MATURELY ATTAINED

(1926-1979)

The half century following the mid-Twenties was one in which remarkable advances were made in the physical plant of the University, in its endowment, in its educational offerings and in its scholarly productivity. Steadily increasing strength permitted it to assume a place in the top rank of well-rounded educational institutions of the country. Today the various schools and centers of the University occupy land and 179 buildings valued at $219,700,000; the living alumni number about 150,000. Enrollment grew from 6,700 in 1920 to 18,700 in 1976. In the same time span the full-time faculties increased from 370 teachers to 1309, the annual expenditures from $1,398,000 to $130,842,000 and the endowment from $5,625,000 to $247,128,000. Midway of the 1926-79 period a comprehensive survey of the entire University was made for the first time. It proved to be helpful in guiding the needed organizational adjustments that would enable the University to achieve its goals more effectively.

It was during the presidency of Walter Dill Scott, whose term of office (1920-39) was much longer than that of any predecessor, that this rapid expansion and enrichment of the University began. It marked the primary waking-time in the arousal of a comparatively dormant Northwestern into an institution that advanced materially and scholastically, and made a move toward eminence. Previously national prestige had rested primarily on the reputations of its off-campus Schools of Medicine, Law and Dentistry, as had been particularly true for Law and Medicine elsewhere about the country in the early Twentieth Century. But also during the Scott regime came a serious setback, brought on by the great national depression of the Thirties and shared, in common, with other institutions of learning. An initial decrease in attendance in the years 1930-32 necessitated a
serious retrenchment in the budget and entailed two successive 
salary cuts of ten per cent throughout the University. A partial 
restoration in salaries was made after six years, but deficits con­
tinued until 1939, even though radical economies were practiced. 

A major problem, related to the material losses brought on by the 
economic depression and aggravated by the concern of some for the 
future, caused much discussion in the year 1933-34. President 
Hutchins, of the University of Chicago, proposed an amalgama­
tion of the of the two institutions in such a manner that the strong 
points of each might be utilized and a large annual saving effect ed. 
This would result, he asserted, in the creation of a completely 
developed university without equal in the country. Both President 
Scott and some influential trustees became ardent advocates of the 
plan, whereas legal opinion differed as to the possible loss of North­ 
western’s unique tax-immune basis. Press reports and inaccurate 
rumors produced misunderstandings, and heated discussions con­
tinued unabated. In time it became evident that the majority of the 
Northwestern Schools were decidedly against such a merger, as 
were the alumni, and that sufficient support could not be obtained 
from the Board of Trustees. Accordingly, the proposed union was 
laid aside, the only direct profit being that, by self-examination and 
appraisal, much had been learned about the University. In addition, 
all Schools became more conscious of their interdependence, while 
the alumni and public became more appreciative of Northwestern 
than ever before. 

Leading the opposition against the abortive proposal of merger 
were the Medical School and the Graduate School, both of which 
had vital interests at stake. Any suspicion of lethargy on such basic 
matters was dispelled as the negotiations toward union served to 
generate intense heat among the medical alumni, faculty and 
students. The latter even organized a parade of protest, and 
promoted a mass meeting in Thorne Hall, with prominent speakers. 
As prosperity returned and the passage of time added perspective, 
even the most rabid proponents of the union must have acknowl­
edged that the proposal was fundamentally unwise. 

On the retirement of President Scott, in 1939, Franklyn B. 
Snyder, Dean of Faculties, became the eleventh President and he, in 
turn, was followed by Dr. J. Roscoe Miller who advanced from the 
deanship of the Medical School in 1949. Twenty years later Dr. 
Miller was elevated to the new post of Chancellor and was suc­
ceeded by Professor Robert H. Strotz as the thirteenth President.

It was during the Snyder-Miller administrations that the University, as a whole, underwent a meteoric rise in campus-acreage, buildings and endowments; in parallel came the upgrading of faculties, graduate studies and research. At last it gained an enviable position among the premier educational institutions in the Western World. This was attested by a 1969 report of the American Educational Council which ranked the top twenty private universities on the basis of their nonprofessional departments. Northwestern was placed in the eleventh position — a rating that the University Administration felt was somewhat too low. In the number of nonprofessional doctorates conferred, the Northwestern standing was tenth; the average faculty salary paid was seventh highest. The faculty-student ratio had been reduced to the excellent ratio of 1:7.5.

The annual salary for full professors in the University rose from $7825 in 1949 to $30,000 (nonclinical) in 1979. The average salary scale for teachers led the Big Ten university group in 1961, and was among the top nine nationally; sixteen years later it still remained in the top eleven nationally.

The approaching Centennial, in 1951, of the founding of the University was anticipated, fifteen years before the event, by the presentation of a program embracing physical improvements, endowment increase and academic strengthening that was calculated to stir the imaginations of all. This Century Plan was so organized as to start with annual subscriptions, and to attain a climax of fundraising in 1951. The campaign was a success, and from it $389,000 was earmarked for the library of the Medical School. Gifts during the period of the campaign totaled $17,904,000. The concluding convocation of the University honored 100 men and women, selected for their distinguished services to society while residing in the six-state area, once known as the Northwest Territory, from which the University took its name. Another Centennial — that of the One-Hundredth Commencement — was celebrated in 1958. It was featured by the attendance of the presidents of sixteen similar, private universities belonging to the Association of American Universities.

A major advance in educational offerings marked this total period of expansion within the University. In addition to the locational moves of Medicine, Dentistry and Law, the evening
classes in Commerce and Journalism were at once transferred from their site in the business center of Chicago to the new campus. A further innovation was made in 1928 when evening classes in the liberal arts were begun, followed by classes in science, speech, music and education. All of these studies, combined under one administration, came to be called the University College, then the Evening Divisions and, recently, the Division of Continuing Education. Such offerings constituted the oldest and largest program of evening study in the Chicago area. After many years the Schools of Journalism (1970) and Commerce (1972) moved to the Evanston Campus, whereupon the latter became the Graduate School of Management.

In 1962 an important solution to pressures for physical expansion of the Evanston Campus began by making an extensive land-fill into Lake Michigan. It added 84 acres (from 152 acre-rights purchased), enclosing a lagoon. This expansion was completed in 1964 at a cost of $8,000,000, much less than would have been expended in the purchase of existing land. It became named the James Roscoe Miller Campus, after the then President and former Dean of the Medical School. Needed buildings promptly arose on it, as well as on the older campus, yet there is still ample room for future developments. Along with these advances went a successful campaign for $180,000,000.

The growth and strengthening of the University can be seen in a tabulation covering the period since the Medical School became an integral part of the University by virtue of its complete absorption:

<table>
<thead>
<tr>
<th></th>
<th>1906</th>
<th>1926</th>
<th>1958</th>
<th>1976</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>2,560</td>
<td>10,433</td>
<td>22,742</td>
<td>18,697</td>
</tr>
<tr>
<td>Income</td>
<td>$560,800</td>
<td>$2,699,900</td>
<td>$25,248,600</td>
<td>$131,128,000</td>
</tr>
<tr>
<td>Endowment</td>
<td>$4,120,200</td>
<td>$14,138,700</td>
<td>$100,988,700</td>
<td>$247,128,000*</td>
</tr>
<tr>
<td>Plant Value</td>
<td>$3,626,300</td>
<td>$4,067,300</td>
<td>$53,568,600</td>
<td>$219,700,000</td>
</tr>
</tbody>
</table>

*This figure represents a value in a period of financial recession.

Within a century Cook County, Illinois, had twice tried unsuccessfully to tax the noneducational properties of Northwestern University (p. 284). A new attempt, using a 1969 amendment to an earlier Revenue Act, now sought to impose a use-tax on lessees of University property. This indirect taxation was finally upheld by the Supreme Courts of Illinois and the United States (p. 285).
Northwestern’s ties with the Methodist Church became tenuous with the years, and long served no useful purpose. In 1972 Church representation on the Board of Trustees became vacant by default, and in 1974 the national office of the United Methodist Church agreed to remove Northwestern University from its list of members.

GENERAL EVENTS

Despite enlarged faculties, enhanced finances, better physical conditions, improved clinical teaching and intensified research, the first half of the 1926-79 period in the history of the Medical School seems, in retrospect, less dramatic than the more recent years. This may be because fundamental innovations had already been introduced and numerous basic problems had been conquered, so that the School entered into a state of relative maturity through the fulfillment of a modest dream. But also significant progress had suffered from the interruption by World War II. In general, the first 25 years was a period marked by the rounding out of programs already in use, by expansions in many directions that could not have been afforded earlier, and by the making of adjustments in keeping with the march of progress. On the other hand, the succeeding years of the total period became noteworthy through another wave of eye-catching advances — material, scholastic and innovative.

Consideration of plans for merging Northwestern’s Medical School with Rush Medical College recurred through the years. One early exploratory interchange of letters has already been recounted (p. 61). Again, in 1916, there was sufficient basis to have reached the consideration of the Trustees of the University, and to have called forth some strong opinions from the Medical Faculty. In 1937 Rush, on the verge of being abandoned by the University of Chicago, suggested severing its relationship with that institution and becoming a part of Northwestern University. After considerable investigation of the problems involved, but without consulting the Medical Council as to points of fact, President Scott and Vice-President Snyder advised the Trustees that an affiliation would be unwise because of the prospect of Rush becoming a drain on the all too meager resources available for the support of a
clinical program. These negotiations did not gain publicity, so there was no general agitation or concern.

World War II affected the Medical School markedly in comparison to a transient, though turbulent, involvement in the previous War. The School contributed directly to the war-effort by staffing four hospital units, and in so doing the Clinical Faculty became badly depleted. Students were enlisted in the two Armed Services, though permitted to continue their medical training. Their chief sacrifice was related to an educational loss owing to the absence of 170 members of the Faculty. A more detailed summary of our involvements during this period is given in Chapter XI.

The general observance of the centennial year of the University (1951) has been mentioned (p. 236). Cultural contributions to the celebration were made by the Medical School. These culminated in a Centennial Conference, lasting two days, in which Problems of an Aging Population were discussed by numerous experts in the social and biological sciences, and also by outstanding leaders from government, industry and labor.

Eight years later the one-hundredth anniversary of the Medical School was also celebrated appropriately. The morning of September 29, 1959, was given over to a Centennial Convocation, featuring the conferring of the Doctor of Science degree on eight distinguished medical leaders in the nation.* The afternoon was devoted to a Colloquium of Medical Sciences. An Awards Dinner included the giving of Merit Awards to twenty prominent medical alumni,† and Service Awards to eleven of the Departmental Chairmen of the Medical School.‡

A further centennial observance occurred at the annual Alumni Reunion Dinner, one feature of which was a display of a just-released, historical treatise on the Medical School. This book was entitled Northwestern University Medical School, 1859-1959, and bore the subtitle, “A pioneer in educational reform.” It comprised the sole comprehensive historical narrative on the Medical School; the author was Leslie B. Arey, Emeritus Professor of Anatomy. Twenty years later, a thorough revision and extension provided the present rethought and updated account under a slightly modified title.

The erection or purchase of nine buildings, other than hospitals, in this period has been treated in the preceding chapter on Campus
development. Similarly, accounts of seven teaching hospital facilities, added to the Campus, are given in Chapter XIV. The establishment of the McGaw Medical Center is described on p. 244 ff.

*Charles Herbert Best; Horace Winchell Magoun; Irvine McQuarrie; Joe Vincent Meigs; Isadore Schwaner Ravdin; William S. Tillitt; Shields Warren; and Conrad A. Elvehjem.

†C. Knight Aldrich, '40; Robert A. Aldrich, '44; Franklin L. Ashley, '41; John R. Brobeck, Ph.D., '39; Sam L. Clark, M.S., '24; Robert P. Knight, '33; Joseph J. McDonald, '40; Chester B. McVay, '37; Walter J. Nungester, '43: John I. Nurnberger, '43; James L. Orbison, '44; Ben L. Peckham, '42; Charles A. Pointdexter, '30; George N. Raines, '31; Rulon W. Rawson, '38; Bronson S. Ray, '29; Duncan E. Reid, '32; Randall G. Sprague, '35; Thomas H. Sternberg, '34; Frank E. Stinchfield, '35.

‡Leslie B. Arey; Howard C. Ballanger; James T. Case; Alexander A. Day; Chester J. Farmer; Edward L. Jenkinson; Philip Lewin; Paul B. Magnuson; Lewis J. Pollock; James P. Simonds; Arthur W. Stillians.

The year 1974 marked the beginning of an end to the traditional outpatient clinics as conducted since the founding of the School, and always largely on a volunteer basis by unpaid members of the Faculty. This adjunct-service became progressively less used for teaching purposes as the clinical-clerkship programs advanced into dominant, favored positions. And so, within a few years, the Medical Clinics passed through obsolescence to abandonment. The colorful history of this ‘dispensary service’ is included in Chapter XIV.

Novel in the University Administration was the appointment of a Vice-President for Health Sciences in 1970. This office was designed to provide a link between the two campuses on health matters, to act as a mediator in issues involving more than one School, and be concerned with educational affairs pertaining to Medicine, Dentistry and Nursing. Following two appointments the post became vacant, and resumption awaits administrative policy.
In an interim (1924-25) following Dean Kendall’s departure, Dr. James P. Simonds, Chairman of the Division of Pathology, served as Acting Dean, as he did again for half of the year 1933, when the new Dean was ill and away. The first Dean in the 1926-79 period, Dr. Irving S. Cutter, had the good fortune to come to office at a time when he could direct the planning and shaping of a medical school that was about to inhabit far better quarters and to acquire greatly improved financial backing. As a vigorous leader he boldly set about to upgrade and expand all aspects of organization and operation. On retiring in 1941 he was succeeded by Dr. J. Roscoe Miller, who had been serving as an Assistant Dean. The disruptions of World War II, followed by his selection as President of the University in 1949, prevented the young Dean from carrying out most of his plans for reorganization and revitalization. During the war-period, when Dean Miller was absent in naval service, came an interim that was filled by Acting Dean George H. Gardner, Chairman of the Department of Obstetrics and Gynecology.

On Dean Miller’s elevation to the Presidency in 1949, Dr. Richard H. Young was appointed to the vacated post. Ill health forced him to retire in 1970, after a span of 21 years. Only Nathan Smith Davis held the title longer (28 years). During Dean Young’s administration there was material expansion, curricular revision and the emergence of Medical-Center organization. The current Dean is Dr. James E. Eckenhoff, previously organizer and first Chairman of the Department of Anesthesia (1966), whose vigorous leadership has brought the School to a new level of performance.

It is interesting to note that of the ten leaders of the Medical School in the 120 years of its existence, eight were chosen from the specialty of internal medicine, and that only one was from outside the clinical fields. Of this group of ten, seven were either founders or graduates of the School. Biographical sketches of all Deans can be found in Chapter XVI.

Until the middle of Dean Cutter’s term of office there was no official subdivision or delegation of internal authority. But, in 1933,
he introduced an innovation by appointing two from his faculty to act respectively, first as Assistants to the Dean and later as Assistant Deans in relation to the preclinical and the clinical years. This apportioning of authority has expanded until now there are thirteen individuals (including eight associate deans) in charge of administrative activities. In the upgrading, the category of Assistant Dean lost representation.

Another feature that increased with the years was the rise of committee organization, one of which now largely takes over the powers specifically assigned by the University statutes to the Medical Council. Currently there are sixteen committees. Most powerful is the Council of Chairmen, created on the advice of an ad hoc Committee on Reorganization (1970) to replace an existing Educational Policy Committee. Containing also some members of the general faculty, it is an advisory body that co-operates with the Dean in establishing policy and handling educational issues. It is, in effect a powerful Executive Committee. As a result, the Medical Council (p. 140), supreme by University Statute, has to a large extent become a body acting solely on faculty promotions and new appointments. But dominant power still resides legally and latently in it.

In 1974 the Alumni Association organized an Alumni Board of Counselors, chosen from thirteen geographical areas of the Nation. The aim is to give experienced alumni an active role in the review, appraisal and determination of educational policy. They meet annually or oftener, to inspect and evaluate all aspects of medical education and training at the Medical Center, and to submit a report to the President and Dean with recommendations based on their findings.

**Departmentalization**

In the period under review organization into unit groups increased. Subdivision of the Faculty into Divisions (1916-42) reverted to the earlier and more common designation, Departments. Out of the former category of Medicine emerged the autonomous Departments of Dermatology, Neurology and Psychiatry. From out of Surgery came Orthopaedics, Radiology and Urology. The Division comprising Eye, Ear, Nose and Throat dichotomized into
Ophthalmology and Otolaryngology; the latter recently added Maxillofacial Surgery to its official name. Physiology and Pharmacology abandoned their previous union. Former entities, such as Physical Medicine (1926), Experimental Medicine (1947), the Institute of Rheumatic Fever and Nutrition and Metabolism (1947), have entered into relations with existing departments. The Department of Bacteriology, expanding into such fields as virology and microbial genetics, changed its name to become Microbiology, and finally into Microbiology-Immunology. New Departments are Anesthesia (1966), Rehabilitation Medicine (1966) and Community Health and Preventive Medicine (1972). In 1979 a division of Cell Biology was authorized that would absorb Biochemistry and include the renamed Department of Anatomy and Cell Biology. A Department of Audiovisual Education was established in 1942, when some generous, expendable gifts became available. This organization was intended to co-ordinate the services of motion pictures (including production), medical art and medical photography. The original elaborate plans underwent simplification as the funds were depleted, yet the individual units remained as useful non-departmental services until 1974.

An ad hoc Committee on Reorganization, reporting in 1970, called attention to the increasing complexities involved in managing an academic department (because of more students, research, technicians and sources of support), and to a prevailing reluctance by some of the Faculty to accept these responsibilities as chairmen. It recommended that consideration be given to providing Departments with business administrators who can minimize many routine aspects of the administrative load. This innovation has become a routine feature of departmental organization.

Within the Medical School complex there are several special Centers of focused research. The oldest embraces Endocrinology, Nutrition and Metabolism. Others are a Cancer Center, a Center for Clinical Pharmacology, and a Center for Sports Medicine. In addition, multidisciplinary programs of activity have been established in such fields as atherosclerosis, biomedical engineering, biological materials, diabetes in pregnancy, perinatal care, prosthetic-orthotics, speech and hearing, and spinal cord injuries. To already established programs, such as Medical Technology and Physical Therapy, have been added educational schools in Nursing
Education, Public Health, Prosthetic-Orthotics and Respiration Therapy. An Associate Dean of the Medical School has been recommended to act as an official counselor for all allied health programs operating on both campuses of the University, and in its hospitals.

**Goals**

A report by a Committee of Clinical Chairmen in 1967 recommended urgently, among other important things, that the University and the Medical Center take the steps necessary to plan the development of a general hospital (under the sole control of the University), a University Clinic, and a Maternity Center. Only the first of these objectives remains unattained. Three years later the Committee on Reorganization, already mentioned, rendered a frank report that examined the traditional organization of the School in relation to that operating in other leading private universities of the Nation. It reached several general conclusions considered to be vital if Northwestern is to compete among the leading medical schools of the Country. Also submitted were specific recommendations in ten categories embracing needs, goals and reforms. Some of these objectives have been gained; others require longer maturation.

**CONSOLIDATIONS**

*The McGaw Medical Center*

A professional survey, conducted in the early Sixties, resulted in the University, its affiliated hospitals and the Chicago Maternity Center entering into an agreement to co-operate and work at best efficiency through an organization that became known as the McGaw Medical Center of Northwestern University. Made final by incorporation on April 6, 1966, as a separate entity, its purposes are: (1) to provide a liaison among the member institutions; (2) to encourage each unit to make its maximum contribution in things it is best qualified to do, thereby eliminating duplication of effort,
service and facilities; (3) to foster the development of joint and co-operative effort in areas of common advantage; and (4) to encourage the interchange and common use of the personnel and facilities of each member institution by other members.

In achieving these ends toward a more cohesive organization, the Constitution made clear that the constituent members recognize the following guidelines: (1) the desire to preserve the human incentives inherent in the private practice of medicine through the existing system of attending physicians; (2) the desirability of continuing each member's existing status as an independent and separate entity, with sole management and control over its own funds, operations and affairs — each, nevertheless, dedicated to the purposes previously stated, and with the willingness to co-operate for the achievement of higher goals in service, research and teaching; and (3) the recognition that the creation of such a Medical Center will bring substantial advantages to all its members by providing additional clinical, teaching and research facilities — thereby making available the benefits of higher learning and creating additional and more efficient resources for medical research and for the improvement of patient care and medical service.

This consortium of equals is the actual and legal representative of the several hospitals and the Medical School. It has its own Board of Directors composed of representatives from its six autonomous institutions, namely: Children's Memorial Hospital; Evanston Hospital; Northwestern Memorial Hospital (Passavant, Wesley, Prentice, Institute of Psychiatry); Northwestern University (Medical School, Dental School); Rehabilitation Institute; and Veterans Administration Lakeside Hospital. Toward the development of the Medical Center, Mr. and Mrs. Foster McGaw (the latter a Life Trustee of the University) made gifts totaling $20,000,000. A spin-off of this consolidation came about through the creation of the Northwestern Memorial Hospital.

*Northwestern Memorial Hospital*

A merger of vital importance came on September 1, 1972 when Chicago Wesley Memorial Hospital and Passavant Memorial Hospital set aside long-standing rivalries and united to become the Northwestern Memorial Hospital, a co-operating working unit. By
Aerial view of the Chicago Campus; 1968.

Aerial view of the Medical Center, in part; 1975.
pooling resources and services, better patient care at a reduced cost would presumably be provided. Each participant was to be known henceforth as a Pavilion of the main Hospital, and the two buildings were physically connected by an enclosed, overhead footway. Subsequently, in 1975, the Prentice Women’s Hospital and Institute of Psychiatry also were incorporated into the combined hospital superstructure. The total of 1,280 beds makes the Northwestern University Memorial the largest private hospital in Chicago and the sixth largest in the Nation.

THE FACULTY

Growth

In contrast to the comparatively modest growth of the student body in the current period, the Medical Faculty came to surpass it greatly both in rate of growth as well as in final size. Between 1906 and 1926 there was no change in the number of full professors, but teachers in the subordinate ranks increased rapidly until the Faculty had doubled its former size (115 to 227). Between 1926 and 1975 the number of full professors advanced from 28 to 150, while the total Faculty expanded from 227 to nearly 1,400 (of which fourteen per cent were women). The explanation of this sextuple increase in faculty size is linked with the increment in fully affiliated hospitals from one to eight; yet their clinical staffs still teach mostly on an unsalaried basis.

It was only twenty years ago that the first member of the clinical faculty began to receive a major portion of his income as salary from the University. By 1974 clinicians receiving compensation numbered 137, of whom 67 were full time. Best represented was the Department of Medicine which had 53 full-time salaried members and 16 on part time. For the whole Medical School (clinical and preclinical) there were 351 teachers on full time and 174 on part time. About 35 per cent held medical doctorates from either Northwestern University or the University of Chicago. The average age of those on full time was 44 years, the same as for the University as a whole.
Organization

The University Statute creating the Medical Council stripped the originally dominant general faculty of all powers except those governing the fixing of the requirements for admission and for degrees, and the recommendation of candidates for degrees. Some participation of the Faculty in policies and activities was restored in 1971, largely in response to faculty insistence and to a recommendation from the ad hoc Committee on Reorganization of Medical Affairs. As a result, a Faculty Senate was created which maintains critical vigilance over the Administration and helps shape policy by providing a forum through which recommendations can surface dealing with the solution of problems arising, and already existing, within the Medical School. It also serves in advising the Dean on matters referred to it by him.

Titles

When, in 1896 (made official in 1909), the Chairs (p. 194) in the various teaching disciplines were replaced by a departmental type of organization, there was still only one so-titled Professor in each specialty. But sooner or later, in order to recognize and retain valuable colleagues, somewhat similar rank had to be accorded to others. Such new appointments were designated by distinguishing titles, such as Professor of Clinical Surgery (1881) and Clinical Professor of Nervous Diseases (1902). Yet as early as 1869 the title of Adjunct Professor had arisen, but the basis for its adoption is not wholly clear. In general, the holders of such modified professorships did not give formal lectures, while in influence and prestige they rated below those with the simpler title. A still more subordinate grade, that of Assistant Clinical Professor, was first assigned in 1909. Not until 1913 did two persons in the same department bear the unembellished title of Professor.

At the beginning of the present century another basis began to differentiate two categories in the same clinical discipline. A straight professorship recognized demonstrated clinical ability, and especially rewarded a competency in research or writing; on the other hand, the clinical professorship recognized respected clinical ability and competent teaching, but implied a deficiency in schol-
arly productiveness. The last appointment in this distinctly designated 'clinical' category was in 1924, and the last holder of such a title was listed in the 1931 Annual Announcement.

Abandonment of such amplified titles rested on a decision by the University to sanction only the term, Professor, and simple modifying adjectives such as Associate and Assistant. In 1973 the recently created Faculty Senate of the Medical School sought to restore the clinical category, citing its practical utility and its current use elsewhere. A compromise of sorts was obtained, inasmuch as approval was granted for the insertion of the modifier, 'Clinical', before the name of the specialty, but not elsewhere. Straightway titles, such as Professor of Clinical Surgery, began to appear in the faculty roster. Curiously enough, this style of title agrees exactly with the first deviation, in 1881, to designate an alternative clinical rank.

Compensation

The minimum salary of professors in the College of Liberal Arts was elevated to $2,000 in 1867, and to $2,500 in 1887. When Dr. W. S. Hall, fresh from training in a famous German university, was made Professor of Physiology in the Medical School in 1896, his salary was set at $2,100. At the beginning of the current period (1926-79) a full professor in the basic sciences might draw as little as $3,500; by the end of that period, more than nine times as much. The salary range of full-time clinical teachers is on a considerably higher scale. Instructors were once cheap; the present writer put in charge of courses in 1915, began at the rate of $100 a month. Incidentally, instructors are currently almost an extinct species in the basic medical sciences, novices exacting assistant professorships because of the competition produced by the influx of new medical schools throughout the land. Nationally, professorial salaries came to depend increasingly on aid from Federal grants. Even in 1960, eighteen per cent of full time members on faculties received half of their salaries from this source, while fifteen per cent received a lesser portion. By contrast, the policy of our Medical School has been to maintain professorial salaries on 'hard', budgeted money and thereby avoid crises when sponsors might withdraw their support.

Teaching recognition
In various medical colleges awards are made annually for excellence in teaching. These may be designated by terms such as "The Golden Apple Award." For more than a decade at Northwestern similar recognition has been made in the teaching fields related to clinical medicine and the basic sciences. In 1973 the financial backing for such annual awards was assured through a bequest in memory of Dr. George H. Joost, a member of the 1920 class.

Leaves and retirement

Originally, when leaves of absence for significant study and research were permitted in the College of Liberal Arts, a professor received whatever amount of his salary remained after hiring a competent substitute. In 1905 a policy was adopted of granting a sabbatical leave on half salary. By 1924 any teacher in the professorial grades could qualify for full salary for a half year when the leave extended for a half year or more. Currently the University authorizes leaves under conditions determined by circumstance and merit; they are not automatically sabbatical. Through the years, leaves have been taken infrequently in the Medical School, and then usually by younger members seeking special opportunities and techniques. This is in agreement with the response of medical teachers throughout the country; all tend to take advantage of such provisions less frequently than might be expected. The explanation probably lies in the fact that a mature scientist works more efficiently in his own laboratory than under strange surroundings as a guest. Hence the novelty of new surroundings alone is not adjudged to compensate sufficiently for the inherent disadvantages encountered.

Retirement provisions for faculties were changed from individual arrangements to a unified basis in 1928, when the University entered into co-operation with the Teachers Insurance and Annuity Association to provide retirement allowances on a plan of mutual participation. Sixty-five years was set as the retirement age, and not until 1957 was there a tardy elevation of this limit of service to 68 years. Federal action advances this end-point to 70 in 1980.

Academic freedom and tenure
Northwestern University, like other education institutions, came eventually to recognize the right of its teachers to freedom in acquiring, exchanging and imparting knowledge. This freedom is to be unrestricted as long as scholarly objectivity is preserved, extraneous opinions are excluded from the classrooms, and personal and institutional roles are distinguished and observed. Without this guarantee of freedom, effective faculty performance would be seriously impaired. Along with intellectual freedom goes tenure, or guaranteed incumbency and the safeguarding of teachers against unwarranted dismissal. These several principles were formulated and pronounced by the American Association of University Professors in 1915, and have been incorporated into the official regulations of many colleges and most universities.

It is known that a chapter of the A.A.U.P. was in existence at Northwestern in 1928, but previous records are lacking and even the exact time of establishment is unclear. One of the distinguished founders of the national organization was Dr. John H. Long, longtime Chairman of the Department of Chemistry at the Medical School. Since he was broadly interested in the affairs of the total University, it seems likely that he may have been the moving force behind the early establishment of a local chapter here. In the later Thirties a vigorous letter from this chapter to the University Trustees asked for official validation of various rights and privileges. On April 26, 1939, the Trustees incorporated into their by-laws a provision guaranteeing the principles of academic freedom, and they revised the article dealing with academic tenure. These regulations regarding both academic freedom and tenure are set forth in the Faculty Handbook.

THE STUDENT BODY

Numbers

In the years following World War I important advances became increasingly frequent both in the basic sciences and in clinical medicine. Bringing to attention the scarcely tapped potentialities of medical discoveries and their practical applications, these advan-
tages began to attract the interest of an increasing number of college students toward pursuing medicine as a career. A few statistics will illustrate this change. In the academic year 1913-14, just prior to the outbreak of World War I, the entering class at Northwestern numbered 38 (a low point, reflecting the elevation of entrance requirements to two years of college work) and the total enrollment was 187. Five years after that War ended, and shortly before the first gift by Mrs. Ward, in 1923, freshman matriculation had risen to 81 and the total enrollment had more than doubled. Presently it would no longer be necessary for the school to run small, weekly notices in Science inviting correspondence with the Registrar concerning prospective enrollment (p. 100).

An upturn in applications to our Medical School also naturally followed the move to improved and endowed quarters on a unified professional campus. In fact, the number of applicants rapidly outran by far the available, though somewhat expanded, accommodations. By the late Thirties they totaled 1,500 or more, and this number leveled off and continued, little changed, into the Sixties. By contrast, in recent years the increase has become astounding; in 1971 there were 4,600 applications, and in 1974 there were 7,700 for the then 108 assigned places outside the honors programs. Unless additional laboratory space is provided, the student body can be expected to stabilize at about its present level of 700. It is interesting that this number does not exceed greatly the total enrollment at the turn of the century when entrance still demanded only the completion of a high school education, even though two years of college were recommended.

The new laboratories in the Montgomery Ward Building were planned for 112 medical students, but the first class swelled to 120 and thus pre-empted some space originally planned for graduate and special students. Quite promptly the physical limitation of 128 places was reached. Hence it was not until the erection of the Searle Building, in 1965, that augmented accommodations could be provided. This was accomplished by joining the new space on the fifth and seventh floors of Searle to adjacent space in Ward. Such allocated laboratory space for Sophomores and Freshmen was then organized into two sets of nine unit-laboratories each set accommodating 144 students. Later readjustments and a new unit for Freshmen brought their available working places to 178.
The widespread interest shown in 1893 (p. 143) over the first laboratories ever to be designed specifically for the expanding national instruction in the basic sciences was paralleled in 1965. Many visitors came to the new Searle Building to inspect the unique multidisciplinary laboratories in which all subjects, including gross anatomy, could be taught in compact, unit rooms.

**Composition**

In 1972, for example, 170 students were admitted, of which 61 (in the Honors Program, p. 262) entered with two years of college work; five had three years and 104 had four years; five had earned the M.S. degree and two the Ph.D. Ninety per cent of all entrants ranked in the top fifteen per cent of their high school graduating classes. As in colleges in general, the matriculation of students from the minority citizenry has expanded in recent years; it has reached thirteen per cent in a class, but currently runs at about eight per cent. Existing records identify the first Negro as graduating in 1883, and the first Indian in 1889. An analysis of class-composition with respect to parental occupation shows that about forty per cent are in the professional category, forty per cent in the white collar group and twenty per cent in the blue collar group.

No women were matriculated in the Medical School between 1867 and 1926. On moving to the new campus four women were enrolled in a class, since this constituted a natural dissecting unit and, at that time, it was deemed unseemly for men and women to dissect at the same table. This token number of women was not exceeded until after World War II, but by 1963 nine were admitted and in 1978 there were sixty. The current ratio to male students (33 per cent) exceeds considerably the national average of 25 per cent. The reluctance to adopt co-education at Northwestern is described on p. 117 and 354.

Severely handicapped applicants have been enrolled whenever normal academic progress seemed feasible. The first recorded instance in Northwestern annals is also the most remarkable of all. Robert H. Babcock was totally blinded by an explosion at age thirteen. He continued his education successfully at several leading colleges, graduated from this Medical School in 1878, and pursued postgraduate studies for three years in Germany. He became a
recognized specialist on pulmonary ailments and heart disease, and was the author of two books on these subjects. The University of Michigan awarded him the honorary LL.D. degree, and one hundred leading physicians of Chicago honored him with a testimonial banquet in 1925. Seemingly, beyond doubt, he was the first blind student in the United States to earn the M.D. degree.

For many years students transferring from two-year medical schools constituted an increment to Junior classes that was also helpful to the School's income. In the case of Northwestern it could reach 35 or more annually. This increase explains why the roster of Junior and Senior classes in our earlier Annual Announcements exceeded strikingly those of the two lower classes, and why (despite losses by withdrawals and failures) the total registration for the school in the years following World War I approached that of the present time with considerably larger entering classes. In the more recent decades, the two-year schools increasingly expanded into complete medical schools, and so the sources of transfer correspondingly diminished. Recently, however, about twelve Illinois students from foreign medical schools are qualifying for admission to the Junior class, and this acts to swell the annual number of graduates appreciably.

In regard to the composition of classes, it should be recorded that since 1965 teaching of the basic sciences has included the responsibility for instructing dental students as well, and partly in combined classes. This merger resulted from the difficulty encountered by our Dental School in staffing its scientific departments adequately. It reverses the long time refusal of the Dental School and its national accrediting organization to consider consolidation of staff and teaching facilities with that of a medical school.

One of the fringe benefits to our medical students through the years has lain in the nationwide heterogeneity of the student body. Students, reared in various parts of our land, have brought with them cultural backgrounds and viewpoints that broadened horizons, undermined substantially provincialisms, and fostered tolerance. But of late the State of Illinois contributes to the support of all medical schools within its borders. The *quid pro quo* is that at least one-half of each class must be drawn from residents in the State. As a result of this stipulation the Illinois representation has increased, at the expense of out-of-state applicants. The admission
of sixty students annually into the six-year Honors Program and the enforced Illinois representation combine to reduce the places available to other out-of-state applicants to the regular program. This number is now 57 places out of a total of 178. Unfortunately these altered factors reduce somewhat the chances of some medically oriented offspring of alumni to gain admission.

**Graduation problems**

A small side-benefit of the World War II period to our medical students was related to the concurrent, year-round classes and the consequent irregular times for graduation. Since these finishing dates quickly got out of synchrony with the customary University Commencement in June, several special ceremonies were held in Thorne Hall. These were done in style, with the President officiating and important military personages present as principal speakers. The graduating Seniors were delighted with the innovation which, to them, was both intimate and meaningful. With the coming of peace, requests were made for a continuance of the separate event, but such appeals were refused. The University Administration held that a unified ceremony at Evanston was the only time in an academic year when all schools met and participated as an integrated whole. Hence a separate observance would be not only a fractionating act, but also would lead to similar demands by other schools and end in the total disruption of the traditional, unified convocation.

From time to time in subsequent years the proposal was renewed by medical Seniors who had to acquiesce, but unwillingly, to the standard ruling. Finally, in 1972, permission was granted for a Chicago Campus ceremony which, however, was to follow medical-student participation in the regular commencement program at Evanston. Unfortunately only a few of the Seniors went to Evanston, which embarrassed the Dean, and angered the Chancellor. Further permission for a Chicago Campus ceremony by any of its schools was withdrawn, but a compromise was reached through Seniors agreeing to attend the regular graduation exercises and then to adjourn to their own observance, also in Evanston. This substitute arrangement, with eminent speakers, is second place in desirability to students and parents alike, but it presumably will endure as an annual event.
Involvements

In 1967 students from the Medical School took the initiative in establishing a free, weekly medical clinic at Erie Neighborhood House, a mile west of the Campus, to aid families in that area. Now named the West Town Community Health Center, it is staffed medically by volunteer Northwestern students and Faculty. In 1970, by community request, students and Faculty also helped to establish two new free-care centers: These were the Young Patriots' Uptown Health Services and the Latin-American Defense Organization Clinic, located respectively in north and northwest regions of the City.

Medical-student unrest, coincident with that on college campuses, around the turn of the Seventies, might seem to have been an unlikely phenomenon. Yet such occurred on a small scale at Northwestern. Two 'causes,' one impractical and the other legitimate, led to a token seizure and sit-in by a small group of militantly concerned students. This incident is treated in more detail on p. 304. Out of it came a spin-off in the form of a Student Senate, organized in 1970 to facilitate student communication with the Administration, Faculty and the student body. As a result, goals and issues are now better formalized, and representatives of the student body gain a voice in various administrative areas of the Medical School framework. It is a variant of a Student-Faculty Council, instituted in 1916 by Dean Kendall, but lapsing with his resignation in 1924. A beneficial outgrowth of the issues and unrest that led to the development of two Senates (student and faculty) was the establishment of the Department of Community Health and Community Medicine.

A more comprehensive account of medical-student life and activities can be found in Chapter XIII.

ACADEMIC MATTERS

Admission requirements

The educational requirements for admission to the Medical School tightened early in the current period. After maintaining the stand-
ard of two years of college preparation for two decades, the require-
ment was elevated to three years in 1931. In practice, the minimal
required time is almost always exceeded. At Northwestern, in the
last season of the two-year stipulation (1930), only three per cent of
entrants limited their preparation to the acceptable minimum. By
comparison, this excess preparation was somewhat better than the
national average. Currently about 95 per cent of our regular
Freshman entrants have already acquired the bachelor's degree.
The mean overall scholastic grade of these students while in liberal
arts college was more than 90. Additionally, in recent years,
evidence of rounded interests, rather than sole concentration on
science and high grades, has become a definite factor in the selec-
tion of medical classes.

Even through the years closely following World War I there was
still no urgency in applying early for admittance. Summer
applications were welcomed and, in some instances, a student might
even enroll at the opening of the autumn term. But soon afterward
came a gradual shift toward earlier deadlines, until now candidates
are advised to apply twelve to sixteen months in advance. The upper
age limit for consideration has decreased in modern times. The
present writer recalls a retired dentist who, shortly after World
War I, entered our Medical School at the age of 54. At present,
entrants rarely exceed thirty years.

In subject requirements for admission, a standard course in
physics remains. Chemistry added qualitative analysis (to the
previously demanded general and organic courses) in 1926, but
replaced it by quantitative methods in 1935. Spanish was added to
French and German as an acceptable foreign language in 1942; a
few years later any language, ancient or modern, became accept-
able. Since 1950 only a recommendation for a language other than
English is advised. Comparative anatomy was introduced in 1927 as
a prerequisite, in addition to the general course in biology; this
additional requirement was replaced by Embryology in 1951. The
latter, in turn, along with genetics became a recommendation in
1961.

The recent intrusion of the U.S. Government, through its
H.E.W. division, into the setting of admission policy ("affirmative
action"), using the threat of grant-withholding, is disturbing. Even
more perturbing is its ambition to modify the curriculum and post-
graduate training. These are areas that should be left to professional educators rather than to a political agency.

Curriculum

Instruction, organized on a quarter system rather than by semesters, and on a year-round basis, was discussed by the Faculty as early as 1901 and again in 1913, but without action. In viewing the imminent move to the new campus, the subject was again considered in 1924 and was laggardly adopted for the 1926-27 session. At this time the Dental School was the only other division of the University to have abandoned the semester plan. For the Freshman and Sophomore classes this manner of dividing the year became, except for the War period, a sequence of three terms without Summer offerings. Summer attendance in the Outpatient Department had been available, for many years previous to the present period, to students beyond the Sophomore year. Beginning in 1927, an optional summer quarter was offered to students ready to enter the Senior year. Taking advantage of this, students were presently finishing at different times in the calendar year. The full clerkship program initially put both clinical years on a full four-quarter basis, but this became modified by granting an ‘off-quarter’ for vacation or research in each year.

The subjects taught underwent some change in the period bounded by 1926-1979, and especially so in the last decades owing to phenomenal advances in the medical sciences. Moreover, emphasis shifted with the years, as did also the modes of presentation. In general, the passage of time has brought changes in medical pedagogy the better to prepare students in their approach toward patient-care as an integrated whole. The basic and clinical branches tend to merge as scientific disciplines, and boundaries between these two categories become increasingly blurred. Even more striking is the instructional overlap within the several basic sciences, where some medical schools now are not organized on a traditional, departmental basis. Of local historical interest is the fact that a belated, general recognition of the cultural value of the basic courses in our medical curriculum was first made evident in 1926, when the College of Liberal Arts agreed to list them among the offerings of the Departments of Zoology and Chemistry as accept-
able credits toward the baccalaureate degree.

In the preclinical years, Embryology gradually disappeared as an entity in the Fifties, although some instruction on the applied aspects of this discipline continued in correlation with other anatomical courses. As a shortened, clinically-oriented presentation it became an elective in 1977. The clinical years were marked by a decrease in didactic instruction and an increase in the time spent in contact with patients. Clinical clerkships, tried earlier in an exploratory way, were inaugurated for Seniors at the several associated hospitals in 1926. This experience extended through one quarter only, and continued on this basis until 1950, when Seniors devoted three quarters to hospital clerkships and one to outpatient service. In the same year, Juniors changed from a highly didactic program to instruction, with ward walks, in the hospitals.

In 1956 the curriculum was revised drastically. It was the first general overhaul in forty years. The hours of formal instruction were reduced for the purpose of liberating more unassigned time, during which medical students were supposed to be, in part, veritable scholars in the pursuit of unscheduled medical learning. Clinical instruction was extended through eight quarters, including an optional elective quarter. Junior clerkships, previously decried, were adopted. Both Junior and Senior students then became engaged in clerkships in associated hospitals, with their work so graduated as to provide increasing responsibility for patient care. Opportunities existed for elective studies or for experience in research. In order to prepare for Junior clerkships, integrated instruction amplifying clinical diagnosis and introducing a survey of disease were inserted into the Sophomore schedule. In aid of these instructional experiments the Ford Foundation granted $2,700,000 to the Medical School. Even in a trial stage, the new curriculum seemed to bring marked improvements to the clinical years. Yet encroachment of clinical teaching into the Sophomore year resulted in shortening the time allotted to all of the basic medical sciences. For example, clock-hours decreased 40 per cent in Physiology, 33 per cent in Gross Anatomy and 25 per cent in Histology; but Embryology was phased out.

Further experimentation in curriculum revision resumed in the early Sixties and has continued to the present time. Interdisciplinary programs in the basic sciences have been tried, as has
restoring somewhat more time to the basic sciences. A significant amount of clinical instruction has been scheduled in the first two years of study. One change that may cause some lifting of eyebrows among alumni is the total elimination of laboratory work in certain of the courses in basic science: It would seem that in those disciplines there has been a virtual return to the didactic period in historic medicine when students "heard much, saw little and did nothing." As now in most medical schools, an all-elective Senior year has been designed in order to aid students in their aims toward career development. This means that students can now graduate without ever acquiring meaningful experience in various specialties, or without observing the ambulatory sick in outpatient clinics. And the end of curriculum-tinkering is not yet!

The fourth instructional year, as a career-development phase of the curriculum, has 200 courses open to election. This freedom of choice is designed to facilitate and confirm career decisions through specialization; alternatively it permits further course exploration or the gaining of experience in research. Presumably, this early selection of career-preference will significantly decrease the former number of misjudgments. In 1966 our graduates of 1944 and 1945 were checked to ascertain how well their graduating preferences for fields of practice coincided with their current activities. As a whole, the agreement was quite good, but 37 per cent originally opting for general practice had dwindled to 13 per cent, and surgery had reduced from 14 per cent to 8 per cent.

Any curriculum is, of course, a trial pattern, hopefully designed to facilitate the learning process. This it can do; yet, when provided with opportunities, any eager student of average ability will learn medicine, regardless of the curriculum, whether good or bad. Much more important than the curricular blueprint set forth are the actual teaching methods employed, and the enthusiasm, competence and attitudes of instructors. Also until proved by trial, curricular innovations do not necessarily denote true progress.

In 1963 dental students began attending classes in the anatomical sciences taught by the Medical School; in ensuing years all basic sciences became similarly merged. These students also make use of one set of the unit, multidisciplinary laboratories. In exchange, the School acquired some space on the Dental floors. This teaching amalgamation resulted from the dearth of competent science
teachers seeking employment in dental schools. The present merger contrasts sharply with a refusal by the Dental Administration, when the Ward Building was being planned, to conserve space by similar co-operation.

Tuition

The original annual fee in 1859 was $50, and during the first fifty years of the School’s existence six raises elevated the charge to $175. But during the last half century this sum escalated horrendously, as is true of collegiate tuition in general. In 1926 it was $300; in 1948, $600; in 1960, $1,200; in 1970, $2,400; and, in 1978, $7,260. Only in later years have these charges at Northwestern exceeded a middle position with respect to those at other private medical schools. At present, six medical colleges in the Nation have a higher fee, while four others are within $200 of our rate. The total annual tuition now being paid by our student body equals only fifteen per cent of the annual cost of running the School. For parents whose incomes have kept pace with the inflationary spiral, college bills come only as expected bad news, but they must strike terror in those parents with fixed incomes, once considered adequate. Fortunately, since 1965, Federal ‘capitation grants’ extend some temporary relief to the cost of education. In 1977-78, sixty per cent of our students received $3,000,000 in aid that came from Federal, University and other sources.

Grades

Originally the system of grading was on a 1 to 10 basis, with 5 denoting a pass, but for years such information was not released to students. In 1899 this policy was reversed and letter grades (A-F) were adopted. Later, a tighter system came into use whereby the distributed grades indicated a range of five points. For example: B minus denoted 80-84, whereas B denoted 85-89. Nevertheless, actual numerical values were recorded on the Registrar’s books (70 denoting a passing grade), and these were used in computing standings and promotions. Student requests for a reduction in “stress” through the practical elimination of scholastic competition for grades has currently resulted in the virtual abolishment of signifi-
cant, released ratings. Despite small faculty backing their petition was granted in 1969, so that the official information received by them is now limited to 'honors', 'pass' or 'fail'. A criticism of the pure pass-fail system is that it acts chiefly to identify failure, but does not reward superior achievement. Not every medical student favors this system, and all will come to learn that life, as embodied in clinical practice, is highly competitive and not lacking in stress and trauma.

Honors program

As early as 1892 the Annual Announcement explained how a combined course might be arranged to yield both the baccalaureate and medical degree in as little as six years (p. 167). Sixty-four years later a committee was appointed to direct its attention toward the possibility of integrating premedical and medical education for a group of highly qualified students, with the aim of effecting some reduction in the total time required, as well as improving the premedical preparation in science. This planning, led by Associate Dean John A. D. Cooper, produced an Honors Program in Medical Education, which has again brought acclaim to the Medical School for pioneering insight and performance. The first group of 25 students started in 1961.

Qualified students may apply for the Honors Program during their senior year in high school, and all of the 60 students (selected from more than 700 applicants) now enrolling annually in the Honors Program do so. The quality of these talented students is indicated by their records in high school. An investigation at one period of time showed that nearly fifty per cent of accepted students stood at the very top of their high-school graduating classes, and the remainder were in the top two or three per cent. Acceleration of the premedical phase of the Program permits the M.D. degree to be obtained in six years after entrance into the University. The first two years are spent in the College of Liberal Arts and Sciences, during which half of the time is assigned to a specially enriched science curriculum. Weekly seminars also provide some insight into clinical specialties and problems. The degree of Bachelor of Science in Medicine is awarded after the second year in the Medical School, and two years later the M.D. degree is gained. It is possible to com-
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complete a combined M.D.-Ph.D. program in eight years after entering the University, and a few have done this.

The success of this accelerated program is shown by comparisons with classmates in the regular program. The special group experienced fewer personal problems and fewer academic difficulties while in medical school. It achieved greater honors in academic studies and performed equally well as clinical clerks. These students were involved in more summer experiences related to medicine. They attained higher scores in the examinations of the National Board. An in-depth evaluation of the Program after ten years showed no significant difference between the two groups in their acceptance into quality internships, residences and into specialty certification. Without doubt the success of the Honors Program has impressed a special quality on the student body and the School. It is gratifying that our Honors Program has been followed by similar programs in eleven other universities.

Graduate programs

Medical students with baccalaureate degrees were permitted to qualify for the Master’s degree from the time of the first union of the Medical College with Northwestern University in 1870. One such student (future Dean Franklin S. Johnson) received the A.M. degree on graduation as early as 1881, but solely in recognition of engaging in a scholarly pursuit (e.g., medical studies) three years beyond the bachelor’s degree. This low standard of attainment was common practice nationwide at that period. More on the regulations for qualifying for this degree through the years is explained on p. 167. By contrast, many years elapsed before the first Ph.D. was awarded to anyone in the Medical School — and this was the first in any professional school of the University. The person to receive this degree was Margaret Wilson, a graduate student of anatomy in 1920.

The Medical School and the Graduate School of the University also offer the opportunity for combining medical and graduate study. The program leads to both the Ph.D. and the M.D. degree, with overlapping course- and residence requirements that permit the completion of the program in as little as six years. Currently about 100 medical and dental students and a few young clinicians enroll annually in graduate programs of some kind.
Licensure and board examinations

The record from State Board examinations in the years 1913-27 was not as good as previously or later. The percentage of failures was 4.3 for Northwestern, as compared with 2.5 for Rush and 5.0 for Illinois. Yet, in 1922, the fiercely competitive Cook County Hospital examinations for internships were taken by 37 Northwestern Seniors, of whom 24 passed and 17 received appointments, including first place. Again, in 1931 seven of the first ten places were captured.

In sharp contrast to the 1913-27 results, the record of graduates examined as candidates for licensure during the years 1929 to 1936 was included in a general survey of the Medical School, and the results were highly gratifying. They showed that among large private schools, Northwestern led all others. Of eighteen cosmopolitan schools, whose graduates appeared before fifteen or more state boards, Northwestern stood third, followed (sixth; seventh) by Johns Hopkins and Harvard; Rush was in tenth place, Illinois eleventh, and Loyola sixteenth. In the National Board Examinations for the 1929-35 period, only one school (presumably Harvard) had a better record. On the basis of the numbers taking those national examinations, twenty per cent of the Northwestern candidates obtained honor rating; this attainment compared with Harvard (13%), Rush (4%) and Illinois (0%). In recent years the results have consistently bettered the national average. In Part III, testing clinical judgment and problem solving, our interns stand in the top five per cent.

Specialization among our graduates is high; 42 per cent are accredited by the various National Boards, and some alumni qualify in more than one Board. Interestingly, 55 per cent of our alumnae are diplomates. The cited figure (42 per cent) for all graduates surpasses considerably the national average of 34 per cent; it is slightly less than the figure for Harvard, but exceeds that for the University of Illinois or the University of Michigan.

THE RISE OF RESEARCH

In the forty years (1890-1930) following the second contractual
union of the Medical School with Northwestern University, a latent function had made vigorous progress in medical schools throughout the land. This development was supported-research, which received its impetus when some, at least, on the medical faculties were hired on a full-time basis. With opportunity thus made available to them, these specialized teachers became also investigators. To support their activities, the budgets had to provide not only for salaries but also for equipment, supplies and some technical aid. In this way Northwestern University and similar institutions became the original sponsors of medical research, but on a relatively modest scale even when experimental investigation was rather inexpensive. And, for the most part, individuals followed lines of personal interest rather than co-operating in teams working toward a common goal.

A native concept of 'proper restriction' in research fields is illustrated by an incident at Northwestern in the mid-Nineties. Dr. W. S. Hall, a product of a famous German University, came to head the Department of Physiology as its first adequately trained incumbent. On starting a research project with chemical involvements he was warned off by Professor J. H. Long, already well established in the chair of chemistry: “Keep out of chemistry; that is my field.”

Research departments

Four research departments arose, flourished and died at the Medical School during the 1926-79 period. Most famous was the Institute of Neurology, established in 1928 on the recall of Dr. S. W. Ranson from Washington University, but terminated only seven years after his death in 1942. During the 21 years of its existence, this Institute attained more national and international acclaim than any other branch of the University. Also recalled from Washington University, former Dean A. I. Kendall conducted a Department of Research Bacteriology between 1928 and 1942. A spectacular, but short-lived (1927-29) Department of Biophysics was set up by Dr. W. T. Bovie. The Department of Nutrition and Metabolism (1947-73) was an off-campus research institution in its own building, whose prominence was interrupted by the untimely death in 1960, of its founder, financier and Director, Dr. T. D. Spies. Both assets and goals, however, were transferred to the Medical School and,
since 1973, have been consolidated by Dr. N. Freinkel into a Center of Endocrinology, Metabolism and Nutrition. An auxiliary facility from 1969 to 1974 was the Department of Biological Materials. As a long established entity in the Dental School it broadened its activities when the basic sciences of the Dental and Medical School merged.

_Sponsored research_

Not until the Twenties and Thirties did medical schools begin to find that subsidy for specific research projects could be obtained from outside agencies. It was, nevertheless, World War II that really opened a new era in sponsored medical research. At the outset of the War, the Federal Government turned to the universities to seek aid in getting information on particular problems of military value. The experience with these co-operative enterprises was so satisfactory that, with the coming of peace, Congress continued to appropriate tax funds to competent investigators for similar purposes. Also private philanthropies and commercial organizations in the health field, as well, began to bid for the same kind of arrangements. The plan of awarding grants of limited duration for specific ventures had already proved its merit and was continued. In part this pattern was necessary because many funds were raised solely for limited purposes, and also because many came from appropriations or subscriptions whose continuance was not assured.

So it came about that the medical schools in the post-War period gained more than eighty potential sponsors for their important function of advancing knowledge. To the administrations of universities with medical schools these sources of financial aid were vitally important, because the cost of supporting all of their committed schools had skyrocketed so as to put severe strains on the common purse. At Northwestern contributions from private and Federal sources were two per cent of the total income of the Medical School in 1941 and 52 per cent by 1958, well above the national average. Since then the percentage has changed but little although the dollar amount has doubled.

Dependence upon outside grants clearly opened a new phase in medical financing. Besides the direct benefits of princely underwriting, sundry indirect advantages also accrue to the institution.
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For instance, significant research programs contribute heavily to the general morale and elevate departmental and institutional prestige. They also may help to attract or retain desirable members of the Faculty. Yet the largely roseate picture does have a reverse side, since there are hidden costs and hazards in all projects. Even with substantial grants at hand, and liberal allowances for overhead, the indirect costs (administrational services; maintenance; depreciation; library; etc.) are not trivial, and may be onerous. Moreover, certain innate dangers exist under an external grant system. Vigorous investigators may dissociate themselves from other activities and even neglect teaching. Large projects may become autonomous — isolated in self-contained groups or research institutes, while the participants tend to become grateful and loyal to their sponsors as they lose touch with School affairs. Successful ventures may also attract such prideful support from common funds as to create serious financial imbalance within the school or university. Also traumatic crises may confront projects and participants when sponsors cut back or withdraw support.

A potential disadvantage in the outside sponsoring of research is that the kind of project pursued may be consonant with the program of a grantor, rather than within the primary interest of the investigator. The most progressive industrial corporations have found that the largest rewards have often come from investigators who were permitted to follow their bent in attacking basic research, rather than conforming to the immediate goals of management. Indeed, some of the most important outcomes have been serendipitous. In the history of modern medicine there is ample proof of this principle. X-rays were discovered because a physicist was curious about the action of electricity in a vacuum. Antibiotics developed because a bacteriologist was curious about how a mold could dissolve bacterial walls. Both were endeavors in pure science: Roentgen was not seeking a diagnostic aid; Fleming was not searching for a therapeutic drug.

In the decade of 1941 to 1951 the increase in the amount of research funds and general operating funds in privately supported medical schools of the Nation rose 850 per cent and 220 per cent, respectively, whereas in a recent period (1961-1973) the research rise was 321 per cent. This tendency toward an increasing emphasis on research may even come to jeopardize the primary function of all
medical schools, which is the teaching and training of students to become competent practitioners. Promotion in academic rank has come to depend heavily on investigative output and the ability to obtain grants, and this in contravention to the avowed primary purpose of educational institutions. Such a paradox could lead to a complete reversal of the ordinarily accepted order of values.

Whether we like it or not, our Medical School and others must look forward toward a continually expanding role in governmental and private agencies as sponsors of research and dictators of policy. The period of independent and largely autonomous schools is passing. It is not necessarily a question of eventual survival, but rather of freedom from ill-advised governmental requirements and restraints. Universities must strive to create a co-operative climate that will avert clumsy legislation and stifling, bureaucratic demands. Medical schools must aim toward responding to legitimate public needs without being subject to restrictions that impair their ability to be of continuing, optimal use to society.

**Student research**

The accrediting of the full medical or legal course toward the master's degree was authorized by the University in 1894 (p. 167). Thirty-one years later, effective in 1926, it was agreed that the degrees of B.S. and B.S. in Medicine could be awarded at the end of the second and first year of medical progress, respectively, instead of at the end of the four-year course. Currently about 35 students qualify annually for these degrees. This arrangement permits students who enter into medical studies without a baccalaureate degree to pursue graduate programs while still in school. Such a mixed program was most easily managed during the years of the highly flexible clinical curriculum, before clerkships began in full scale.

Also a certain amount of the basic-science studies, not used for the baccalaureate, can be applied as graduate credit. Partly because of this advantage, registrations for graduate work increased with the years until the onset of World War II, when almost all of the medical students went under military control. Unfortunately, student participation in graduate work was not restored fully after the termination of that War and during subsequent military episodes.
This was because of the necessity for medical students to maintain normal progress in their professional training in order to obtain temporary military deferment. The increase in clinical teaching to seven quarters acted as another deterrent, although a vacation quarter and an elective quarter could be arranged in sequence for research purposes. Currently the elective Senior year also helps facilitate a research program. In later years, however, the M.S. registration has declined greatly because many departments have lost interest in taking on students for short-term, modest programs. In the decade before 1926, seven was the average number of students registered for research in the Graduate School. At present the number in Ph.D. programs averages about 120.

In the decade of 1931 to 1941 medical students and recent graduates to the number of 240 received the M.S. degree, and 100 achieved the Ph.D. During the life of the School (and mostly in the last 45 years) 1242 advanced degrees were awarded; of these 401 were the Ph.D. degree. At present the number of Ph.D.’s earned annually averages 10. Traditionally graduates of this Medical School were categorized by their peers as excellent clinicians, and this evaluation was accepted with pride, despite the accompanying implication of a deficiency in research activities. It is true that no medical student or graduate had earned a Ph.D. degree until 1923 (Loyal Davis, class of 1918). Yet today there is confidence in a reasonable balance among our graduates in the twin pursuits — clinical excellence and productive research.

AUXILIARY PROGRAMS

Clinical training

Dr. Franklin H. Martin, of the class of 1880, suggested as early as 1912 that medical schools should assume the responsibility of postgraduate medical education. Thirty years later Dean Miller expanded this advice and advocated looking forward to ‘postgraduate’ teaching and the training of medical graduates. He suggested the laying of long-term plans to accommodate those who had completed their nominal medical training. This increment of mature
students, he thought, might permit a corresponding decrease in the size of undergraduate classes. Were such an opportunity grasped, it would lead to a graduate school of medicine such as that at the University of Pennsylvania, since it is obvious that the ordinary clinical experience of a recent graduate does not suffice to give the familiarity or skills requisite for practice as a specialist. Incentives to the entry of the Medical School into this field were furnished by the prospect of postwar demands, coupled with Federal subsidies to be made available to veterans. And so a program was inaugurated under the aegis of a newly-created Graduate Medical Training Division of the Medical School. Originally the project was run by our affiliated hospitals, but in 1969 the Medical School established a Graduate Division and took over the direction and administration of the venture.

At the outset it was decided that the so-called postgraduate programs of short, refresher courses would not be handled, since the Cook County School of Graduate Medicine provides amply for these wants. Later, however, some short courses came to be offered in certain fields of highly technical specialization. From the beginning the main planning was toward a long-term program, which may include study in the basic sciences. It extends from three to six years of clinical training in a hospital residency or fellowship. Besides offering sound training, a subordinate objective is to satisfy the requirements of American specialty boards. The enrollment is about 560 in 19 programs and specialties.

In 1978 the conjoint Wesley-Passavant School of Nursing admitted a final class in its traditional three-year program, designed primarily for high-school graduates. Also at this time an Associate Dean of Nursing Education and a faculty-nucleus were appointed by the Medical School to establish in 1979 a replacing Baccalaureate Program in Nursing. Admission to this two-year program requires the satisfactory completion of prescribed courses in two years of undergraduate study pursued elsewhere. It aims at producing scholarly developed practitioners and building a potential base for graduate study.

Continuing Education

Beyond the clinical programs, just described, the Medical School
has recently inaugurated another type of instruction that will provide a continuum between immediate postgraduate training and long-term active practice. Its objective is to supply the needs of practitioners in improving both cognitive and technical skills. In doing this, the quality of programs is stressed by the careful selection of teachers from the existing Faculty and by the addition of eminent guest specialists. Quarters in the Ward Building are provided in the new Alumni Center, containing its featured Turnbull Auditorium.

**Collateral programs**

Among the responsibilities of the Medical School is the sponsorship of several programs in allied activities, which in the aggregate constitute the Auxiliary Medical Services.

Oldest were the traditional Schools of Nursing Education, run indirectly through conjunction with four long-affiliated general hospitals (p. 189). Wesley (1892), Mercy (1892), Passavant (1898) and Evanston (1899) Hospitals, in that order, organized teaching programs that met satisfactory standards in this field and, by contract (the first in 1906), entitled graduating nurses to participate in the Commencement ceremonies and to acquire certification from the University (p. 189). In 1950 the University began granting students with two years of college preparation the opportunity to qualify for the degree of Bachelor of Science in Nursing, but in 1966 this arrangement was cancelled. Students of Wesley and Passavant Hospitals could also apply the nursing program as credit toward the degree of Bachelor of Philosophy from the Evening Divisions of the University. For a time students of Evanston Hospital likewise qualified for the degree of Bachelor of Arts from the College of Liberal Arts of the University.

Within the last half-century several training programs have been established. Oldest (1922), long under Dr. Opal Hepler, are offerings of courses in Medical Technology. One, leading to a Certificate in Medical Technology, is on the verge of discontinuance. A second qualifies for the degree of Bachelor of Science in Medical Technology. A third program prepares holders of a bachelor’s degree for the degree of Master of Science in Clinical Pathology.

Programs in Physical Therapy were instituted in 1926 by Dr. John S. Coulter. Besides training leading to a Certificate in
Physical Therapy there came courses qualifying for the degree of Bachelor and Master of Science in Physical Therapy.

A Prosthetic-Orthotic Center, organized in 1959 by Dr. Clinton L. Compere, trains physicians and others in the fundamental and advanced techniques of managing the amputee and the patient requiring orthopedic braces. Northwestern is one of three universities in the United States that offer such intensive postgraduate courses.

A School of Respiratory Therapy (1969), a division of the Department of Anesthesia, offers a didactic and clinical course to competent students with the Associate of Arts degree. The program qualifies toward acceptance in the American Register of Inhalation Therapy.

A curriculum in Public Health, leading to a Master’s degree, was organized in 1974 by Dr. Jeremiah Stamler. It provides comprehensive instruction in epidemiology and in key aspects of contemporary public health, preventive medicine and health-care delivery.

A Center for Sports Medicine was instituted in 1976 under the lead of Dr. Jacob R. Suker. Its purpose is to provide basic instruction to coaches and athletic trainers that places special emphasis on conditioning and the prevention, recognition and care of injuries.

**MATERIAL GROWTH**

Expansions of the Chicago Campus, since the time of the original purchase, to more than twice its original size are described on p.227. Buildings erected in relation to the Medical School during the 1926-79 period are treated on p. 228 ff., whereas hospital-building is covered in Chapter XIV. The size of the student body reached a first maximum not long after occupation of the Montgomery Ward Building on the new campus. Its later growth in the current period, and the more astounding increment in applications to the freshman class have been treated on p. 252 in conjunction with other matters pertaining to the student body. Similarly the Faculty, with its sextuple expansion and the addition of salaried clinicians, has been dealt with on p. 247.

The occupation of better planned space in the Ward Building and the simultaneous expansion of activities into new fields required
more office and technical help than before. Rapidly an organiza-
tion, fairly simple in operation, became increasingly complex in
many ways. After some years, salaried clinical teachers appeared
on the scene as the clinical instruction shifted its emphasis onto the
hospital patient, and emphasis on clinical research strengthened.
The outpatient department acquired a full-time Medical Director
and an augmented staff of administration. Correspondingly, the
Social Service branch stepped up its personnel and activities; in
1954 it became a separate entity. Supervision and servicing of stu-
dent health in all schools on the Chicago Campus became an addi-
tional responsibility. In 1943 the property and other assets of the
Illinois Social Hygiene League and the Public Health Institute were
absorbed by the School; thereby, the Louis B. Schmidt Clinic (for
the treatment of venereal disease) was added to the Medical Clinics
as a special unit. Expanded activities, concomitant with the occupa-
tion of the Morton and Searle Buildings have added greatly to the
previous number of adjunct helpers. Currently, employees in the
secretary-technician category total 470. Expenditures and personnel
seem to expand indefinitely to fit available income, following a kind
of Parkinsonian Law.

Research activities and housing for them increased greatly during
the fifty years of the current period. Especially was this noticeable
in the fields of clinical investigation. At the Dearborn-Street site
there were little to no opportunities for clinical research, except
such as could be pursued on a guest-basis in the basic-science
laboratories. In the Ward Memorial Building, space for such ac-
tivities by clinicians was still meager. But first with the opening of
the Morton Research Building in 1955, and then the Searle Build-
ing in 1965, there appeared to be reasonable research quarters for
all. Yet after another decade the demands became such that the now
completed evacuation of the medical and dental outpatient floors
was awaited with impatience. Such expanding increase in the space
allotted to research is a national trend; even new construction in the
years 1960-62 assigned 17 per cent to teaching and fifty per cent to
research. Among the augmented activities made possible in clinical
research should be mentioned older groups such as the Department
of Nutrition and Metabolism (p. 265), the Florsheim Heart
Institute organized in 1936, and a program on rheumatic fever
(later broadened to infectious diseases) which was established in
1947 and funded by the Samuel J. Sackett Foundation in 1954. More recently there have been established multidisciplinary centers in various fields (p. 243).

Until 1926 the Library of the Medical School was confined largely to routine textbooks and the more common files of journals related to the basic sciences. In all they totaled some 12,000 bound volumes. Its custodian at that time, not a trained librarian, served also as a typist attached to the Registrar's office. In the new building on the Chicago Campus, the collections and staff grew rapidly until today its bound volumes number 194,000. This places it among the foremost medical libraries of the country; compared to others owned by medical schools, in 1951 it rated sixth in the size of its collections and in its expenditures. It is especially rich in old and rare medical books and in medical portraits. The library gained the name of the Archibald Church Library when, in 1924 and 1928, the University received from Dr. and Mrs. Church $200,000 on an annuity basis, earmarked as endowment for the Library. Also the fund-raising activities of the Medical School, at the time of the University Centennial, designated the Library as the beneficiary. This appeal yielded $389,000 in additional funds. Expansion into the first floor of the Searle Building, and the capture of space between the Ward, Searle and Morton Buildings, nearly doubled the previous accommodations, yet this amount of space is still inadequate for all present needs. A full account of the Library, which began at the opening of the Medical School itself, is given in Chapter XII.

On moving to its new Campus, the Medical School prospered financially beyond earlier years, but the larger fields of operation that were entered, and the mounting costs that were incurred, out-ran income and entailed much greater operating deficits than before. A dependence on annual supplements from general funds of the University seemed destined to continue indefinitely. It became a constant and increasing factor in the planning of budgets. In attempting, futilely, to cope with operating deficits, tuition increases became a recurring necessity, yet they tended merely to follow in line with advances initiated elsewhere. In the 1926-79 period the increase was 24-fold, but it failed dismally to keep pace with the augmented costs of operation. A happy reverse trend was an increase in student aid which, in scholarships and loans, reached
$3,000,000 in the 1977-78 academic year; this amount assisted sixty per cent of the student body.

Some idea of the financial growth of the School during the seven decades since the time of its complete absorption into the University can be gained by the following tabulation, which for 1976 alone includes monies related to grants and similar aids:

<table>
<thead>
<tr>
<th>Year</th>
<th>School income</th>
<th>Expenditure</th>
<th>Endowment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1906</td>
<td>$82,800</td>
<td>$69,600</td>
<td>$62,300</td>
</tr>
<tr>
<td>1926</td>
<td>$179,000</td>
<td>$248,300</td>
<td>$4,672,100</td>
</tr>
<tr>
<td>1958</td>
<td>$3,938,300</td>
<td>$4,022,400</td>
<td>$19,112,400</td>
</tr>
<tr>
<td>1976</td>
<td>$32,689,000</td>
<td>$32,689,000</td>
<td>$41,620,000</td>
</tr>
</tbody>
</table>

The total budget for the year 1950-51 can be compared with forty other privately owned medical schools. In that year the Northwestern figure was $2,313,700, which made it tenth in rank within a spread at other schools ranging from $5,008,000 down to $305,000. These sums did not include expenditures for outpatient clinics and hospitals.

The first endowment for medical purposes in America came in 1770, when Ezekiel Hershey left a bequest for the establishment of a chair of anatomy and surgery at Harvard University. Endowment came slowly to the Northwestern School. The beginnings of two professorial chairs have already been mentioned (p. 171). One, the Nathan Smith Davis Professorship of Physiology, gained a final increment of $21,700 when, on sale of the Dearborn Street properties, the amounts that had been contributed to the erection of Davis Hall were applied to this fund, thereby making a total of $100,000. The second, the Robert Laughlin Rea Professorship of Anatomy, started with a $10,000 bequest and became augmented by gifts totaling $150,000 from Mrs. Mellie Manlove Rea in 1923 and 1928. The Trustees of the Clara A. Abbott Trust assigned $1,250,000 in 1937 to support the chemical, medical or surgical sciences through the Wallace C. and Clara A. Abbot Professorships; initially there were five beneficiaries in the preclinical departments. The Irving Samuel Cutter Professorship in Medicine and other instruction in that department were endowed in 1949 by an anonymous gift of $750,000. A lucrative donation from Edward S. Elcock in 1923 established the Elcock Professorship of Surgery. In 1949 Dr. Anna Ross Lapham left a bequest of $90,000 for research in obstetrics and gynecology, which has been designated as a professorship bear-
ing her name. Two endowed chairs in nutrition and metabolism, the first anywhere in this field, were created by the Spies Committee for Clinical Research in 1958. Each chair is endowed for $500,000. One was designated as the Tom D. Spies Professorship; the other is the Charles F. Kettering Professorship. A fund of $2,700,000 earmarked for medical education, came from the Ford Foundation in 1956 and 1957. It provided for a number of unspecified salaries.

In the twenty years since its Centennial the Medical School has added other endowed chairs. These are in Cardiology (Harry W. Dingman); Dermatology (Walter J. Hamlin); Medicine (Ernest S. Bazley, two; Ernest H. and Hattie H. Magerstedt; J. Roscoe Miller; Ortho S. A. Sprague; Samuel J. Sackett); Neurology (Charles L. Mix; Benjamin Boshes); Obstetrics and Gynecology (Thomas J. Watkins); Oncology (Genevieve E. Teuton); Ophthalmology (Ernest H. and Hattie H. Magerstedt); Orthopedic Surgery (Edwin W. Ryerson); Pathology (Ernest H. and Hattie H. Magerstedt); Psychiatry (Owen L. Coon); Rehabilitation Medicine (Paul B. Magnuson); Surgery (Ernest H. and Hattie H. Magerstedt); and Urology (Herman L. Kretschmer). Additionally there is one in Pediatrics (Irene and John Givens) assigned to Children's Memorial Hospital and five assigned to Evanston Hospital. The latter are in Cardiology (Judson B. Branch); Education (Chester W. Tripp); Medicine (Owen L. Coon); Neurosurgery (Arlene and Marshall Bennett); and Surgery (Margaret and Rogers Palmer).

The incomes from many other funds, both large and small, are specifically assigned to the Medical School for the support of various activities. Almost all of these benefactions have been received by gift or bequest since 1926. In all, the endowment funds for medical purposes brought an income that increased from $479,500 in 1951 to $3,507,500 in 1977. This aid is impressive, but it does not signify leadership. Corresponding 1951 data from forty other privately owned medical schools showed that Northwestern's position then was eleventh. Were Northwestern to run a general University Hospital and maintain a wholly adequate, salaried clinical staff in all Departments, the present budget would have to be increased substantially. For example, the departmental budgets (exclusive of special funds) for Medicine and Surgery at Northwestern in 1950-51 were $47,000 and $5,800 respectively; the highest corresponding budgets among privately supported schools
were $689,000 and $287,400. Yet it has been proved that strong teaching hospitals can make money and contribute. In 1960 seven such in the nation showed profits into the millions. Strength begets strength.

Even without the luxury of a privately owned general hospital and its paid teaching staff, which many would classify as necessities for a top-flight institution, the annual budget of the Medical School is already so large as to create chronic, worrisome problems for the Northwestern Trustees. The shift in certain sources of income, expressed as percentages of total income, can be seen in the subjoined tabulation:

<table>
<thead>
<tr>
<th></th>
<th>1940-41</th>
<th>1950-51</th>
<th>1957-58</th>
<th>1975-76</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>46%</td>
<td>33%</td>
<td>16%</td>
<td>11%</td>
</tr>
<tr>
<td>Federal grants</td>
<td>0</td>
<td>21</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>Miscellaneous receipts</td>
<td>12</td>
<td>23</td>
<td>31</td>
<td>51</td>
</tr>
<tr>
<td>Endowment income</td>
<td>42</td>
<td>23</td>
<td>24</td>
<td>10</td>
</tr>
</tbody>
</table>

Notable was the decline in the role of tuition and endowment, and the rise to dominance of Federal grants and Miscellaneous (chiefly other grants and gifts). In 1972-73 Federal and private grants comprised 52 per cent of the total income of the Medical School; this compared with a national average of 39 per cent. This shift toward grant support, in harmony with the national trend, shows that the money-emphasis is now on research rather than on teaching as historically had been the case. Such loading reverses the values traditionally placed upon these objectives as major functions of a medical school. The Medical School’s income (apart from grants and gifts) increased from $1,898,000 in 1966 to $5,498,000 in 1973; the latter amount was 28 per cent of the total income of the School. The average income from unrestricted endowment in private medical colleges of the Nation was seven per cent of the total. Northwestern’s endowment yield doubled that percentage.

If the total assets of Northwestern University Medical School were being listed, it would be only fair to include the contribution of time and effort by the voluntary clinical faculty. Placing all of these services on even a nominal pay basis would require an enormous increase in the salary budget. It is estimated that ten to fifteen per cent of all practitioners in this country are connected with the teaching
programs of medical schools. This large contribution of services is unique among the professions, and the medical schools are, in this regard, set apart from all others in the family of professional schools.

The costs of medical education give trouble and embarrassment to everyone from the Trustee, who is trying to maintain some balance among the different Schools of the University, to the parents who find that monies saved and set aside for college and professional-school expenses have shrunken in value beyond any power of prognostication. In the period of 1926-50 the total costs of operating medical schools rose 700 per cent, whereas the cost of educating students was said to have increased 250 per cent, or less than the advance in ordinary living expense. The calculation of costs in medical education has often been unreliable, and not comparable from school to school because essential factors are either included or ignored. In this regard it is clear that the direct cost of teaching medical students is only one item in the total expense of maintaining a medical school.

Figures are available for 1927 that placed the average cost to the universities of the country in educating a medical student at $700. In 1940 it had risen to $1,052; and in 1949, to $2,577. A study by the Association of American Medical Colleges, in 1973, on twelve representative private and public medical colleges set the average cost per student at $20,000. A similar average for 1978 was estimated to be $31,500. A still higher figure can be obtained for Northwestern if the total income of the School is divided by the number of students in attendance. This quotient then becomes $45,000. All data on teaching costs have sometimes been criticized as being loaded with expenditures for research, library, personnel et cetera, not directly related to teaching expense. The reply, of course, is that lacking such monied parameters, a competent faculty could not be recruited or retained, and students would not care to enroll in such a school.

If the total amount spent by 79 medical schools in this country for the purpose of financing all their activities in 1951 seemed like a large sum ($106,000,000), it is revealing to learn that this was only one per cent of the amount spent by the populace on medical services or alcoholic beverages in that year. Since the stability and progress of these medical services and the supply of physicians in at-
tendance throughout the country stem from the total activities of medical schools, their cost of operation in relation to services rendered is small indeed. In view of their real contribution to the public welfare they embody the bargain of the age. In cold fact, the maintenance of medical schools is a part of the general problem of public health. All expenditures by medical schools in 1958 could have been matched by the public purse at an expense equaling three per cent of the financial aid then given to foreign countries.

INNOVATIONS AND ACHIEVEMENTS

The various curricular reforms and advances that characterized this School as a leader in its earlier years, summarized on pp. 67, 68, were accompanied by the establishment of the first chair devoted solely to nervous and mental diseases (p. 92) and the first postgraduate course of clinical instruction (p. 88). Also a modest priority was set when the University awarded diplomas to graduating nurses of its newly affiliated schools (p. 189).

In the current period the first programs in Physical Therapy were inaugurated (p. 271). The Honors Program for talented students, though not the first organized, had distinctive, pioneering features (p. 262). Also the integrated Postgraduate Program was the first to be developed in a private medical center (p. 269). To these scholastic advances could be added certain practical achievements in clinical practice, such as the following: the pioneering repair of the pericardium; the first end-to-end anastomosis of arteries; the nitrogen-collapse of the lung; the saline-drip method of infusion; the initial early operation for acute appendicitis; a standard correction of the ‘blue baby’ cardiac defect; the discovery of the hormone, cholecystokinin; the perfection of whooping-cough and mononucleosis vaccines; the curing of placental cancer. Among technological advances are: the first incubator for premature babies; the first electrically driven breast pump; the ‘Murphy button’ for intestinal anastomosis; the first apparatus to detect congenital heart disease; the first direct-wiring electrocardiograph and electroencephalograph; the first myo-electric prosthesis with proportional control; a new type of artificial larynx; the detection of fetal defects
by early analysis of amniotic fluid; and a by-pass for aortic coarctation.

**RECOGNITION OF EXCELLENCE**

Some bases have been established through the years for the recognition of high performance by members of the Faculty and student body. Several lacked permanence, whereas those noted here are soundly supported. For the Faculty it consists of annual awards, by student vote, to the outstanding teacher in the basic sciences and in the clinical program. These are funded in memory of George H. Joost ('20). For students, scholastic superiority qualifies for membership in Alpha Omega Alpha, the national medical honor society, and for citation at Commencement time as graduating "with distinction" or "with the highest distinction."

There are several monetary awards given annually to students with the highest achievement in specific endeavors. The Leslie B. Arey award was established by the Phi Beta Pi Medical Fraternity for outstanding scholarship in the several anatomical courses. The George A. Dennis award is given to the student attaining the highest grades in the required clinical clerkships. The James A. Patten award aids, each of his four medical years, the Northwestern pre-medical student who gained the best preparation for the pursuit of medical studies. The Frederick K. Rawson award honors the student who attained the highest average during the first two years in our Medical School. The Sigmund S. Winton award goes to the freshman student who excelled in the field of biochemistry.

**FUTURE PLANS AND PROBLEMS**

The past is a closed book, recording the finished business of success and failure; the present is expended in meeting temporal demands; the future alone excites the imagination by its potential for improvement. No institution with sound leadership fails to clothe its ambitions with a well-conceived plan of long-range scope. In 1955 Northwestern University announced such a program, following a study by the administration and deans that extended over two years.
It envisioned the future goals for the University, and its scope was both imaginative and daring. A “First Plan for the Seventies” raised $182,000,000, primarily for improvements benefitting the Evanston Campus academically and physically. In 1973 the University began the second phase of its long-term development program by launching a campaign for $177,000,000, called “Toward the Eighties.” In this endeavor, the first year solicitations netted $70,000,000. The Medical Center instituted its own drive for $75,000,000, earmarked for new construction, for reconstruction and for endowment to the Medical School.

The addition to the Campus complex, within the past five years, of three new hospitals, a Health Sciences Building, a group of Medical Associates, a dormitory and a high-rise parking facility engenders satisfaction and pride, but a longtime objective still remains unfilled. This is a general hospital, owned and managed by the University and staffed by full-time, paid clinicians. Also it would seem that the not too distant future will enforce an expansion of group practice, such as is performed by the Medical Associates (p. 390), so that most, at least, of the salaried practitioners of our clinical staff will eventually engage in that type of endeavor. A pressing, practical need for additional housing is to provide an apartment-type building for married students and young teachers in the several professional schools on the Chicago Campus.

To indulge in speculation on things yet to come is beyond the clairvoyance of the present writer. But with confidence in the reality of an ‘expanding medical universe’ one can hopefully predict that a prideful Past is but a prologue to an equally honorable Future.

**Dean Eckenhoff’s forecast**

As this history goes to press, I have been asked to provide a projection of the problems anticipated for the Medical School in the next decade. Without any inherent sense of insight and with no crystal ball, but with an awareness of signal flags flying, the following is offered.

One month prior to the death of Dean Young, I asked for his advice and his projection of the problems of the 1970’s. His entire con-
discussion concerned the financial foundation of the Medical School as a private institution. He did not believe the School could stabilize or expand its programs without outside financial support. He had no faith in the Federal government reliably supporting medical education. He could not envision a private university being able to support a medical school of quality completely, barring a windfall.

Nine years have elapsed and the words of Dean Young ring true. Federal governmental support, as promised, has come through only in part, although programs and increased enrollment have been mandated. When the pressure mounted for governmental appointment of students to medical schools, we among a few other schools resisted and Washington backed down. In the foreseeable future Federal support of medical education appears unreliable, and highly likely to disappear completely. Medical schools will be left to deal with the mandated and expanded student body, faculty and programs. At this juncture, State support has continued without interference and with no indication of abatement. The requirement that fifty per cent of the class must come from the State of Illinois remains, but we have not had difficulty so far in filling the quota with quality students.

In the meantime, both the cost and requirements of education have escalated. There is a highly competitive market for quality faculty, but we have been surprisingly successful in our recruiting efforts. In the future, however, tuition alone cannot supply the funds required. Northwestern has a paucity of endowed funds for medical education. A search for endowed chairs and trust funds for education and research in the Medical School, to secure medical education in the future, assumes prime importance. Northwestern’s principal claim on the national medical scene has been its production of well-trained clinicians. If these clinicians believe in the future of the institution, then a fraction of the benefits of their education should be directed to the education of their successors.

At the same time, the School must continually evaluate its faculty and its programs, streamlining the curriculum, eliminating the unnecessary elements and providing new and improved programs needed to prepare appropriately its graduates for medical practice and to educate students of the future. In the 1970’s we have gone far to prune our medical educational tree, to remove the dead and the dying wood and to allow for growth of new and vigorous branches. An educational system must never be static and repetitive; it must
be introspectively aware of the present while planning for the future. I believe that the caliber of the faculty we have will continue these processes throughout the 1980's.

The record of Northwestern University Medical School in the 1970's will have to stand on its own merits. The current administration believes progress in that decade will compare favorably with any other decade and with the ideals expressed by the founders of the institution. The success of medical education at the School is dependent upon the maintenance of excellent relations among the institutions of the McGaw Medical Center. The recognition of the Center's hospitals as parts of one of the country's outstanding medical centers depends on a close rapport with Northwestern University. The basis of sound medical education is strong life-science departments (University) and superior clinical departments both in education and in the delivery of health-care service (hospitals). One without the other is like male without female trying to produce progeny to advance medical care appropriate to the needs of the nation. The 1980's should see life sciences strengthened through closer rapport between the faculties on the Evanston and Chicago campuses, a process already underway. The excellent relations now existing between the Medical School and the hospitals must be continued at all costs.

I encourage all of the graduates of Northwestern University Medical School, its faculty and its supporters to think clearly of the problems of the future and of their obligations to quality medical education.