March 30, 1956

NINTH ANNUAL REPORT TO THE ALUMNI OF THE DEPARTMENT OF CHEMICAL ENGINEERING

DEAR "JEWELS":

When there are bigger and better ones..they will have to be Buckeye Chemical Engineers. It is good and light for the heart in this "coronary conscious" world of ours to send to each of you this report on the State of our Department of Chemical Engineering. This is true at this time especially, as this May 4th and 5th, we will celebrate the GOLDEN ANNIVERSARY of the first degrees conferred in Chemical Engineering to these two "Jewels Extraordinary"

LOUIS BENJAMIN CASE AND ARNO CARL FIELDNER

It is to pioneer chemical engineers like these two and to the classes which followed in our infamous "Black Hole of Calcutta", that have been responsible for our profession's coming of age from the "shanty" to the "lace curtain class" .. or "Schmierchemie -and Plumber Fourth Class" or "Goozle" engineers to the modern chemical engineering of today with their linear programming, operations research, univac computers, etc.

Once again, we give to all of you, the heartiest and warmest of greetings and are privileged to extend to all of you, your fellow chemical engineers, your wives, your children, and all of your friends, a cordial invitation to come back to the

THE THIRD ANNUAL CONFERENCE FOR ENGINEERS AND ARCHITECTS

TWENTY SEVENTH HOMECOMING OF THE DEPARTMENT OF CHEMICAL ENGINEERING

AND

THE REUNION OF THE CLASSES OF 1906, 1916, 1921, 1931, 1946 AND 1951.

THE PROGRAM

FRIDAY, MAY 4, 1956

9:00 A.M. - Registration - Ohio Union - Second Floor

10:00 A.M. - Address: Ohio State Museum - MR. JOHN R. HOOVER, President, B. F. Goodrich Chemical Company

"THE CREATIVE AGE - A CHALLENGE TO ENGINEERS"

11:30 A.M. - Luncheon Session - Ohio Union Ballroom.

Address: DR. DEAN E. WOOLRIDGE, President, Ramo-Woolridge Corporation

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* Goozle is a term concocted by Sid Kirkpatrick (?) to describe the many combinations and permutations of "witches brew" used by our profession in the early days to plug up leaks, stop corrosion, line tanks and pipes and to get production through on borrowed time.

"SYSTEMS ENGINEERING"

2:00 P.M. - Chemical Engineering Department - Room 154, Welcome to the Alumni and Anniversary Classes of 1906, 1916, 1921, 1931, 1946 and 1951. A few comments by the two members of the Golden Anniversary Class of 1906 - Lewis B. Case and Arno C. Fieldner.

3:00 P.M. - Address - GIFFORD H. SYMONDS - Chairman, Operations Research Group, Esso Standard Oil Company, Linden, New Jersey.

LINEAR PROGRAMMING IS HELPFUL IN SOLVING REFINING AND BLENDING PROBLEMS

3:45 P.M. to 10:00 P.M. - Open House in all Engineering Departments. High School Day. There will be available, counsellors to advise high school students concerning engineering as a profession.

Associate Dean Harold A. Bolz has already mailed you a detailed program of the Third Annual Conference for Engineers, together with reservation cards. If you have not received yours as yet, kindly indicate this on the enclosed card. A program will be sent you immediately.

KINDLY RETURN THE ENCLOSED CARD AS SOON AS POSSIBLE AFTER RECEIVING THIS REPORT

We do hope and urge our many presidents, executives, plant managers, chief engineers, superintendents, research directors, and others, who are responsible for the development of our chemical engineers to see fit to send as many as possible to the Third Annual Conference for Engineers, Friday, May 4th..We do hope that each of you will come back too.

I. THE CHEMICAL ENGINEERING PROGRAM.

We are indebted to the Esso Standard Oil Company for their contribution to our Department of Chemical Engineering, in making it possible for Gifford H. Symonds, Chairman of their Operations Research Group to be our speaker. An abstract of this timely topic is given on the next page of this report.

ABOUT OUR SPEAKER

Gifford H. Symonds was educated at M.I.T. in Electrochemical Engineering and studied Chemical Engineering at N.Y.U. and Columbia. He has been employed by Esso Standard Oil Company for the past 27 years. In 1933 he helped organize one of the first refinery technical groups at Esso's Bayonne, N. J. Refinery and during 1936-41, he headed Esso's Central Process Control Group, responsible for Operations Analysis activities. During the war years, Mr. Symonds worked with the Aviation Gasoline Advisory Committee of P.A.W. and directed this group's activities to provide feed supplies for Industry's Aviation Gasoline plants. After the war, he served for two years as Assistant Manager of Esso's Technical Service Division and in 1948 was named Executive Secretary of Esso's Manufacturing Technical Committee. In this capacity, he serves to coordinate the activities of the technical people in Jersey affiliates' refineries. During the past four years through the M.T.C., Mr. Symonds has promoted the application of the methods of Operations Research to the study of refinery operations. He was Chairman of the M.T.C. Subgroup on Operations Research and Head of Esso's Central Operations Research Project.

Abstract of Paper

LINEAR PROGRAMMING IS HELPFUL IN SOLVING GASOLINE REFINING AND BLENDING PROBLEMS

by

Gifford H. Symonds
Esso Standard Oil Co.

The petroleum refiner is confronted with the problem selecting the most appropriate refining methods for producing components of gasoline which can be blended to make specification products in desired amounts at minimum cost. The refining of petroleum is fairly complex and results in the production of a number of separate gasoline streams from several distinct refinery processes; thus straight run gasoline is produced in the distillation of the crude petroleum, catalytic gasoline is produced in the catalytic cracking of gas oil, reformate is produced in the octane improvement of heavy gasoline fractions and vis-breaker naphtha results from the viscosity breaking of Bunker fuel oil fractions. These refinery operations may be adjusted somewhat to change the quality or production rates of these gasoline components. The components must thereafter be treated and blended to produce salable products. It is common practice to determine the cost of manufacturing each of the gasoline components so that the refining and blending operations may be related to the ultimated costs of the finished products.

GIFFORD H. SYMONDS, CHAIRMAN, MANUFACTURING TECHNICAL COMMITTEE AND HEAD OF ESSO STANDARD OIL COMPANY'S CENTRAL OPERATIONS RESEARCH PROJECT.

The calculation of the most economical refining and blending operations is very well suited to solution by the method of Linear Programming. Linear Programming is a mathematical method for optimization of a linear function subject to a set of linear constraints. The linear function in this case is the profit to be derived from finished products after subtracting the cost of the components. The constraints include the availability of components or capacity for producing them and the specifications on product quality. A typical example of setting up and solving the gasoline refining and blending problem is included in this paper.

THE ABOVE PAPER WILL BE PRESENTED:-

FRIDAY, MAY 4th., AT 3:00 P.M.

ROOM 100, MCPHERSON CHEMICAL LABORATORIES

ABOUT OUR SPEAKER (Cont'd)

He is a member of the American Chemical Society, the Econometric Society, the Operations Research Society, the American Statistical Association, and the Society for Quality Control and has presented several papers at their meetings. He was a charter member and is currently the President of the Institute of Management Sciences. He was named General Chairman of the 1955 Gordon Research Conference on "Statistics in Chemistry and Chemical Engineering." His collection of studies "Linear Programming: the Solution of Refinery Problems" has been published recently by Esso Standard's Public Relations Department.

II. THE EMPLOYMENT SITUATION.

The complete list of graduates for the academic year 1954-1955 and the Winter and Spring Quarters, 1955-1956, are given, together with the names of companies with whom they have accepted positions. Data are not given for the Spring Quarter 1956 as most of the prospective graduates are still in the clouds trying to decide which of the many offers they will accept.

A summary of the salary offers are again given. This year was one of the most fantastic yet. There were over 180 companies interested in the some 40 receiving degrees this year. There were more than a total of 280 offers made to these men as of March 19th. (They are still coming in.) These statistics do not tell the complete story as many of our "jewels" in the rough had so many invitations for further plant visits, that it was a physical impossibility to take all of them. These would have resulted in further offers. For example, one combined B.Ch.E. and M.Sc. student had 26 offers, but had to decline 21 other trip visits. There were a total of 112 trip rejections. Sometimes, I think that we are on the spot when representatives of companies call or write "We have not received our fair share of your chemical engineers". I do believe that we do more than any other department in the country in individual attention to the many companies interviewing our chemical engineers. Much time is given to: publicizing the companies, encouraging our students to sign up for interviews, prolific correspondence, discussing in detail the characteristics of the students, contacting them, pointing out to the students how well graduates have faired with many companies, and everything else short of shanghaing them, that goes with interviews. But under no circumstances, have I ever put one of our men on the "rack" to accept a position with a company. We would soon be out of business if we did. Furthermore, the final acceptance of a position by a student is perhaps as sacred as life itself. About this time of the year, a good "salt mine" or a vacation in "Siberia" would be a more pleasant pastime than to explain why "Joe College" accepted a position as promotion manager for a Sales Campaign of refrigerators in the Arctic.

One can not help but call to mind the old nursery rhyme (substituting chemical engineer for "bone" and chemical company for "doggie"):

"Old Mother Hubbard went to the Cupboard
To get her poor doggie a bone
When she got there, the cupboard was bare
So the poor doggie had none."

It's rough. We will continue to do everything possible. The solution of the problem is more chemical engineers. This brings us to

III. AN OHIO STATE JOURNAL EDITORIAL - "ONLY APPEAL TO YOUTH CAN SOLVE ENGINEER SHORTAGE"

A photo-offset copy of this editorial is given on the next page. It was written by Jacob A. Meckstroth, Vice President and Editor, The Ohio State Journal, who has done so much for our Department of Chemical Engineering and Ohio State University, over these many years. He was loaned by the Ohio State Journal to the State of Ohio, from 1923 to 1929, to hold the position of private secretary to one of Ohio's great Governors - Vic Donahey. There has been at least one Meckstroth and sometimes as high as four in the University directory since 1906.

A copy of this editorial should be on the bulletin board of every high school in Ohio and the 47 other States. If you desire extra copies, kindly let us know ..... we can furnish as many as you want. The bottleneck of shortages of chemical engineers has to be broken, if we are to continue with our expanding and booming chemical industry. Several of our alumni have addressed graduating high school classes concerning a "Career in Chemical Engineering"; we have been happy to send them supporting material, charts, booklets, etc..I believe we can furnish enough material for a speech lasting from fifteen minutes to ten hours. Do not hesitate to write us.

John R. Hoover, President, B. F. Goodrich Chemical Company, the speaker on the general program in the morning, also hit the nail on the head in his recent speech before the Commercial Chemical Development Association in New York recently.

NATION NEEDS MORE 'BUILDERS FOR TOMORROW'!

Taken from GoodChemCo News, Volume 10 No. 2 - February, 1956.

A personal "do-it-yourself" program to encourage more young people to enter into science or science-teaching careers, has been urged by John R. Hoover, president, B. F. Goodrich Chemical Company and Chairman of the Board, Manufacturing Chemists' Association, Inc.

Speaking to the Commercial Chemical Development Association in New York City, Hoover pointed out that "the chemical industry cannot continue to build by technology alone, nor by commercial development, nor by investing in new and bigger plants. All of these are needed, but the essential ingredient is the individual, the scientist, the engineer, the teacher, the leader. "Our well-laid plans will stagnate if these talented, trained, dedicated people are not available," he said.

"In our great concern with things and dollars, with facts, figures, estimates and potentials, in our preoccupation with plans, we sometimes forget the essential ingredient, people. In our devotion to molecules we may forget men," the chemical executive said.

Hoover pointed out that the young "builders of tomorrow" must be preparing today for the adventures ahead. He urged that each scientist draw on his own experience to help tell the youth of today that there is no field in modern times that will offer a greater opportunity nor a more

exciting challenge to their imagination and effort than the business of taming nature's molecules to meet the ever-growing need and wants of man.

IV. THE DEPARTMENTAL STAFF, SCHOLARSHIPS, FELLOWSHIPS, AND RESEARCH FOUNDATION STAFF

A listing of these are given in this report. It is with regret that we announce that Mrs. Mary Wing Robb retired as of October 1, 1955 after 27 years in our Department of Chemical Engineering and a few years previous in the Registrar's office. I know that all of you join us in wishing her many years yet of happiness.

Charles E. Lapple signed, effective October 1st, to join the Stanford Research Institute in California. All of the staff and the students were sorry to see Charlie go; he did much for the department in the five years he was with us, made a good team mate and could always be counted upon for his good advice and wisdom. We miss him. Battelle Memorial Institute was very kind in permitting Alex Lemmon to accept the position of Lecturer during the Autumn Quarter at which time, he gave Charlie's course in advanced fluids. Owens-Corning Fiberglas Corporation helped us during the Winter and now again during the Spring Quarter in permitting Dr. Robert M. Christiansen to take over Lapple's work in Advanced Fluid Mechanics II and Particle Mechanics.

The tragic death of Fred Ohnmeiss, the DuPont Post Graduate Fellow in Chemical Engineering, Saturday, March 24th, has left a void in our department. Fred received his undergraduate training at Case, working for a short time with Carbide and Carbon Chemical Company in South Charleston before being called to the service. He has been a graduate student in our department since the Fall of 1954. His scholastic record was perfect or 4.0. He was selected for the Eastman Kodak Fellowship for the year 1956-1957. Fred was the second OSU student killed in an automobile accident, during the Spring vacation, in Florida while enroute to Columbus.

This year, we will graduate the last of our first set of triplets namely, the Weisz boys - Tony in 1943, Jerry in 1951, and now Johnny the Summer of 1956. We hear rumors too that we will soon have the third generation of the Strobel's namely, 1: Clarence I. Strobel (1915), 2: Everett H. Strobel (1940), and 3: might be Everett's son. These repeaters are an indication of the high standards of the Buckeye Chemical Engineering product. We are indeed proud of this record and above all the men.

FELLOWSHIPS AND SCHOLARSHIPS

We are indeed grateful and indebted to the following companies (listed alphabetically) who have awarded fellowships and scholarships in our department this past year. Without these and the grants of money for equipment, our work on the graduate and advanced undergraduate level, would indeed be almost impossible.

FELLOWSHIPS

1: Amer. Chem. Society-Pet. Res.
2: American Cyanamid Company
3: Dow Chemical Company
4: E. I. DuPont de Nemours and Co.
5: Procter and Gamble Company
6: Shell Oil Company

UNDERGRADUATE SCHOLARSHIPS

1: Dow Chemical Company
2: Lubrizol Corporation
3: Standard Oil Co. of Ohio (SOHIO)
4: Union Carbide and Carbon Corporation
   a: Carbide and Carbon Chemicals Co.
   b: National Carbon Company
5: Universal Oil Products Company

The names of the fellows and scholars are given in the listing of the staff members.

We are happy to report that all of the above companies have renewed the fellowships for the next year. Thus far, the Dow Chemical Company and National Carbon Company have renewed the undergraduate scholarships; the Lubrizol Corporation is interviewing students for their scholarship, April 10th.

The Eastman Kodak Company and the Linde Division of Union Carbide and Carbon Corporation have established graduate fellowships on the doctoral level for the year 1956-1957.

The E. I. duPont de Nemours and Company have established the first teaching instructorship in chemical engineering, in our department, for the year 1956-1957. I understand that the first instructorship in Physics has been established at M.I.T. There have been a few established in chemistry the past few years. The purpose of this instructorship is to give to our department, the best assistance available in an instructorship and at the same time, cut down the time required for the instructor to obtain his Ph.D. degree, with the hope that he will go into chemical engineering teaching. This indeed is a contribution to chemical engineering education. Too often, chemical industry is short sighted by trying to woo away "the goose that lays the golden jewels for chemical industry" - namely our chemical engineering teachers.

V. ENROLLMENT OF ENGINEERS AND PARTICULARLY CHEMICAL ENGINEERS AT OHIO STATE

Enrollment data for the College of Engineering and the Department of Chemical Engineering are given in this report. The high mortality after the first year in the 1950's as compared to the late 1930's, is appalling. If it were not for transfer students, the %'s now would be way out of line. To get to the bottom of the problem, we should read and reread Jake Meckstroth's editorial, and the abstract of John R. Hoover's speech before the Commercial Chemical Development Association.

The high school mortality is due, in many cases, to too much freedom in high school electives or to inadequate supply of competent teachers of mathematics and sciences in the high schools. It makes one's heart sick and heavy in counselling students who are on their way out after two quarters in the Freshman year. Their high school background consists of courses like band, choir, cheerleading, shop, arithmetic, salesmanship, how to live in the community (this is the job of parents and the church), and "what I would like to do". The latter are all good but should be extra-curricular activities.

The following are the Dean's recommended high school preparation for the College of Engineering. The University's requirements are more flexible but include courses which, although acceptable, will not give the entering engineering student the background really needed. We will be happy to give further information concerning this.

Mathematics ..... 4 units

Algebra ..... 2 units
Plane Geometry .... 1 unit
Solid Geometry .... 1/2 unit
Trigonometry ..... 1/2 unit

Science ..... 4 units

General Science ... 1 unit
Biology ..... 1 unit
Chemistry ..... 1 unit
Physics ..... 1 unit

English ..... 4 units

English ..... 4 units

History ..... 2 units

Amer. History and/or Civics 1 unit
World History 1 unit

Foreign Language

German, French, Spanish (or Latin) 2 units

Extra

Other Subjects ..... 1 unit

Typewriting ..... 1/2 unit
Mechanical Drawing .. 1/2 unit

A survey of the some fifty graduate students in the department indicate that their undergraduate work was in over thirty colleges in this country and abroad.

VI. AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. Once again our Department of Chemical Engineering is No. 1 of the some 94 chemical engineering schools in this country, in regard to application for membership in the American Institute of Chemical Engineers. Official figures for 1954 show 100% for Ohio State with only 18.5% average for all schools. We are 100% for 1955, and are shooting for 100% in 1956. IF YOU DESIRE AN APPLICATION BLANK FOR MEMBERSHIP, KINDLY INDICATE ON THE ENCLOSED CARD.

VII. NEW BUILDING FOR CHEMICAL ENGINEERING. We are very happy to report that $86,000 has been allotted for architectural planning for the new chemical engineering building which will also house Metallurgy, Ceramic Engineering, Mineralogy, Mine and Petroleum Engineering. The appropriations for the construction of the building should come in early 1957. This has been made possible by the good work of our Dean Gordon B. Carson, together with our University Administrative Officers.

DO COME BACK ON ENGINEERS DAY, FRIDAY, MAY 4TH. BE SURE TO MAIL IN THE ENCLOSED CARD SO THAT WE CAN BRING OUR RECORDS UP TO DATE.

WITH BEST WISHES TO ALL OF YOU, CORDIALLY YOURS,

JOSEPH H. KOFFOLT, CHAIRMAN
CHEMICAL ENGINEERING DEPARTMENT

THE FOLLOWING EDITORIAL BY J.A.MECKSTROTH,EDITOR,OHIO STATE JOURNAL.

THE JOURNAL EDITORIALS

TUESDAY, MARCH 6, 1956

Only Appeal to Youth Can Solve Engineer Shortage

AT every hand one hears and reads about an impending shortage of engineers and scientists in the United States. A shortage of engineers is blamed in large part for current delays in expansions and improvements not only in the construction fields but in many other spheres of American activity affecting our way of life, our standard of living and our relative place in the world of the future.

It will take another 10 to 15 years, at very best, to reverse the present downward trend in the training of experts in the practical application of technical knowledge.

The solution, obviously, lies in youth training and education in the home and school.

For too long the emphasis has been away from mathematics and the physical sciences, which are pre-requisite to courses in engineering. The biological sciences have fared better, but the primary educational emphasis has been directed toward the newer so-called social sciences.

The students in many of our larger educational colleges, being trained for the profession of teaching, have been taught to encourage their prospective pupils to select and study the subjects they like best, and that too often has meant the easy memory subjects, which can be learned through reading or audio-visual methods without intensive home study and application.

IT has been the engineering profession, more than any other, that has brought the benefits of applied science to all the people in all walks of life. This development, in this country, has been nothing short of phenomenal since the turn of the century.

In preparation for an engineering career the basic study is mathematics and pursuant thereto chemistry and physics.

Speeded by the exigencies of World War II, by our galloping increase in population, by the advent of the atomic age and the division of the world into two competitive halves — ideologically, politically and scientifically—the need for the development of engineering talent in America has become more vital than ever before. The extent to which this need is met can spell the difference between liberty and slavery as the ultimate lot of mankind.

Statistically, if the Soviets tell the truth, which they do only when it suits their political purpose, the Soviet Union now has a body of 400,000 engineers and its technical schools are turning out 50,000 new ones every year. If true, one cannot, of course, appraise the qualitative competence of these engineers.

On the other hand, the United States has at present 550,000 engineers. From its colleges are graduated about 25,000 annually, whereas the number of new ones should be nearer 35,000, according to accepted estimates of the technological authorities of the nation.

WE are falling behind in the training of engineers to replenish the professional pool deemed necessary for our domestic welfare alone. When the consideration of national security is added the falling behind looms immeasurably seriously.

In any program to remedy the situation one must bear in mind that the graduates from our engineering colleges 10 years hence are still in the elementary grades of our schools.

The minds of pupils must be directed, by parents and teachers alike, to the importance of mathematics and the sciences. This must be done in the elementary grades. To wait until junior high school may be too late, and senior high school is almost certainly too late to engender interest.

Too many of our modernly trained teachers are not aware of this importance. The fault therefore lies in part with some of our colleges of education.

Fifty years ago more than half the high school students in this country studied algebra. Today anly 25 per cent of them do so. The percentage of those taking geometry, chemistry and physics has declined proportionately.

Our colleges of engineering, among which one of the foremost is the College of Engineering of Ohio State University, are preparing diligently for the demands and the needs of the immediate future. From an engineering college appropriation of $2,500,000 at the January session of the Legislature, Ohio State University is to have two new long-needed buildings in the engineering section of the campus. One is a large engineering classroom building. The other is a modern, fully equipped building for chemical and related branches of engineering.

CHEMICAL engineers trained at Ohio State University are in charge of many of the new industrial plants along the Ohio River, destined to become the Chemical River of America. The influence of the location of these plants has inspired increasing numbers of southern Ohio high school graduates to enroll in the various chemical and related engineering courses at Ohio State University.

All the various branches of engineering, besides chemical, need recruitment.

Many of the large corporations have adopted scholarship programs to enable science-minded youths to attend college who otherwise might not be able to do so. Ohio has not always fared well in these programs. In the recent nation-wide scholarship contest of the Science Service Clubs of America none from Ohio was among the 40 winners selected from among 20,828 high school senior contestants.

The scholarship programs are most commendable but they do not go to the crux of the recruitment problem which is how to inculcate the importance of engineering and science in the minds of the youth of America. That is the task of the teacher training colleges, of teachers and of parents.

ARNO C. FIELDNER

LEWIS B. CASE

A SALUTE TO OUR FIRST GOLDEN ANNIVERSARY CLASS

It is fitting and good to give the histories of the first graduates of our Chemical Engineering Department, namely, Lewis B. Case and Arno C. Fieldner. The reproductions of the photographs on the opposite page indicate that they are still hale, hearty and even though retired from their official positions are still going strong.

LEWIS B. CASE

The following was written from LAB NOTES, Research Laboratories - Division of General Motors Corporation, Vol. 8, No. 2, August, 1950 and was written by Harry C. Mougey, B.Ch.E. 1911, Ch.E. 1935, Lamme Medalist 1941 - All Buckeye.

Lewis "Ben" Case graduated from Ohio State University in 1906, in the first class in Chemical Engineering that university ever graduated. After college, he started work at the Friend Paper Company. In 1908, he went to the National Cash Register Company at Dayton, Ohio where he worked under the direction of Dr. Clements who later became head of the Lab.

At the time he was at National Cash Register, chemists and chemical laboratories were very scarce. Late in 1910, General Motors Company, as it was called at that time, decided it needed a chemical laboratory. They hired Arthur D. Little to organize a chemical laboratory and do the chemical work they needed. Little visited Dr. Clements and asked for help in locating some good chemists. Dr. Clements recommended Ben, who left Dayton and started work in Detroit on October 16th, 1911.

In 1912 the Arthur D. Little Laboratory was taken over by General Motors who placed K. W. Zimmerschied at the head. Mr. Zimmerschied is very famous in automobile history as the founder of the SAE specifications for steel.

It was not until 1922 that the General Motors Chemical Laboratories moved to the General Motors Building. The Laboratory in Dayton moved to Detroit in 1925 and the two were combined with Dr. Clements as head. There, for many years, Ben was assistant head of the Chemical Department.

One of the most characteristic things about Ben Case is his habit of enriching the English language with his own peculiar expressions. When someone, after reading one of his reports, pointed out a word and said, "But Dr. Case, there is no such word," he just looked, with a twinkle in his eye, and said, "You mean there was no such word. The twinkle gives away Dr. Case. He has a gruff and ready sense of humor, but he is always kind, gracious, and helpful.

Ben worked in the Chemical Department until 1936 when a more concentrated effort was made to improve industrial hygiene conditions in various GM plants. From that time on he worked, at first alone and later under F. A. Patty who is head of Industrial Hygiene, to reduce and eliminate industrial health hazards.

Among the professional societies of which he is a member are: the American Chemical Society, American Society for Testing Material, American Society for Metals, American Institute of Chemical Engineers, American Industrial Hygiene Association, American Public Health Association, Engineering Society of Detroit, Detroit Rubber and Plastics Society, and Society of Automotive Engineers.

Ben Case retired on July 31st, after 39 years of service to the laboratories. In point of service he was the third oldest employe in the Lab when he left.

C. F. Kettering and Fred Klein, who have been with Research for 41 and 40 years respectively, claim the two top spots.

Before he left the Lab, Ben was honored at a testimonial dinner by over fifty members of his department and others with whom he has been closely associated during his years at Research.

ARNO C. FIELDNER

Following his graduation in chemical engineering from Ohio State University in 1906 and a short apprenticeship with the Denver Gas and Electric Company, Dr. Fieldner became fuels chemist in the U. S. Geological Survey, at Pittsburgh, Pa. This work was under the personal direction of N. W. Lord, who, at that time, was Dean of the School of Mines, Ohio State University, and consulting chemist for the fuel investigations of the U. S. Geological Survey. In 1910, when this work was transferred to the newly created Bureau of Mines, Dr. Fieldner was placed in charge of the fuels chemical laboratory and later of the gas investigations laboratory also.

During the World War he was in charge of the Gas Mask Section, Research Division, Chemical Warfare Service, and was commissioned a Major. He developed the methods used for testing the efficiency of gas masks against various gases, and, subsequently, aided in perfecting gas masks for industrial use. Dr. Fieldner returned to Pittsburgh as supervising chemist of the Pittsburgh Station, and in 1921 was placed in charge of the Station. In 1927 he was placed in administrative charge of the Bureau's Experiment Stations Division with headquarters in Washington, D.C., and in 1936 he was appointed Chief of the Technologic Branch and Chief Engineer of the Coal Division of the Bureau of Mines; and on July 1, 1942, Chief of the Fuels and Explosives Division, Bureau of Mines, until his retirement in 1951. Following retirement from this position, he was appointed Chief Fuels Technologist and has continued in this capacity to date.

Dr. Fieldner has been active in developing standard methods and apparatus for analyzing gas and coal, directed the pioneering research on the ventilation of vehicular tunnels, and has been the author and co-author of many scientific and technical papers on gas and fuel research. In 1936 he was honored by election to the presidency of the American Society for Testing Materials; he was chairman of the A.S.T.M. Committee D-5 on Coal and Coke from 1920 through 1948, and in 1947 he was awarded an honorary membership in the Society.

He also is an honorary member of the American Society of Heating and Ventilating Engineers and is a member of the American Institute of Mining and Metallurgical Engineers, American Chemical Society, American Gas Association, Coal Mining Institute of America, American Institute of Chemical Engineers, Washington Academy of Science, and of the following clubs: Chemists (N.Y.), Cosmos (Washington), University (Pittsburgh), and Coal Research (London).

Ohio State University conferred on him the degree of Chemical Engineer in 1923, and awarded to him the Lamme Medal in 1931 and the Joseph Sullivant Medal in 1940. The honorary degree of Doctor of Science was conferred upon him by the University of Alabama in 1936 and by the Ohio State University in 1944. The Institute of Fuel of Great Britain awarded the Melchett Medal to him in 1942 in recognition of his contributions to fuel technology. In 1946, the Coal Division of the American Institute of Mining and Metallurgical Engineers and the Fuels Division of the American Society of Mechanical Engineers jointly conferred on him the Percy Nicholls Award for notable scientific and technical achievements in the field of solid fuels. In 1949 he was awarded the Distinguished Service Medal of

the U. S. Department of the Interior in recognition of his notable contributions to fuel technology and of more than 40 years of exemplary public service. In 1951 he received the Washington Society of Engineers Award, and in 1953 the Washington Chapter of the American Institute of Chemists Honor Award.

FORTIETH ANNIVERSARY

CLASS OF 1916

Master of Science

1. Emil Harold J. Balz
   Route 2, Box 302, Toledo 6, Ohio (?)

2. James H. Young
   Pres. H. H. Robertson Co.
   Farmers Bank Bldg., Pittsburgh 22, Pa.

Bachelor of Chemical Engineering

1. Wilson F. Brown, Prof. Ch.E.
   University of Florida
   Gainesville, Florida

2. Charles G. Duncombe, Prof. Ch.E.
   and Director of Ch.E. Dept.
   University of Detroit
   Detroit, Michigan

3. James W. Elwood
   Firestone Tire and Rubber Company
   Res: 4125 S. Figueron St.
   Los Angeles, Calif. (?)

4. Fontaine R. Henninger
   Retired from Merch. Exec.
   Sear Roebuck and Co., Chicago, Ill.
   Now: Adviser, Walton's Ltd.
   Sidney, Australia

5. Raymond A. Jameson
   Merchant, Hamilton, Ohio

6. Edward H. Loeb
   Salesman, 8037 Evans Ave., Chicago

7. Richard Maeder
   Electrochemist, Frigidaire Corp.
   Dayton, Ohio

8. William T. Maidens
   Supt. Am. Zinc Oxide Co.
   Columbus, Ohio

9. Harold E. Mesereaux
   Chief Chemist, Standard Oil Co.
   Toledo, Ohio

10. Lowell H. Milligan
    Asst. Dir. of Research
    Norton Co., Worcester, Mass.

11. Norman A. Mills
    Purchasing Agent, Penn. Glass
    Sand Corporation
    Hancock, W. Va.

12. William L. Mong
    Chemistry Teacher
    Cleveland Board of Education
    Cleveland, Ohio

13. Frank R. Porter
    Head, Surface Treatment Sec.
    Research and Development Dept.
    Inland Steel Co., E. Chicago, Ind.

14. Lloyd E. Smith
    Libby Owens Ford Glass Fibers Co.
    Oradell, New Jersey

ALUMNI REUNIONS - MAY 4

FIFTIETH ANNIVERSARY

CLASS OF 1906

Bachelor of Science in Chem. Eng.

1- Lewis B. Case (Retired)
(Research Div., Gen. Motors Corp.)
18721 Gainsborough, Detroit, Mich.

2- Arno C. Fieldner, Chief Fuels Tech.
Bureau of Mines, U.S. Dept. of Int.
Cosmos Club, Washington 8, D.C.

THIRTY-FIFTH ANNIVERSARY

CLASS OF 1921

Doctor of Philosophy

1- Charles F. Rudmann
Northwestern Insurance Company
Cleveland Heights, Ohio

Master of Arts

1- William S. Jones
E. R. Squibb and Co., Brooklyn,N.Y.

2- Jerome R. Mueller
(Insurance - Various companies)
Canton 2, Ohio

Master of Science

1- Herman J. Bankston
Gulf Coast Res. Laboratories
Ocean Springs, Mississippi

2- Calvin A. Buehler
Prof. of Chemistry, U. of Tenn.
Knoxville, Tenn.

3- Harold S. Holloway
Firestone Tire and Rubber Co.
Akron, Ohio

4- Harold T. Reiner-Ruff - Deceased

5- Lawrence E. Stout, Chairman
Department of Chemical Engineering
Washington University, St.Louis,Mo.

Bachelor of Chemical Engineering

1- Edwin H. Adkins
(Grocer)
2333 Chevy Chase Lane, Toledo, O.

2- Thomas P. Annan
Huntington Laboratories Inc.
Huntington, Ind.

3- Harold W. Baque
Corhart Refractories Co., Louisville,
Kentucky

4- Donald B. Brooks, Auto.Eng.-3D-116
The Pentagon, Washington 25, D.C.

5- Chester H. Case
The Wilkeson Products Company
Tacoma, Washington

6- Homer L. Cupples
U.S. Dept. of Agriculture
Beltsville, Md.

7- Bernard F. Flood
Royal-Liverpool Insurance Group
Parkersburg, W. Va.

8- Fred A. Ford
Parke, Davis and Co., Detroit,Mich.

9- George O. Foster
(Merchant) 401 Riverside, Piqua,O.

10- William K. Gilkey
Diamond Salt Co., Akron, Ohio

11- William Green
Amer. Steel and Wire Co., Cleveland,
Ohio

12- Clarence J. Hassler
Lacquer Products Co., Cleveland,O.

13- Rand P. Hollenback
Hollenback Press, Columbus, Ohio

14- Henry K. Linzell
U.S. Machinery Co., New York,N.Y.

15- William A. Lotze
Ohio Inspection Bureau, Canfield,O.

THIRTY-FIFTH ANNIVERSARY (CONT'D)

16- Henry J. Schulte
Reilly Tar and Chem. Co.
Cleveland, Ohio

17- Kao Shen
Bur. of Public Health
Shanghai, China

18- Cecil O. Teichert
(Real Estate) The Texas Co. (Ohio)
Columbus 14, Ohio

19- John E. Wiss
U. S. Gypsum Co. and Permaflex
Mold Co. - Columbus, Ohio

20- Donald M. Worley
Parke Davis and Co., Detroit, Mich.

21- George J. Wrasmann
Socony Paint Products Co.
Metuchen, New Jersey

1- Robert S. Hanson
Head, Department of Chemistry
Drexel Inst. of Tech., Phila, Pa.

2- Clarence A. March
The Detroit Edison Co., Detroit, Mich.

3- Daniel I. Mayne
Eastman Kodak Co., Rochester, N.Y.

4- William W. Mills
General Electric, Richland, Wash.

5- Walter F. Spear - Deceased

6- John Waldron
Partner, Warren F. Kimball and Co.
New York 38, New York

TWENTY-FIFTH ANNIVERSARY

CLASS OF 1931

Doctor of Philosophy

1- Henry L. Coles
Head, Dept. of Chem. Eng.
Michigan School of Mines, Houghton, Michigan

2- Charles G. Duncombe, Chmn., Ch.E.
University of Detroit
Detroit, Michigan

3- Yun-Hao Feng - now Hsiang
314 Hamilton House, Shanghai

4- Robert C. Kintner, Prof., Ch.E.
Illinois Inst. of Tech., Chicago

5- Joseph H. Koffolt
Chairman, Chem. Eng. Dept.
Ohio State University - Columbus

6- George Zinzalian
E. F. Drew and Co., Inc., N.Y.,N.Y.

7- Clarence J. Black
Washington College, Chestertown,Md.

Master of Science

1- Edwin B. Carr
Socony-Vacuum Oil Co., Chicago,Ill.

2- Lyle K. Herndon
Olin Mathieson Chemical Corp.
Baltimore, Maryland

3- Frank E. Cook
Bureau of Ships, Navy Dept.
Washington, D. C.

4- Howard G. Cooper
U. S. Steel Corp., Clairton, Pa.

5- Harry S. Olson
Diamond Alkali Co., Painesville,O.

6- Robert W. Rothrock (Col.)
2827 Kensington Place W
Columbus 2, Ohio

7- Milton Schantz
Supt. of Greenwich Schools
Greenwich, Ohio

8- Owen A. Thompson
Acushnet Process Co.,
New Bedford, Mass.

9- Yi Ou-Yang - No information

10- William M. Tucker
Eastman Kodak Co., Rochester,N.Y.

TWENTY-FIFTH ANNIVERSARY (CONT'D)

Bachelor of Chemical Engineering

1- Harold W. Almen
Planet Oil and Refining Co.
Oklahoma City, Oklahoma

2- Ralph K. Child
534 Columbus Avenue
Washington C.H., Ohio

3- Marion F. Conn
Firestone Tire and Rubber Co.
Noblesville, Ind.

4- Ned S. Fox
Procter and Gamble, Cinn., Ohio

5- John H. Koenig
Rutgers University (Ed. Ceramics)
New Brunswick, N. J.

6- Max Levine
Puritan Co., Rochester, N. Y.

7- Duncan M. MacLaren
Dow Chemical Co., Freeport, Texas

8- Gilbert E. Mason
Kelley Island Lime and Transport Co.
Columbus, Ohio

9- Dwight D. McKinney
Blaw Knox Const. Co., Pittsburgh, Pa.

10- Arthur R. Miller, Jr.
Pabco Products Inc., Metuchen, N.J.

11- Ivan A. Planck
Chairman, Mechanical Engineering
Indiana Tech. College, Ft. Wayne, Ind.

12- Stephen F. Reho
Bailey's Corners, Rt. 1
Warren, Ohio

13- Howard M. Rife
Carbide and Carbon Chemicals Co.
Charleston, W. Va.

14- Alvin B. Stiles
E. I. duPont de Nemours and Co.
Charleston, W. Va.

15- Paul F. Ulmer
Link Belt Co., Indianapolis, Ind.

16- Adolph G. Wassertheurer - Deceased

17- Ray A. Witschey
A.P. Green Fire Brick Co.
Chicago, Illinois

18- William B. Abele
Appalachian Electric Power Co.
Montgomery, W. Va.

19- Thomas W. Elslager
The Hewitt Soap Co., Inc.
Dayton, Ohio

20- James T. Mellott
Swan Rubber Co., Bucyrus, Ohio

21- Waldron D. Sheets
O.S.U. Eng. Exp. Sta., Columbus, O.

22- Gilbert Thomson
B. F. Goodrich Co., Akron, Ohio

23- Robert A. Glaser
Wheeling Steel Corporation
Wheeling, W. Va.

24- Warren E. Mehnert
Interchemical Corp., Cinn., Ohio

25- John E. Toppari
Erie Resistor Corp., Erie, Pa.

Professional Degree

1- Mathew M. Braidech
Nat'l. Board of Fire Underwriters
New York, N. Y.

TENTH ANNIVERSARY

CLASS OF 1946

Doctor of Philosophy

1- Robert T. Milligan
Shell Development Company
Emeryville, California

2- Richard A. Clark
Battelle Memorial Institute
Columbus, Ohio

Master of Science

1- Edward A. Broestl
Technical Developments Assoc.
Cleveland, Ohio

2- Heinz A. Boker
Physician - E.A. Conway Mem. Hosp.
Monroe, La.

TENTH ANNIVERSARY (CONT'D)

3- George W. Luckey
DuPont, Victoria, Texas

4- Hong Ton Yee
Ohio Department of Health, Columbus, O.

5- Germaine J. Lambillotte
Columbia-Southern Chemical Corp.
Barberton, Ohio

Bachelor of Chemical Engineering

1- Howard W. Goard
Phillips Petroleum Company
Bartlesville, Okla.

2- Ernest C. Grabill
E. I. duPont de Nemours and Co.
Wilmington, Del.

3- Phillip E. Rose
Country Club Hotel, Chicago, Ill.

4- William Fowler
Doehler Jarvis Division, Plt. 2
Toledo, Ohio

5- Richard I. Hang
Engineering Drawing, O.S.U.
Columbus, Ohio

6- Paul W. Kelly
Wright Field, Dayton, Ohio

7- Haskell H. McGriff, Jr.
Carbide and Carbon Chemicals Co.
S. Charleston, W. Va.

8- Richard E. Morris
RFD #3, Danville, N. Y.

9- Lloyd D. Treleaven
Columbian Carbon, New York, N. Y.

10- Charles R. Hall
E. I. duPont de Nemours and Co.
Wilmington, Del.

11- Ben C. Michener
Eastman Kodak Co., Rochester, N.Y.

12- Kenneth A. Brandstetter
Republic Steel Co., Lakewood, Ohio

13- Harold J. Oglevee
Parke Davis and Company
Detroit, Michigan

14- John W. Walter
Carbide and Carbon Chemicals Div.
Atlanta, Ga.

FIFTH ANNIVERSARY

CLASS OF 1951

Doctor of Philosophy

1- Lloyd T. Bunn
DuPont, Polychemicals Div.
Wilmington, Del.

2- Herbert Fisch
Carbide and Carbon Chemicals Co.
Oak Ridge, Tenn.

3- A. M. Hassan
Dept. of Industries, Govt. of Iraq
Baghdad, Iraq

4- Bruce Hill
Olin Mathieson Chemical Corp.
New York, New York

5- H. Warzel
Phillips Petroleum Company
Bartlesville, Okla.

6- Kennard Wing
Olin Mathieson Chemical Corp.
Niagara Falls, New York

7- Wade Wolfe
Olin Mathieson Chemical Corp.
Niagara Falls, New York

8- Donald Vorum
Kellogg Company
Transvaal, Union of South Africa

9- Harry C. Clafin
Olin Mathieson Chemical Corp.
Niagara Falls, New York

10- John Koegle
Monsanto Chemical Co., Plastics Div.
Everett, Mass.

FIFTH ANNIVERSARY (CONT'D)

11- En Tseh Ming
National Aluminate Corp.
Chicago, Illinois

12- Clyde Reeder, Jr.
DuPont, Organic Chemicals Div.
Wilmington, Del.

13- Richard E. Warner
Olin Mathieson Chemical Corp.
Niagara Falls, New York

14- Chin What Teh
Zayit, QR, Tavoy, Burma

15- James L. Lutz
Food Machinery and Chemical Corp.
New York, New York

16- Aaron L. Medin
Scientific Lab., Ford Motor Co.
Dearborn, Michigan

17- James Bierlein
Wright Patterson AFB, Dayton, Ohio

18- Donald Dewey
DuPont, Grasselli Div., Cleveland, O.

19- Charles E. Dryden
Associate Professor, Ohio State Univ.
Columbus, Ohio

20- Richard Harshman
Olin Mathieson Chemical Corp.
Niagara Falls, New York

21- George Lewis
Mead Corp., Chillicothe, Ohio

22- Louis McIntire
Associate Professor
Southwestern Louisiana Institute
Lafayette, La.

Master of Science

1- John E. Baker
American Rolling Mills, Middletown, O.

2- Gerald Houghton
Gulf Oil Co., Research and Development
Pittsburgh, Pa.

3- John P. Gier
McKee Construction, Cleveland, O. (?)

4- Richard Fitz
Graduate work in Chem. Eng., O.S.U.
Columbus, Ohio

5- Frank Kroetz
College of Medicine, Ohio State U.
Columbus, Ohio

6- Verne Rinehart
Thiokol Corp., Huntsville, Alabama

7- Foo-heng Tse
Eng. Exp. Sta. Asst., Ohio State U.
Columbus, Ohio

8- Yerram Venkatesham
Govt. of Hyderadab, Ind. Research
Hyderadab, India

9- Thomas Atwood
U.S. Gypsum Co., Gypsum, Ohio

10- Robert Wilson
Atlantic Refining Co., Dallas, Tex.

11- William O. Overton
Shell Chemical Co., Houston, Texas

Combined B.Ch.E. and M.Sc.

1- J. P. Boyer
Carbide and Carbon Chemicals Co.
So. Charleston, West Virginia

2- C. E. Breithaupt
DuPont, Rayon Div., Waynesboro, Va.

3- Paul Caris
Eastman Kodak Co., Pal Alto, Calif.

4- Robert F. Carroll
B. F. Goodrich Chemical Co.
Avon Lake, Ohio

5- Myron Chernin
General Electric Co., Cleveland, O.

6- R. H. Congelliere
Union Oil Co., Los Angeles, Calif.

7- J. N. Craver
Visking Corp., Chicago, Illinois

8- W. J. Garmus
DuPont, Grasselli Div.,
Cleveland, Ohio.

FIFTH ANNIVERSARY (CONT'D)

9- D. C. Haring
DuPont, Electrochemical Div.
Niagara Falls, New York

10- Robert M. Kilian
Leschen Wire Rope Div., Watson-Stillman Co., St. Louis, Missouri

11- R. M. Kreager
B. F. Goodrich Chemical Co.
Avon Lake, Ohio

12- R. MacGregor
Nitrogen Div., Allied Chemical and Dye Corp., Hopewell, Virginia

13- D. E. Maple
DuPont, Nylon Div., Martinsville, Va.

14- B. L. Martin
DuPont, Polychemicals Div.
Wilmington, Delaware

15- W. L. Mengert
Ethyl Corp., Baton Rouge, La.

16- R. H. Narwold
DuPont, Nylon Div., Seaford, Del.

17- W. Norris - Unknown

18- J. Parkinson
Inst. of Pulp and Paper Chem. Co.
Appleton, Wisconsin

19- P. T. Santilli
Battelle Memorial Inst., Columbus, O.

20- E. J. Scharf
Instructor, Chem. Eng. Dept., O.S.U.
then: American Cyanamid Co.
Bound Brook, Conn.

21- D. L. Sharps
DuPont, Nylon Div., Martinsville, Va.

22- D. Speed
DuPont, Grasselli Div., Cleveland, O.

23- David A. Strang
University Fellow, Chem. Eng. Dept., OSU
then: Procter and Gamble Co.
Cincinnati, Ohio

24- Robert B. Weiser
DuPont, Polychemicals Div.
Wilmington, Delaware

25- Bruce W. Wilkinson
Dow Chemical Co., Midland, Mich.

Bachelor of Chemical Engineering

1- Andrew Mizisin
Convair Consolidated Vultee Aircraft Corp., San Diego, Calif.

2- G. E. Abderhalden
B. F. Goodrich Co., Akron, Ohio

3- R. C. Beckett
Union Bag and Paper Co.
Savannah, Georgia

4- Thomas A. Boch
Monsanto Chemical Co., Nitro, W.Va.

5- Bert A. Chandler
General Electric Co., Hanford, Wash.

6- R. J. Coffey
B. F. Goodrich Co., Akron, Ohio

7- Merrill D. Colmery
Atlantic Refining Co.
Philadelphia, Pa.

8- R. N. Eilerman
Thiokol Corp., Redstone Div.
Huntsville, Alabama

9- Ben Entwisle
F. M. deBeers Assoc., Joliet, Ill.

10- Turney Ferguson - Deceased

11- H. E. Gossard
West Virginia Pulp and Paper Co.
Covington, Va.

12- Denver Harris
Electro-Met of U.C.C.
Niagara Falls, New York

13- J. H. Hoorman
Wyandotte Chemical Corp.
Wyandotte, Michigan

FIFTH ANNIVERSARY (CONT'D)

14- P. W. Izant
National Lead Co., Titanium Div.
South Amboy, New Jersey

15- J. J. Lavin
Koppers Company, Verona, Pa.

16- G. Marti
Infilco, Inc., Monroe, Louisiana

17- Arthur Masse
B. F. Goodrich Chemical Co.
Calvert City, Kentucky

18- K. Mezger - Unknown

19- J. R. Nelson
Columbia-Southern Chemical Co.
Barberton, Ohio

20- Richard E. Ody
Procter and Gamble Fellow, Chem. Eng.
Dept., O.S.U., Columbus, Ohio

21- J. W. Peters
Dow Chemical Co., Midland, Mich.

22- Gus Pournaras
Truscon Steel Co., Cleveland, Ohio

23- N. F. Reinert
Emery Industries, Cincinnati, Ohio

24- Donn P. Rice
Eastman Kodak Co., Rochester, N.Y.

25- J. R. Seferian - Deceased

26- J. P. Slattery
Philadelphia Naval Shipyards
Philadelphia, Pa.

27- H. A. Voelkerding
Harshaw Chemical Co., Cleveland, Ohio

28- Robert M. Young
Goodyear Tire and Rubber Co.
Akron, Ohio

29- Norman Bartrug
Goodyear Tire and Rubber Co.
Akron, Ohio

30- George Chipman
Battelle Memorial Inst.
Columbus, Ohio

31- James H. Clark
Diamond Alkali, Painesville, O. (?)

32- C. L. Dornbusch
Colgate Palmolive Peet Co.
Jersey City, New Jersey

33- Loren Detamore
Kellogg Co., New York, New York

34- John T. Lindsay
U.S. Air Force, Camp Detrick,
Frederick, Maryland (?)
Joe Craver, where is he?

35- Charles Newton
Herrick Johnson, Inc., Columbus, O.

36- John Schlosser
DuPont, Chambers Works
Deepwater Point, New Jersey

37- Norman Van Hyning
Carbide and Carbon Chemicals Co.
South Charleston, West Virginia

38- Richard Leslie
Steel Products Engr. W. Columbia
Springfield, Ohio

39- Henry Sobala
Shell Chemical Corp.
Houston, Texas

40- Paul Spaite
DuPont, Photo Products Div.
Parlin, New Jersey

41- Clarence Svboda
The Ohio Rubber Co.
Willoughby, Ohio

DEPARTMENT OF CHEMICAL ENGINEERING

LIST OF STAFF MEMBERS, FELLOWS, SCHOLARS, AND RESEARCH FOUNDATION STAFF, 1955-1956

I. PROFESSORS

1. Joseph H. Koffolt (Chairman)
2. Webster B. Kay
3. Aldrich Syverson
4. L. Kermit Herndon (part-time - R.F.)

II. ASSOCIATE PROFESSORS

1. Christie J. Geankoplis
2. Charles E. Dryden
3. Thomas H. Kerr
4. Peter O. Krumin

III. ASSISTANT PROFESSORS

1. Waldron D. Sheets
2. Edwin E. Smith

IV. LECTURERS

1. Robert Christiansen
2. Alex W. Lemmon

V. INSTRUCTORS

1. Edward J. Freeh
2. Thomas F. Sashihara
3. Roland G. Lindsey
4. E. Jonathon Scharf
5. John Weisel

VI. ASSISTANT

1. William F. Avery

VII. GRADUATE ASSISTANTS

1. Carol Oubre
2. Richard A. Fitz
3. Robert C. Green
4. William H. Seaton

VIII. STUDENT ASSISTANTS

1. Edwin R. Haering
2. Glenn F. Althouse

IX. SECRETARY and STENOGRAPHERS

1. Jean Ody
2. Ruth Althouse
3. Mary Ann Shively
4. Carolyn Emmons

X. MECHANIC

1. Keldon Latham

XI. RESEARCH FOUNDATION ASSOCIATES

1. Felix Celli
2. Marion Derfer
3. Narian S. Gidwani

XI. RESEARCH FOUNDATION ASSOCIATES CONT.

4. Christoph J. Grundman
5. Ehrenfried H. Kober
6. Alfred F. W. Kreutzberger
7. Gerhard J. F. Ottman
8. Arthur C. Schulz
9. Hansjuergen A. Schroeder
10. William H. Seaton
11. Willy A. Schnabel
12. Lucille T. Stinnett
13. Rudi Raetz
14. Henry Ulrich

XII. RESEARCH FOUNDATION ASSISTANT

1. Joyce Coleman

XIII. ENG. EXPERIMENT STATION ASSISTANT

1. Foo-Heng Tse

XIV. RESEARCH FOUNDATION SECRETARIES

1. Lieselotte Mieth
2. Shirley A. Goldsmith
3. Helen L. Palmer

XV. INDUSTRIAL, UNIVERSITY AND RESEARCH FOUNDATION FELLOWSHIPS

1. A.C.S., Pet. Res. - James McMicking
2. " " " - Raja Hajjar
3. Am. Cyanamid - Robert Yarrington
4. Dow Chem. - George C. Frazier
5. DuPont Post Grad. - Fred C. Ohnmeiss*
6. Procter and Gamble - Richard E. Ody
7. Shell Oil - David P. Macarus
8. Fullbright and R.F. - Manoj Sanghvi
9. University - David Strang

XVI. UNIVERSITY SCHOLARSHIPS

1. Bruce D. Giles
2. Lillian L. Golub
3. Edward H. Bollinger

XVII. UNDERGRADUATE SCHOLARSHIPS

1. Dow Chemical - Edwin R. Haering
2. Lubrizol Corp. - Robert A. Cody
3. Sohio - Glenn F. Althouse
4. " - Allan E. Jones
5. Carbide and Carbon Chem. - James Farst
6. National Carbon - Paul G. Bork
7. " " - Charles E. Golden
8. Univ. Oil Products - William Coe
9. " " " - Lawrence Jordan

* Killed in automobile accident on March 24, 1956.

COLLEGE OF ENGINEERING ENROLLMENT - AUTUMN 1955

	First Year	Second Year	Third Year	Fourth Year		Fifth Year		Totals
				B.S.	M.S.	B.S.	M.S.	
Aeronautical	77	47	26	24		16		190
Agricultural				6		3		9
Architecture	56	47	30	15		12		160
Landscape Arch.	6	6	8	2		3		25
Ceramic	6	5	11	6	1	4		33
Chemical	85	48	41	23		18	6	221
Civil	78	55	38	31	1	36	2	241
Electrical	192	186	75	48		25		526
Industrial	27	60	41	39		39	11	217
Mechanical	131	128	97	55		49	9	469
Metallurgical	13	14	19	15		9		70
Mining	5	4	1	2		6	1	19
Petroleum	1	9	7	5	1	9	3	35
Engr. Physics	14	22	11			6	3	56
Welding	5	6	7	5		3		26
Undecided	382	28						410
TOTALS	1078	665	412	276	3	238	35	2707
Irregular								12
Special								9
Transient								1
GRAND TOTAL								2729

This table will give some idea of attrition. For example, in 1936, there were 110 freshmen entering chemical engineering; there were 70 who received degrees. However, this table does not give figures concerning transfer students. For example, there were 29 entering as freshmen in 1950; 24 of these received degrees five years later. Of those receiving degrees, 8 transferred to Ohio State from other schools during their second and third years.

ENROLLMENT CHEMICAL ENGINEERS - PRE-WAR - VETERAN'S BULGE - LOW BIRTH RATE OF THE THIRTIES - PRE AND POST KOREA - AND ATTRITION.

YEAR BEGINNING OSU	ENROLLMENT BEGINNING AUTUMN QUARTER First Year	Second Year	Third Year	Fourth Year	Fifth Year	TOTAL CHEM. ENGR.	TOTAL ENGINEERS	TOTAL UNIVERSITY
1936	110	114	77	70	-	275	1883	16,670
1937	105	97	60	61	-	342	1935	17,411
1938	109	118	70	58	-	345	1870	18,067
1947	108	75	64	51	52	354	4136	31,115
1948	53	45	37	30	32	320	3409	29,612
1949	51	30	20	15	21	267	2865	28,290
1950	29	28	24	22	21	211	2342	25,948
1951	39	27	22	18	24	172	1876	23,792
1952	51	43	30	23		149	1981	23,936
1953	75	48	41			183	2208	19,562
1954	79	48				206	2496	20,349
1955	85					221	2729	21,744

PLACEMENT OF CHEMICAL ENGINEERS, 1955-1956

April 1, 1956

BACHELOR OF CHEMICAL ENGINEERING

SPRING, 1955

1. Avery, William F., Instructor Part-time, Ohio State University.
2. Bhatt, M.N., Hooker Electrochemical Corp., Niagara Falls, N.Y., then Industry in India, Bombay, India.

*3. Blunden, John R., Shell Chemical Corp., Torrence, Calif.; now USAF, England.

4. Bodenheimer, Jack W., Shell Chemical Corp., Houston, Tex.; now U.S. Army.
5. Cook, Ronald F., American Oil Co., Texas City, Tex.
6. Corso, Charles J., Shell Chemical Corp., Houston, Tex.; now USAF, WPAFB.
7. Cox, Hiram, Hercules Powder Co., Wilmington, Del.; now USAF, Wright-Patterson.
8. Cox, Howard A., U.S. Geological Survey; now U.S. Army.
9. Drewyer, Richard A., Officer, U.S. Army.
10. Foltz, Howard L., Goodyear Atomic Corp., Piketon, Ohio
11. Kreiner, William E., Hooker Electrochemical Corp., Niagara Falls, N.Y.
12. Lane, Frederick K., Hercules Powder Co., Wilmington, Del.
13. Moll, Glen L., O.M. Scott and Sons Seed Co., Marysville, Ohio.
14. Hantz, David S., Carbide and Carbon Chem. Co., So. Charleston, W.Va.; now USAF.
15. Simko, Frank A., Jr., DuPont Co., Grasselli Chem. Div., Wilmington, Del.
16. Street, Sidney W., Shell Chemical Corp., Houston, Texas.

SUMMER, 1955

1. Hammond, Wendell, West Virginia Pulp and Paper Co., Covington, Virginia.

**2. Hoge, John H., Carbide and Carbon Chem. Co., So. Charleston, W.Va.

3. Weaver, Keith, DuPont Co., Explosives Dept., Savannah River Plant, Augusta, Ga.

AUTUMN, 1955

1. Core, Thomas C., Aerojet Div., General Tire and Rubber Co., Azusa, Calif.
2. Crowe, Denzil H., DuPont Co., Polychemicals Dept., Orange, Texas.

WINTER, 1956 - None

COMBINED PROGRAM, B.Ch.E. and M.Sc. DEGREES

AUTUMN, 1955

1. Benford, Charles L., Jr., Procter and Gamble Co., Ivorydale, Ohio.
2. Thomas, Charles W., Esso Research and Engineering Co., Linden, N.J.; now U.S. Navy Officer's Candidate School).

MASTER OF SCIENCE

SPRING, 1955 - None

SUMMER, 1955

1. Fergusson, James G., Esso Research and Engineering Co., Linden, New Jersey
2. Fleming, Carl E., Goodrich Chemical Co., Avon Lake, Ohio.
3. Huchro, Stanley P., General Electric Co., Chem. and Met. Div., Schenectady, NY

***4. Oubre, Raymond R., Dow Chemical Co., Freeport, Texas.

5. Serfass, Robert W., Nesle's Corporation, Marysville, Ohio.

AUTUMN, 1955

1. Grins, Margers, General Tire and Rubber Co., Akron, Ohio.

****2. Ohnmeiss, Fred C., DuPont Post Graduate Fellow in Chem. Eng. (Towards Ph.D.)

3. Seaton, William H., Graduate Assistant, Chem. Eng. (Towards Ph.D.)

WINTER, 1956

1. Loch, Luther, Battelle Memorial Institute, Columbus, Ohio
2. Yarrington, Robert, American Cyanamid Fellow in Chem. Eng. (Towards Ph.D.)

DOCTOR OF PHILOSOPHY

SPRING, 1955

1. Stephan, David G., National Lead Co., Atomic Energy Div., Fernwald Plant, Cincinnati, Ohio; now in U.S. Army.

SUMMER, 1955

1. Overton, William, Shell Chemical Corp., Houston, Texas.
2. Rebert, Charles, Assistant Professor, Univ. of So. Calif., Los Angeles, Calif.

AUTUMN, 1955 - None

WINTER, 1956

1. Marshall, Charles G. - Has not decided as yet.

JOB ACCEPTANCES, 1956

1. Avery, William F. (MSc), Linde Air Products, Tonawanda, New York.
2. Althouse, Glenn F. (BChE-MSc), Carbide and Carbon Chem. Co., So. Charleston, W.Va.
3. Berzins, John P. (BChE), Firestone Synthetic Corp., Akron, Ohio.
4. Cammarn, John W. (BChE-MSc), DuPont Co., Pigments Dept., Wilmington, Del.
5. Cody, Robert A. (BChE-MSc), Procter and Gamble Co., Ivorydale, Ohio.
6. Fanning, Herbert (MSc), DuPont Co., Film Dept., Circleville, Ohio.
7. Fisher, Joseph T. (BChE), Eastman Kodak Co., Rochester, N.Y.
8. Frazier, George (MSc), Westinghouse Electric Corp., Atomic Energy Div., Pittsburgh, Pa.
9. Giles, Bruce (PhD), DuPont Co., Electromet Dept., Niagara Falls, N.Y.
10. Golden, Charles E. (BChE-MSc), Dow Chemical Co., Freeport, Texas
11. Hazelton, James (BChE), American Cyanamid Co., Organic Chemicals Div., Bound Brook, New Jersey.
12. Hill, J. Carl (MSc), Nestle's Corp., Marysville, Ohio.
13. Jordan, Lawrence W., Jr. (BChE-MSc) - Towards Ph.D., Ohio State University.
14. Linder, Paul (BChE), National Carbon Co.
15. Lindsey, Roland G. (PhD), Dow Chemical Co., Polychemical Research Dept., Midland, Mich.
16. Muren, Albert (BChE), Columbia-Southern Chem. Corp., Natrium, W.Va.
17. Rumsey, Don (BChE), Sharples Solvents, Div. of Pa. Salt Co., Wyandotte, Mich.
18. Sanghvi, Manoj Kumar (PhD), Standard Oil of Indiana, Whiting, Indiana.
19. Sashihara, Thomas F. (PhD), DuPont Co., Polychemicals Dept., Wilmington, Del.
20. Scharf, E. Jonathan (PhD), American Cyanamid Co., Bound Brook, New Jersey.
21. Strang, David A. (PhD), Procter and Gamble Co., Cincinnati, Ohio.
22. Weary, S. Edward (BChE), DuPont Co., Polychemicals Dept., Belle, W.Va.

Note: There are sixteen who have not decided as yet what position they will accept.

* B.Ch.E. in June and M.Sc. in August (Combined Program).
** Two degrees, B.Ch.E. and B.Mech.E.
*** Work completed, degree in June, 1956.
**** Killed in automobile accident on March 24, 1956.