suggests that he regards the professor as an impractical "braintruster" who is kept alive through the indulgence of the world's practical people, some of whom are operating the business office, he doesn't help create the atmosphere of professional cooperation and mutual respect so essential to team work in any large complex organization. Some cashiers dispense the paycheck as if they were awarding a personal favor granted by the business office. When a professor seeks to have a problem solved which happens not to fit the groove of accounting regularity he is given the impression that he is a sinful heretic in even suggesting that routines might be altered or exceptions created for the project that he has in mind.

But although the business officer should have the interests of an educator he should not presume to sit in judgment upon the educational ideas that come before him. Of course, educational policy is always influenced by finance but the form that influence takes should be a group judgment of the staff, and not the personal conclusion of the business officer.

The dual function of the business office can be best administered if the framework for decision has been subject to group discussion. There should be appraisal and approval in the institution as a whole, through whatever machinery is available for the purpose, and the whole state of the question should be adequately interpreted to the entire staff. Inadequate interpretation of business policies and practices is a common failure in all organizations. The result is that when a staff member is thwarted by a policy he had never heard of, he gets the notion that it was created on the spot by the office as a special means of ruining his pet project. Multiply this instance by a thousand and the climate for business operation is changed so drastically that its effectiveness is seriously hampered

When it comes to interpretation, however, the business officer again needs a specialist's help. The typical compendium of rules,

regulations, procedures, policies and general information may be clear to the auditor or controller but to the average staff member it is about as useful as the unintelligible instructions that are given for the assembly of a new household gadget. Worse, the very encyclopedic appearance of these documents confirms the suspicion of the faculty member that the chief function of the business office is to manufacture red tape.

The publication of an encyclopedia, then, is not the answer. A total program of communication must be planned through meetings, conferences, specialized publications for specialized purposes and individual counseling. The task of informing the staff is a continuous one throughout the year, and year after year. The business officer who thinks his interpretation job is done when he issues his occasional statement of procedures and addresses the opening staff meetings will be subject to the continuing harassment of staff misunderstanding.

As business officer and educator, his chief role is that of institutional expediter. Red tape is an inevitable by-product of institutional management. In fulfilling the responsibilities incumbent upon us it is necessary to set up rules and regulations, patterns of administration. No organization can survive without such regulation. We must always remember, however, that rules and regulations are made in order to get a job done and that no organizational pattern has yet been devised which can absorb all the problems with which an organization must deal. There must, therefore, be exceptions to regulations. The question must always be "How can we get the job done?" We must never assume that because a given problem falls outside the framework of previous arrangements nothing can be done about it. If organizations could be administered by rules and regulations alone, administrators would not be necessary. The clerical force could operate the institution. A chief task of the administrator is to know when to make an exception, and under what conditions and how to relate the exception to regular practice. If exceptions are made merely because of internal politics or for reasons of lazy administration, the results are devastating to morale and to efficiency. Rigid adherence to rules and regulations on the other hand is equally destructive to creative growth in the meeting of human problems.

The business officer is very often regarded by the faculty as a "yes" and "no" man. He says yes to things that fall neatly within the established routine groove and says no to everything that falls outside the

previously arranged scheme. Although obliged to say "no" far more often than his counterpart in industry, the way he says "no" is extremely important. I'm sure that the really good business officer is actually a problem solver. He has the responsibility for getting a job done. The effective business officer will say to the professor "What you seek is impossible under our regulations, but the idea you are dealing with obviously has unusual merit. We shall see how the objective that you have in mind can be attained, if you will be patient with some modifications in procedure that we may have to suggest to you." This attitude is a creative one. If more business officers made this approach to the faculty, I am sure that many of the cleavages that now exist would be minimized. And what is more important is that the work of the institution would be stimulated and the institution itself would keep growing.

As the chief institutional expediter, the business officer must see to it that the machinery of regulations is well-oiled; that there are no broken parts or clogged wheels. He must also be the one first to recognize when an important task does not fit into the machine and be prepared to improvise some other solution. Again, this is a fine distinction; improvisation unrelated to administrative pattern can lead to chaos. Without improvisation appropriately and soundly applied, administration can be stultifying. As a planner, the business officer cares for and determines the needs, establishes the objectives, outlines the procedures that will attain these objectives. Frequently there is a lack of proper planning when top executives are too preoccupied with matters of a current nature to concentrate upon the future needs of the institution. The more specifically an institution determines its future course, the more likely it is to reach its objectives.

The business officer is a key member of the administrative team. There are two concepts in this statement; one related to "key" and the other related to "member." He is a member of the administrative team and, therefore, not its chairman incognito. He must work as a member of the group, recognizing the separate administrative jurisdictions within the organization. At the same time, he must operate so that the influence of his office is brought to bear upon the other administrative jurisdictions. His is the task of harmonizing realities with dreams; restrictions with aspirations; techniques with promotion to the end that the institutional program shall grow and grow soundly. Where sound growth is concerned, I believe the business officer has a special concern with institutional integrity.

We tend to think of integrity almost exclusively in terms of financial honesty, and certainly there is no more indispensable element in effective institutional administration than financial honesty. It is to the great credit of our Jesuit institutions throughout the country that examples of violation of the code of financial honesty are so rare as to be almost unremembered. However, I would like to include more than financial honesty. Integrity means honest interpretation of the institution's practices in relation to its stated purposes. It means fair dealing with the staff members, students and the public. Basically our institutions do not belong to the faculty, the administrators, or to our boards of trustees. They belong to those whom we serve. It is well for us to remember that we are a service industry.

The business officers of our colleges and universities individually and collectively will have a large share in the responsibility of helping meet the challenge which today confronts American higher education. To the extent that the business officer contributes to meeting this challenge through his imagination, his competence, his technical skill, then, to that extent, will college business management merit its place at the educational council table.

What I have been saying comes down to this: The business officer as much as anyone contributes to shaping the spirit and setting the tone of the general administration. He is both a trustee and a servant and the demands upon him are almost too great. He must operate calmly, "Pressure is always to be absorbed—never reflected." The business officer must operate anonymously—headlines go to others. He must operate deliberately, for to proceed otherwise makes for disorder, and yet he must meet deadlines. This definition may seem to call for a superman nowhere in existence, yet it is astonishing that there are so many men effectively filling the bill in so many places.

News from the Field

The UNIVERSITY OF DETROIT was happy to receive a check for $125,000 from the Chrysler Corporation for the establishment of a student loan program. This is the second gift of a like sum from the Chrysler Corporation. The first gift was used for funds for purchase of the new dental school building.