FATHER WILSON ASSIGNED TO ND FOUNDATION

Rev. John J. Cavanaugh, C.S.C., has been granted an indefinite leave of absence from his post as director of The Notre Dame Foundation and head of the University's $66,600,000 development program, it was announced recently by the office of Rev. Theodore M. Hesburgh, C.S.C., Notre Dame president. Father Cavanaugh has been suffering from a chronic vascular ailment.

Rev. John H. Wilson, C.S.C., administrative assistant to Father Hesburgh, has been named acting director of the Foundation, Notre Dame's fund-raising organization. He will coordinate all the University's public relations and development activities.

The University also announced the appointment of Rev. Thomas J. O'Donnell, C.S.C., to a newly created alumni liaison post. Father O'Donnell, who has been associate director of the Foundation, will travel widely in his new assignment, meeting at regular intervals with Notre Dame's 175 local alumni clubs in this country and abroad.

Father Cavanaugh served as Notre Dame's president from 1946 to 1952, and has been the University's principal public relations and development officer since 1953. The Notre Dame Foundation, which he established during his presidency in 1947 and which he has actively led during the past six years, has received more than $30,000,000 in gifts and grants. Fifteen major buildings have been erected on the campus since the Foundation was inaugurated twelve years ago.

Father Wilson, a native of Chicago, Ill., was appointed administrative assistant to the president of Notre Dame in 1958. Previously, he had served for two years as assistant director of the Holy Cross Fathers' Office of Province Development. In earlier years he was vocation director for the Holy Cross Fathers and promotion and advertising director of The Catholic Boy. Father Wilson was graduated as a layman from Notre Dame in 1932 and received a law degree from the Chicago-Kent College of Law in 1934. He entered the Congregation of Holy Cross that year and was ordained to the priesthood in 1941.

Father O'Donnell, also born in Chicago, was graduated from Notre Dame in 1941 and was awarded a master's degree by the Catholic University of America, Washington, D.C. He was named assistant to the director of the Notre Dame Foundation in 1953 and subsequently became associate director of the organization. Father O'Donnell entered the Holy Cross Fathers' novitiate in 1936 and was ordained to the priesthood in 1945. He is a former faculty member at Holy Cross College, Washington, D.C., and also served as associate editor of The Catholic Boy.
Every new synthesis of old ideas, every new scientific discovery, every human creation of a new form is nothing more than the creature’s elaboration in time of the Creator’s eternal plan. In a special way, Notre Dame has a heavy responsibility to pursue these activities constituting, in effect, a natural revelation through which the Divine Word is embellished. That is why scholarly research takes on an increasingly important role in the intellectual life of our faculty and students.

Research in the contemporary world has become the way of life of true scholars. It is increasingly characterized by the elaboration of physical resources needed to support the efforts of its devotees. In fact, the resources needed to support any truly creative group of men such as a university faculty are simply stupendous. Consider the current frantic attempts to develop automatic language translators as a means of keeping up with the scholar’s insatiable demand for communication; or the burgeoning traffic in all kinds of audio-visual aids to accelerate the pace of learning. The massive accumulations of the printed word call not only for bigger libraries but also sophisticated and elaborate means for making these words immediately available to the scholar. In the natural and social sciences, the application of the scientific method results in the generation of raw data in quantities unmanageable but for the electronic computers with their capacity for storing, recalling and organizing this data at the behest of their expert operators.

The proliferation of magnificently conceived instruments to extend the senses of man into space in one direction and into the heart of the atom in the other reflects the pressure generated by research for resources proportioned to the creative abilities of scholars and scientists. Anything less than what can be conceived in the mind of man as good and useful in pursuit of knowledge is an unacceptable compromise.

Our problem at Notre Dame is, at least, to minimize this compromise by finding the resources proportioned to the ambitions and abilities of our own faculty. Obviously, they cannot engage in every productive form of scholarship and research. Their participation is necessarily confined to their current interests and competence.

Their interests are being increasingly served by the burgeoning programs of the federal government in support of university research. Although concentrated mainly in the natural sciences, there are nevertheless an increasing number of federal programs for sponsorship of research in the humanities and the social sciences. Noteworthy among these are the recently inaugurated programs under the National Defense Education Act. Also the National Science Foundation has embarked cautiously upon a program to support some aspects of social science research. I have for the past two years, been chairman of the National Science Board’s Committee for this research. Recognizing the overriding interest of the federal government in research related to national defense, health and economic welfare, the private foundations have channeled their funds into fields not covered by federal support. As a means of augmenting our own limited resources, we are encouraging faculty members with appropriate interest and qualifications to participate in these federally and privately sponsored research programs.

[Signature]
Bold vision and solid Christian fortitude inspired Father Edward F. Sorin to found Notre Dame in the Indiana wilderness in 1842. Indeed his vision and fortitude became indelible marks forever stamped on the character of this University.

Down through the succeeding 117 years, the members of his Notre Dame family — priest, brother, and layman alike — have faced their many challenges with the same characteristic virtues. One of these challenges, only dimly discernible in Father Sorin’s day, has now emerged almost explosively to create a host both of opportunities and of problems. Carrying on in Father Sorin’s tradition, Notre Dame has no choice but to grasp these opportunities while grappling with the problems they create.

More specifically, the opportunities are for the faculty to augment their professional stature as scholars by pushing forward the boundaries of knowledge, by synthesizing the old and discovering the new, through individual and collaborative research. The problems are mainly for the University to provide the means and incentives for research while striking that delicate balance between its traditional functions of preserving and disseminating knowledge as well as of discovering it. And all of this must be done within that precious framework of academic freedom that is the hallmark of any university worthy of the name.

Because it has been so regularly used in a narrow sense to describe the highly specialized methods of modern science, “research” has taken on an unnecessarily restrictive meaning in the popular mind. Within the University, research is best defined as those freely chosen activities of the professor not directly involved in his teaching function and which have the effect of broadening his personal grasp of an intellectually respectable body of knowledge. This definition encompasses a whole host of intellectual activities. All book reading, except that done for entertainment or diversion, is research. Meditation is research of a very powerful sort. Out of it comes new insights into the essential relationships between God and man, between man and his fellow man, between man and the created universe. Much of the theoretical framework of such disciplines as psychology and sociology grow out of informalized and unsystematized introspective interludes. In fact, the exciting story of modern scientific discovery is replete with examples of basic theory discovered through sudden flashes of intuition.

But research in the twentieth century means much more than book browsing and meditation. With the means of communication so marvelously at hand, Christian charity dictates that they be used for the
widest possible dissemination of knowledge and truth in furthering the welfare and happiness of mankind. Christ's injunction to go forth and teach all nations was His directive to insure the benefits of Divine Revelation and the Mystery of the Redemption to all men. The fact that God's continuing revelation of Himself and His Creation proceeds laboriously in time through man's successive discoveries only lends weight to this injunction. Thus the mark of a Christian scholar has become his willingness to share and to expose for critical evaluation the results of his scholarship.

Research in the twentieth century is aided by powerful tools. The refined applications of mathematics and logic to scientific investigation, the power of empirical methods in the study of nature, the systematic organization of specialized bodies of knowledge — these have radically accelerated the pace of discovery in the natural sciences and, to a lesser extent, in the social sciences. The faculties and facilities involved in this research pose formidable problems for the University.

The systematic organization of specialized bodies of knowledge presents major responsibility not only for the student faced with the task of mastering one of these specialities but also for the University and the faculty in providing him the opportunity to do so. The University in its necessary magisterial role must guide the student away from narrow specialization without compromising his professional preparation and must insist on breadth of vision without encouraging diffusion of effort and interest. In fact, with the advent of specialization, this has become the classical educational problem in the modern university.

The application of empirical methods, particularly in the natural sciences where there value has been amply demonstrated, places great demands on the University's resources to provide the essential equipment. Wind tunnels, shock tubes, particle accelerators, biotrons, mass spectrometers, radiation sources — these are things modern research are made of. Some of them transcend the resources of a private University and have to be provided by public funds for research in the national interest. Others are within the financial reach of the University but only at the expense of its other ambitions and responsibilities. The demands grow daily for more sophisticated and expensive equipment. Certainly but for the federal support provided through sponsored research much of this equipment would not be here and, as certainly, without it many of our best faculty members would not be here either.

Even the applications of mathematics and logic to research problems can no longer be sketched out on the back of an old envelope. More likely they will have to be programmed on an IBM 704 computer — an intricate, electronic marvel with an unsatiable capacity for solving problems and for using good men and much money in the process.

The real scientific and technological problems of man in space are only now being discovered with all their staggering implications. Beset by threats ranging from lethal radiation belts to psychological trauma, man's life in space may indeed be an unhappy one for a long time to come.

Despite these demons charted in space, Notre Dame has, nevertheless, a firm commitment to engage as a cooperative partner in the Christian intellectual tradition that has brought man to this new threshold. Our capability to engage is enhanced by our identification with the centuries old dedication of the Catholic Church to the optimistic notion that man, with God's grace, is intellectually and morally perfectible. The pages that follow are intended to give you an impression of Notre Dame's commitment to this evolving intellectual tradition of research as one ingredient in her drive toward excellence.
Within the short compass of the following ten pages it is not possible to describe even briefly all of the sponsored and unsponsored research and scholarship now in progress at Notre Dame. Also many valuable educational and spiritual programs, not strictly classifiable as research, are features of the intellectual life of the campus. Characteristic of these are the Institute of Spirituality, Father Mathis' Liturgy Program, National Science Foundation sponsored teacher training institutes and many distinguished symposia and lecture series. These are the proper subject of a separate survey to be published in a later issue of Notre Dame.

Probing the Human Spirit

Some Theologians

Their Current Interests

Rev. Robert S. Pelton, C.S.C.
A continuing preoccupation of a theology faculty is the role of theology in the intellectual life of the University and in forming the spiritual life of the layman. As part of this study, five professors in the Theology Department are carefully designing a new approach to graduate training.

Rev. Philip L. Hanley, O.P.
This desire to stimulate students of theology leads to an attempt to integrate the thought of St. Thomas Aquinas with modern Encyclicals, on the one hand, and the Fathers of the Church, on the other, into a text for study groups at the collegiate and alumni level.

Rev. John S. Dunne, C.S.C.
Two approaches go hand in hand: one modern, attempts to mark out the common grounds of Catholic and Protestant theologies as a first step on the long, difficult road to Church unity; one ancient, studies the religious ideology of the Hellenic city-state.

Among several challenging subjects in view are the problems of Catholicism and academic freedom, the historical evolution of the theology of Faith and early scholastic Mariology.

Rev. Charles H. Henkey
Aesthetics and the metaphysics of love are taken as a philosophical basis for the better understanding of this sacramentality. The Incarnation, source of the Church's sacramental character, is studied as the unifying element of Catholic theology.

Rev. Roman S. Ladewski, C.S.C.
What psychology and pastoral theology have to say about the role of parents in the moral guidance of their children.

Rev. William J. Hegge, O.S.C.
G. K. Chesterton, his apologetic method and the leading idea in all his writings command attention as illuminating the broader problem of the apologetics appropriate to the "newer theology."

Some Philosophers

Their Present Intellectual Exercises

Rev. Herman Reith, C.S.C.
The intellectual life and the teaching profession is one pole and the philosophy of Communism as developed in the writings of Lenin is the other.

John James Fitzgerald
The formulation and evaluation of the substance of Jacques Maritain's theory of knowledge as revealed in his works now treasured in Notre Dame's Maritain Center.

Joseph Evans
A critical edition of the philosophy of Maritain is a primary goal for the director of the Maritain Center.

John A. Oesterle
Studies the texts of Albertus Magnus in formal logic to evaluate their significance for logic in both medieval and modern thought.

Boleslaw Sobocinski
Launches the new "Notre Dame Journal of Formal Logic" as a labor of his love for symbolic logic and the foundations of mathematics.

Herbert Johnston
The philosophical implications of such diverse developments as subliminal advertising and strikes not involving work stoppages attract the Thomist interested in business ethics.
Those attending the opening of the Maritain Center at Notre Dame included, (left to right): Victor Schaefer, Director of the University Library; Joseph Evans, Director of the Center; Professor Jacques Maritain, world-renowned philosopher; and Father Herman Reith, C.S.C. and Frank Keegan, both of the N.D. faculty.

Rev. Ernan McMullin
The philosopher of science trying to reconcile philosophically the multiple formulations of the physicist's uncertainty principle and to shed some light on the famous Galileo attempt to prove the motion of the earth with all its repercussions.

Joseph Bobik
The challenging intellectual exercise is to identify the sets of objects suitable to metaphysical inquiry as a refinement of the methods of metaphysics.

Journet Kahn
Attempts to contrast the basic assumptions of existential analysis with those of Sigmund Freud and to evaluate the assumptions attributable to each school of thought philosophically.

Otto Bird
From the viewpoint of modern logic analyzes the history of medieval logic to show what the great medieval logicians were up to in their treatises on the subject, to trace the development of the tradition they established and to show its relevance to contemporary accounts of the laws of nature and of argument.

Frank Keegan
Looks into the earliest political ideas of Maritain during his "Action Francaise" days and into his commitment to the conservative, monarchical tradition in French politics.

Rt. Rev. Philip Hughes

Marshall Smelser
American historian recording especially the era 1801-1817 for a multi-volume history of the United States.

William O. Shanahan
Researches the German Protestant effort to come to terms with the social changes caused by the industrial revolution during the latter part of the nineteenth century for a book to be published under the auspices of Notre Dame’s Committee on International Relations.

Boleslaw Szczesniak
Organizing a volume, or two, of information about Soviet Russian Central Asia with special interest in the formation of the new nationalism and in tendencies toward self-determination among the Asiatic republics dominated by the Russians.

James A. Corbett
Delves into medieval commentaries on the Bible.

Walter D. Gray
The political beliefs and activities of the “notables” in France from the Revolution of 1848 to the 16th of May, 1877.

Rev. Paul E. Beichner, C.S.C.
A medieval classicist reports on Chaucer “Baiting the Summoner” and translates the Aurora of Peter Riga, a unique 12th-century versification of the Bible.

LIFTING THE HUMAN SPIRIT

Some Artists

Some of Their Inspirations

Rev. Anthony Lauck, C.S.C.
Based on a concerted study of “sleep” as expressed in concentric and parallel diagonal lines he attempts to capture this fascinating concept within the horizontal forms of carved wood.

Ivan Mestrovic
Massive stone and textured wood chiseled into powerful expressions of the human condition, monuments to the eternal love of God for man.

Stanley S. Sessler
Portraiture in the classical tradition personalized with modern symbolism and figure drawing as a basic discipline command his talents.

Some Historians

Their Resurrections

Rev. Astrik L. Gabriel
Medieval education as exemplified by the University of Paris and as reflected in the lives of great medieval educators occupies the center of interest as a part of the program of the Medieval Institute.
Frederick S. Beckman
Investigates crafts and product design in Northern Europe as well as the renaissance of crafts in the United States for their total impact on an industrial culture.

C. A. Biondo
Translator of the one and only authoritative book on the stylistic history of violin performance by the German scholar, Andreas Moser.

VIVIFYING THE HUMAN SPIRIT

Some Educators
Their Pedagogical Predilections

Willis D. Nutting
Here is concern for the impediments placed by the contemporary university system and its scholarly ideals in the way of educating men to be wise.

Rev. John E. Walsh, C.S.C.
Preliminary to revision of Notre Dame’s approach to teacher education is a study of selected programs in other universities.

Bernard J. Kohlbrenner
Specializes in the role of Catholic education in America and a historical review of its contribution to national life and culture.

Anthony C. Riccio
A counselor educator self-impelled to examine the theoretical foundations of the student guidance movement and to measure the attitude of college students toward their image of themselves.

Jerome J. Fargen
Discovers the potentially academically outstanding ten per cent of each enrolling class at Notre Dame to determine the probable causes of the usual lower-than-expected academic performance of about one-third of this group.

Some Literati

Their Love Affairs with the Written Word

Francis E. Moran
Milton and the 17th-century world of English literature is set aside for the moment to work out a critical essay on Dicken’s novel, Great Expectations.

Louis Hasley
Has a conception of beliefs in literature based on the techniques by which an author reveals his own beliefs in imaginative literature.

Jerome Taylor
Completed is a book: Hugh of St. Victor’s Didascalikon, or Study of Reading; projected is a study of the versions or images in contemporary Christian criticism of literature.

Paul E. McLane
Dwells on the religious, political and personal allegory and satire in Spenser’s poetry and dramatic “toni” in Shakespearian drama.

Robert M. Browne
Degree of applicability of modern structural linguistics and traditional rhetorical analysis to the criticism of poetry.

Alvan S. Ryan
The great Victorian prose writers expound views of the past and use these interpretations as vehicles of their thought. To explore this facet of Victorian literature, a book-length study of the differing images of the past found in Carlyle, Newman, Ruskin, Arnold, Mill and Pater is attempted.

Ernest E. Sandeen
Poet and literary critic in American literature with a study of Henry James, Walt Whitman and other 19th- and 20th-century American writers well advanced.

Mortimer J. Donovan
Literary historian carried back to a medieval literary genre found in France and England between 1170 and 1400 and to manuscripts of a Roman poem read by poets in the medieval schools.
**Some Linguists**

**Some Language Lore**

William H. Bennett
Germanic linguist probing and translating classics in the Gothic language.

John Fizer
Focuses on Russian materials to reveal Communist Party regimentation in fields of literature, literary scholarship and esthetics.

Henry Hare Carter
Fifth in a series of medieval texts now in preparation is a paleographical edition of a medieval, unedited Portuguese Grail manuscript.

**Some Communicators**

**Their Media**

Edward A. Fischer
Journalist and critic influencing contemporary mores by presenting in book and journal practical standards for motion picture and television criticism.

Thomas J. Stritch
Mass communication researcher interested in film history and criticism; in art and its role in journalism.

Rev. A. S. Harvey, C.S.C.
The living stage is his medium for expressing the tragedy and joy of the human condition.

**ORGANIZING AND MOLLIFYING THE HUMAN SPIRIT**

**Some Sociologists**

**Their Views of Our World**

John J. Kane
The comparative impact of college education on the values cherished by students in secular and religious schools is beyond the pilot study stage.

Julian Samora
The socio-cultural aspects of medicine particularly as they apply to the underprivileged Spanish-Americans of the southwest lead to many thoughtful journal articles.

William Vincent D'Antonio
Study of "influentials," the sources and solutions of issues and social mobility especially in communities and health systems with Spanish-speaking leaders.

Donald N. Barrett
Empirical methods are used to assemble data, in one study, on the effects of financial penalties for crime and, in another, on the structure of the Catholic population of the United States.

**Some Political Scientists**

**Their Critiques**

Stephen Kertesz
Energetic and inspired leader of the Committee on International Relations with its research on the diplomacy relevant to the current East-West conflict.

John J. Kennedy
Scholarly commentator on the Latin American political scene with special interest in charting the progress of freedom and democracy in these troubled nations.

Gerhart Niemeyer
Taken up with the total critique of society, the study of the intellectual and spiritual forces behind the
total rejection of today's society by communists, anarchists and other contemporary revolutionists.

Paul C. Bartholomew
Eloquent exponent in books and articles of American constitutional government, the Anglo-Saxon common law and the political values of democratic society.

Some Economists
Their Views of the Market Place

Rev. Mark J. Fitzgerald, C.S.C.
Absorbed in the study of industrial relations in the European coal and steel community; also in the interpretation of Mr. Justice Reed's decisions involving the American economy.

John T. Croteau
Varied topics include tax problems of mutual financial institutions; credit union growth, liquidity, earnings and other operational problems.

John H. Sheehan
Everyman's economist devoted to the study of family economics and personal finance—for publication in a form usable by the average consumer.

Paul A. Montavon
Concerned about income distribution, he searches for an integrated approach to the problem consistent with the price theory on the one hand, and with the theory of aggregate shares on the other.

Warren J. Bilkey
Making five waves of cross-sectional interviews of 60 South Bend families to ascertain their psychological reaction to consumer goods purchases to gain an insight into the effect of purchases, income, and prices on their consumption behavior.

Some Entrepreneurial Pedagogues
Their Research in Business and Management

Raymond P. Kent
Sometime author of Money and Banking text about finished with another on Corporate Financial Management.

Herbert E. Sim
Exploring empirical economic research to illuminate such problems as local mass transportation, local business indicators and impact of local government structure on business.

Ching-wen Kwang
In the modern spirit of interdisciplinary research is the study of the application of mathematical programming to the theory of the firm.

Some Lawyers
Their Scholarly Lives "Under God and the Law"

Anton-Hermann Chroust
Early American legal profession comes to life in a series of studies. Also original thoughts about the philosophy of Plato in books and articles reflect his basic philosophical bent.

W. D. Rollison
Progenitor of a unique and valuable synthesis in text form of the law of estate planning cutting across the traditional fields of wills, trusts and future interests.

Roger P. Peters
Specialist in taxation and constitutional law vigilantly reviewing developments in these subjects with frequent commentaries in the professional journals.

John J. Broderick
Law of evidence with its myriad technicalities especially as related to the use of expert medical witnesses and psychiatric testimony is his forte.
Harris L. Wofford, Jr.
Visiting professor appraising the work of the Civil Rights Commission based on his experiences as a legal assistant to Father Hesburgh during his term as a Commissioner.

Thomas F. Broden, Jr.
Co-author of a treatise on social security law entailing a detailed examination of all applicable federal and state laws.

Edward J. Murphy
Panoramic view of the field of contracts is assayed to discover modern trends and a history of the doctrine of estoppel is in progress from which may be divined some reasons for the amazing vitality of the Common law.

Conrad Kellenberg
Deeply involved with a treatise on real property law begun during last year's tenure as a Sterling Fellow at Yale Law School.

Bernard J. Ward
Dedicated to elucidation of the role of the United States Supreme Court in the American constitutional system.

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PIONEERS ON THE NEW FRONTIERS OF SCIENCE

Some Life Scientists
Their Biological Expeditions

Ralph E. Thorson
Engages in a comparative study of the enzyme systems and other substances of physiological activity in various nematodes to determine the role of these substances in creating protective immunity in the host.

Rev. C. S. Bachofer, C.S.C.
Studies the reactions of nerve trunks of selected animals and plants to X-rays, beta rays and ultraviolet radiation with measurement of action potentials, impulse propagation rates, sensitivity and refractoriness to radiation stimulus.

Thomas G. Ward
Energetic pursuit of a vaccine against mild respiratory disease along with germfree animal studies on viral status, aging, incidence of cancer and effects of burns.

P. C. Trexler
Ingenious inventor and developer of contamination control apparatus and methods to provide sterile environments for animals and for testing and manufacturing pharmaceuticals. Also a student of the relationship between animals and their associated microbic flora.

B. S. Wostmann
Biochemist and nutritionist deeply engrossed with the influence of a normal or pathological flora on the host animal with emphasis on the biochemical mechanisms underlying body defenses and on the role of the flora in nutrition.

Helmut A. Gordon
Finds challenge in the study of the morphology and physiology of Notre Dame's unique germfree animals with emphasis on the role of the bacterial flora in the host-contaminant relationship.

Morris Wagner
Collaborator in the host contaminant studies of germfree animals with a special interest in identifying the microorganisms specifically responsible for dental caries and periodontal disease.

Gerd T. A. Benda
Hirsute micro-manipulator of plant cells determined to find out if and how they heal their own wounds.

Rev. James Doll, C.S.C.
Now applying radioisotope techniques to study the mechanism by which animals are able to clear labeled organic and inorganic invaders from the bloodstream.

Kenyon S. Tweedell
A major effort centers on the study of a transmissible kidney tumor of the frog using ultraviolet radiation and radioisotope techniques.

George B. Craig, Jr.
A medical entomologist with a comprehensive study of the genetics of Aedes Aegypti, a species of mosquito, in progress.
The Department of Chemistry and the Radiation offer excellent facilities for research.

Robert E. Gordon
Editor of Notre Dame's American Midland Naturalist
who finds time to study locomotive activity in selected animals as a guide to possible existence of rhythmic cycles related to species survival.

Robert P. McIntosh
Finds intriguing the structure and organization of plant communities with a specific field project in the Catskill Mountain region.

George R. Bernard
Products of metabolism excreted in the urine of infected hamsters and turkeys and the function of the rectal gland are two subjects currently being pursued.

Some Physical Scientists
Their Forays Among Molecules, Atoms, Nuclei, Particles

E. A. Coomes
Solid solid-state physicist elaborating the mechanics of crystal growth, surface emission characteristics of crystals, matrix mechanics of electrical transport in polyphase systems and other related phenomena.

C. J. Mullin
Describes his work, generally, as the study of interactions of photons and particles with nuclei, and, specifically, as the study of radiation from high-energy electrons, their scattering and the properties of light nuclei.

Bernard Waldman
Using Notre Dame's medium energy accelerator, nuclear excitation by radiation is studied while design work on the high energy colliding beam accelerator for Midwestern University Research Associates continues.

John W. Mihelich
His nuclear spectroscopy of rare earth nuclides aims to fill in the gaps of knowledge about their properties at high energy levels.

D. W. Juenker
Examines the fundamental processes involved in the external photoelectric effect in metals and semiconductors.

R. L. Anthony and
Alex. A. Petrauskas
Information about the internal motion and structure of molecules is being derived from studies of ultrasonic attenuation in low molecular weight liquids.

Emerson G. Funk, Jr.
Decay schemes of radioactive nuclei are explored to determine the ordering of the energy levels and the characteristics of these levels.

Milton Burton
A physical chemist directing and conducting manifold research projects probing the elementary processes involved in radiation chemistry.

Charles E. Brambel
A biochemist deeply engrossed with blood clotting, the development of chemical agents to control blood hemorrhage, effects of vitamin K deficiency on the hemostatic mechanism, and effects of continuous low level radiation on mammals.

Bro. Columba Curran, C.S.C.
A series of studies including infrared and ultraviolet absorption measurements of reactions between coordination compounds of metal halides and halide ions in the solid state; dielectric and spectroscopic studies of hydrogen bonding in various organic compounds containing N-H and O-H bonds.

San-ichiro Mizushima
Visitor from Japan concentrating on structure of molecules by investigation of infrared, Raman and ultraviolet spectra.

George F. Hennion
Carrying on a Notre Dame tradition in acetylene chemistry started by Father Nieuwland to synthesize new compounds of potential interest in the drug field.

John L. Magee
Backs up radiation experiments with appropriate theoretical studies now heavily concentrated on radiation initiated reactions in the gas phase.
William H. Hamill
Physical chemist with several current interests such as: mass spectrometric observations of ion-molecule interactions; radiation chemistry of organic liquids; diffusion kinetics in liquids at high pressures.

Patrick A. McCusker
Observation of new reactions and syntheses of new compounds are sought in studies of the disproportionation and other reactions of organoboron and organosilicon compounds.

Ernest L. Eliel
An organic chemist does conformational analysis of simple cyclohexane derivatives to determine the relationship of their properties and reactivity to their geometric shape. Also studies the mechanism of free-radical aromatic substitution.

Rudolph S. Bottei
Thermal and structural properties of inorganic polymers and of organometallic compounds and organic functional group analysis are his research preoccupations.

Emil T. Hofman
Director of chemistry teacher training summer institute also studies the preparation and properties of chelating resins.

Vincent J. Troynelis
Finds himself attempting the synthesis of novel heterocyclic systems and also the study of certain reaction mechanisms such as are involved in the reaction of 2- and 4- picoline N-oxide with acetic anhydride.

Richard C. Pilger, Jr.
Investigates nuclear decay schemes of various members of the actinium natural decay series — nuclides noted for their complexity.

Rev. Thomas J. Lane, C.S.C.
Engages in chelate formation studies of a group of heterocyclic compounds of interest in biology and medicine. Also studies aminoacid and protein metal complexes.

James P. Danehy
An organic chemist launching studies of the reactions of alkyl phosphites with organic disulfides.

Isidore Hodes, (above), is a physical scientist in the College of Engineering. His field is "bridging the gap between electromagnetic theory and its engineering applications."

William M. Fairley
Sequence of formation, structures and metamorphic zones in pre-Cambrian rock units are determined by field mapping, and petrographic studies.

Rev. Michael J. Murphy, C.S.C.
Resorts to specific gravity, optical tests and X-ray methods to study substitutions in the mineral series "wulferite-stolzite" and "geocronite."

Some Mathematicians
Their Sophisticated Precisions

Arnold E. Ross
Busy director of many special educational programs with time for study of the minima of the indefinite ternary quadratic forms with real coefficients.

Vladimir Seidel
Of current interest are the conditions under which meromorphic functions in the unit circle approach a definite limit as the argument approaches a point of the circumference continuously.

Ky Fan
Topologist and functional analyst working with convex sets in topological vector spaces; absolute retracts and absolute neighborhood retracts; extension of mappings and of homotopies.

Hans Julius Zassenhaus
Prolific scholar with current books and papers on semi-class groups in algebraic number fields, application of Lie-algebra in finite group theory, representation theory, and linear algebra and projective geometry.

Richard Otter
Now looks at probability theory, especially its asymptotic laws; and function theory, especially unbounded functions on the unit circle.
Some Engineers

Their Creative Applications of Science

F. N. M. Brown
Tamer of turbulence in a unique smoke tunnel yielding sharp pictures of airflow, the means by which the mechanism of transition from laminar to turbulent flow within the zero gradient boundary layer might be discovered.

Allen S. Smith
Expert in the application to pollution problems of the measurement of adsorption and vapor-liquid equilibrium of ternary systems, the correlation and evaluation of their thermodynamic properties. A more specific interest is pickle liquor disposal and acid recovery in the manufacture of steel.

Ernest J. Wilhelm
Investigates possible development of an electrochemical method for evaluating the control of galvanic corrosion by corrosion inhibitors.

James P. Kohn
Searches for a simplified model of the liquid state using phase and volumetric approaches particularly near the critical points where liquid and vapor are identical. Also by diffusion studies of spherical tops (methane molecules) he studies the mean free path in the liquid state.

Steponas Kolupailia
Caps his professional career with compilation of a bibliography on hydrometry from a unique file of book and journal article references accumulated here and abroad over the past forty years.

Leroy D. Graves
His research attempts to establish a mathematical relation between the physical properties of soil and the movement of footings and piles under load.

Prof. Newman (left) and observer inspect sub-critical nuclear reactor in Nuclear Engineering Department.

Harold E. Ellithorn
Electrical engineer wrapped up in the analysis of nonlinear electrical elements and circuits and energy considerations for electrical relays.

Arthur J. Quigley
Collaborator in the physical electronics laboratory of the Physics Department specializing in the study of surface phenomena of solids such as tungsten.

Isidore Hodes
A physical scientist and engineer bridging the gap between electromagnetic theory and its engineering applications particularly in advanced microwave detection apparatus.

Clyde Hoffman
Analog and digital computer specialist with an interest in both theory and development as typified by the creation of stability diagrams for nonlinear systems.

O. G. Strandhagen
Engineering scientist generating new knowledge about the hydrodynamics of shaped bodies on or beneath the surface of heavy fluids through measurement of hydrodynamic forces and moments and through formulation of new concepts of cavitation and ventilation.

M. O. Peach
Takes the engineering science approach to such studies as structural dislocations in aluminum and the separation of elastic and plastic states in solids.

Lawrence H. N. Lee
The cylindrical, thin-walled shell—the classical structure of the missile age—is subjected to theoretical and experimental study under combined axial compression and lateral pressure in the inelastic range.

Yan-Po Chang
Pioneering a new approach to the mechanism and theory of turbulent flow with further specific interest in the heat transfer and critical conditions in nucleate and in film boiling of importance in nuclear reactor design and operation.
Marcel K. Newman
Leader of a nuclear engineering program in the Mechanical Engineering Department, he is also deeply involved in the studies of wave propagation and energy dissipation in solid materials.

C. Robert Egry
Industrial engineer using time and motion studies as the basis for improving the efficiency of industrial operations.

E. W. Jerger
A thermodynamicist with research interest and experience in the analysis and testing of temperature sensing devices based on considerations of energy conversion and the behavior of liquid, solid and gas systems in extreme temperature ranges.

Kwang-Tzu Yang
Another thermodynamicist primarily interested in heat transfer including study of unsteady laminar boundary layers in compressible flows; nonlinear heat conduction involving property-temperature variation and movable boundaries; heat transfer in duct flows with and without surface suction or injection; and unsteady free convection with arbitrary surface temperature variation.

Stanley S. Thomas
A design engineer, he has interests that include the experimental techniques involved in metal displacement and in failure producing phenomena; also gaseous diffusion through welded metals.

Francis H. Raven
Styles himself as a control engineer, kinematician and machine designer. His current research is on equilibrium and transient behavior of flow through series orifices. He also studies fundamental problems in kinematic synthesis as a basis for establishing design requirements of control systems including materials and performance requirements.

Michael A. DeCicco
Heat transfer specialist applying advanced experimental techniques and theory to evaluation of components of air conditioning and refrigeration systems.

Ettore A. Peretti
Head of the Department of Metallurgical Engineering, studies phase relationships in systems involving semiconductors to develop basic data for growing crystals from the melt and to develop new intermetallic types as semiconductors for thermoelectric applications.

George C. Kuczynski
A solid state physicist with a wide range of interests. He directs research that includes order-disorder phenomena in alloys, sintering of oxides of sulphides, photomechanical effects in semiconductors, effect of F-centers on mechanical properties of solids and sintering and crystallization of polymers.

Bernard D. Cullity
Physical metallurgist with research in progress to study the effect of preferred orientation on mechanical properties of metals, residual stress in metals by X-ray diffraction, effect of magnetic field on stress relaxation and effect of residual stress on magnetic hysteresis losses.

Charles W. Allen
Another physical metallurgist, collaborates closely with Professor Kuczynski on the interaction of color centers in alkali halides as a means of assessing the role of the surface of crystals in the plastic deformation process. Also he studies the effects of various kinds of radiation and of electric fields on the mechanical properties of semiconductors.

Paul Jacques Grillo

Ernest H. Brandl
With the aid and encouragement of the American hierarchy, lovingly resurrecting the 19th-century American cathedrals in all their architectural and historical significance for our Catholic cultural heritage.

IBM 704 digital computer installed elsewhere but typical of the expensive tools of modern research needed here.
Preoccupation with money may indeed be a sordid matter in some human affairs. But when money becomes the seed of creativity planted with care and affection by expert gardeners in the fertile imaginations of a university faculty, then it promises a precious flowering of the scholarly life with rewards in beauty and knowledge for all mankind. Fortunately, Notre Dame is privileged to be one of the many gardens in which this seed is increasingly planted.

The expert gardeners are, of course, the private corporations, the philanthropic foundations and government agencies supporting research. The seed they have planted in selected years from 1949 to 1959 is weighed in the accompanying chart.

Corporations

Over the past eleven years, corporation support of research at Notre Dame has not broken far beyond the one-hundred-thousand-dollar-a-year mark. The reasons for this are many. They include corporation policies that restrict research support to projects with a high degree of early applicability to the corporation's products whereas the University tends to encourage basic research. They include also a reluctance on the part of faculty to become involved in projects the lives of which are often terminated by changes in corporate managements or by unpredictable, short term swings in corporate earnings. This reluctance is abetted by the increasing availability of funds from foundations and government agencies with reasonably assured longevity.

A break in the pattern of corporate support of research may have been presaged during the 1958 recession by the action of many companies in broadening the base of their research effort despite reduced earnings. Certainly these companies gave research a vote of confidence as the means of creating new products and new applications for future expansion. In this day and age it is a truism to say that research is the life blood of the technological industries. More and more they will appreciate and support the basic work in problems of mutual interest by faculty members of universities including Notre Dame.

Foundations and Private Contributors to Research

Most philanthropic foundations have established a policy not to support research heavily funded by public agencies. They conceive their role primarily as one of stimulating scholarship in a way to preserve a balance between the natural sciences, the social sciences, the arts and the humanities. With heavy support of the natural sciences by the federal government, the foundations naturally concentrate their support on the social sciences, the arts and the humanities. Development of the kind of collaborative and interdisciplinary research most favored for support by the larger foundations is yet in an embryonic stage at Notre Dame. Typical are the Ford Foundation supported Committee on International Relations and the Rockefeller Foundation supported East European studies involving members of the political science, history and modern language departments. Notre Dame's future with the foundations rests squarely on the competence, imagination and desire of her faculty.

Federal Government

National defense, health, education and the general welfare are all compelling reasons for the federal government's ever-increasing dedication of tax money to the support of research. The accelerated pace of this federal support at Notre Dame is pointed up by the 1959 expenditures of $1,395,900 of federally provided money compared to only $265,100 in 1949. Also remarkable in the pattern of federal research support at Notre Dame is the progressive emergence of the Atomic Energy Commission, National Institutes of Health and National Science Foundation as heavy contributors. Whereas together these agencies accounted for only $25,600 or 9.6% of the total in 1949 (NSF had not yet been established), in 1959 they had jumped to $984,900 and 70% of the federal total.

Atomic Energy Commission

The Atomic Energy Commission supports research projects in Chemistry, Physics, Metallurgical Engineering, Engineering Science, Mechanical Engineering and Biology. It provides funds for the specialized and expensive equipment used in the Radiation Project, in radiation biology and in the nuclear engineering training program of the Department of Mechanical Engineering. Probably the largest organization of its kind on a University campus, the Radiation Project accounts for a major portion of the AEC funds in its research on the effects of radiation on matter. Recently the Commission has favorably received the University's proposal for construction on the campus of a two million dollar laboratory to house the Radiation Project. A decision awaits establishment of a national policy with respect to the use of federal funds for such a purpose.
The National Institutes of Health in the U.S. Public Health Service is charged by Congress with the mission of engaging in research and training related to health and the medical arts. These Institutes administer an extensive research program. NIH sponsored research at Notre Dame includes work in Lobund (germfree life), Chemistry and Biology. In October of this year alone, proposals in excess of $600,000 were submitted to NIH for a variety of research and training programs to extend over the next five years. There is no doubt that NIH will become an increasingly important source of research support for faculty with appropriate capabilities and interests.

The steady, high level support by the Office of Naval Research of Notre Dame's programs reflects a mutuality of interest that reaches back to the Navy research organizations of World War II that preceded ONR. Of course ONR is the archetype of the ideal basic research supporting agencies of the federal government. NIH and NSF were both patterned after ONR and, in the latter case, heavily staffed by ONR personnel. ONR continues to support research projects in Physics, Metallurgical Engineering, Geology and Lobund. That the level of support has not increased radically over the past eleven years reflects more than anything else the fact that ONR's basic research funds have not increased significantly over this period.

RESEARCH EXPENDITURES — 1949 - 1959

<table>
<thead>
<tr>
<th>SPONSORS</th>
<th>1949</th>
<th>1952</th>
<th>1955</th>
<th>1958</th>
<th>1959</th>
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<tr>
<td>Corporations</td>
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<td>$61,700</td>
<td>$58,100</td>
<td>$103,100</td>
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<td>113,800</td>
<td>116,400</td>
<td>115,400</td>
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<td>Bureau of Standards</td>
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<td>Department of the Air Force</td>
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<td>23,600</td>
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<td>5,000</td>
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<td>National Institutes of Health</td>
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<td>TOTAL SPONSORED RESEARCH</td>
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<td>$654,200</td>
<td>$841,300</td>
<td>$1,143,600</td>
<td>$1,626,400</td>
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</table>
Some Hard Facts About Research . . .

The strength of Notre Dame's conviction that faculty research and scholarship are an essential part of her drive toward excellence is graphically portrayed in the picture presented here of the ever increasing expenditures for these purposes. The $1,272,700 spent by the University in all the colleges in 1958 represents an amount equivalent to tuition of approximately one-fourth of the entire undergraduate student body. It also exceeds the $1,143,600 provided by the private and public sponsors of faculty research.

The University makes its contribution to research in two special ways: one, by reducing the teaching loads of the faculty thus giving them time and encouragement to develop their personal scholarly careers and, two, by making available major physical resources for this purpose. For instance, few people fully realize the demands of research for library facilities and for specialized books and journals. Also characteristic of the University's involvement is the use of every obscure nook and cranny in the academic buildings for housing the tools of modern research. Many a laboratory has a blackboard wall to memorialize the fact that it was originally intended as a classroom. More efficient class scheduling over a longer working day has made possible this diversion of classroom space to research use.

The University's sponsorship of research and scholarship in the College of Arts and Letters approaches the level in the College of Science. This stems from Notre Dame's determination to preserve a balance in its academic life in keeping with its tradition as a liberal arts school.

In Science, on the other hand, every University dollar is matched by two from outside sponsors. The University's contribution to research in science is the foundation of a program that continues to grow especially rapidly under the stimulus of the national interest in promoting scientific research.

The relatively smaller University research contributions to Engineering, Commerce and Law reflect some of the uncertainties about what constitutes research in these professional disciplines and how it should be organized. The present deans of these Colleges are leading their faculties into significant programs compatible with their interests and capabilities. The next two years will see dynamic research of increasing importance in engineering, commerce and law.

A crucial point related to the financial well-being of the University as affected by its research aspirations is also illustrated in this chart of research expenditures. Every dollar contributed by sponsors spawns a need for a dollar from the University. Granted that more opportunities for personal research and scholarship must be provided a faculty developed to or acquired at increasingly higher level of capability, then it becomes clearly a major burden and responsibility of the University to generate the necessary financial support. Neither the federal government nor the private sponsors can solve this problem. Only the unrestricted giving of our alumni, friends and benefactors can sustain Notre Dame in this and her other commitments to excellence.
Scientific research at Notre Dame has been dramatically highlighted in the past with notable achievements. Some of these include Father Nieuwland’s formula for synthetic rubber and the sending of the first wireless message in America by Professor Green. More recent experiments in laboratories and workshops have been concerned with dental caries, cancer, heart disease and amoebic dysentery in Lobund’s germfree center; with supersonic tests in the Department of Aeronautical Engineering; and, with peacetime applications of atomic energy.

Other research at Notre Dame is related to the humanities, law, and the social sciences. The Mediaeval Institute has been a fascinating development in higher education which seeks to translate the underlying principles of Christian civilization into the language of contemporary men. The Natural Law Forum and the Maritain Center are significant and distinctive research projects which have made influential contributions to the intellectual life.

In Notre Dame’s current ten-year $66.6 million program, $11,000,000 has been allocated for research. Alumni and non-alumni friends are invited to help provide the financial means which will further the University’s academic excellence and realize its hopes for the future.

**NOTRE DAME’S 1958-67 PROGRAM**

1. Endowment for Increased Faculty Salaries...$27,000,000
2. Contributions for Research......................11,000,000
3. Student Aid ....................................5,000,000
4. Special Funds for Administrative Purposes...5,000,000
5. New Buildings ________________________18,600,000

**TOTAL $66,600,000**

**Additions to**
- a) Commerce ...........$ 500,000
- b) Law ..................500,000
- c) Engineering ..........500,000
- Library ..................5,000,000
- (2) Graduate Halls......2,500,000
- Priests’ Faculty Building, 1,500,000
- Maintenance Center ......600,000
- Auditorium .............3,500,000
- Fieldhouse .............4,000,000