

NEWS-LETTER

UNIVERSITY OF ILLINOIS

Department of Mining and Metallurgical Engineering Alumni

JANUARY, 1957

EXPANSION INTENSIFIES SPACE SHORTAGE

Every alumnus, we believe, can be justly proud of the rapid and continuing growth of the department. On the undergraduate level, enrollment in both mining and metallurgy have shown encouraging increases. Our Fall enrollment this year totals 99 in metallurgy (compared to 81 last year) and 40 in mining (27 last year)—about a 30% increase. The total college enrollment is now 3839, which is an increase of about 12½% over a year ago.

Growth at the graduate level is even more pronounced. At the present time there are 34 graduate students enrolled. This is a much higher ratio of graduate to undergraduate than any other department except perhaps physics. The full time faculty has been increased to more than 20 to meet the teaching and research needs of the students.

This expansion has brought its problems, among which is the pressure for adequate space. A real pinch is being felt for office space and for laboratories.

The long range solution to the problem is a new building. This possibility seems remote at this time, however, because of the squeeze for space and demand for new buildings by many other departments of the University. Most all departments are in the same position as we are — a large increase in activity and no increase in floor space. New construction on the campus is going on constantly, and the Engineering College hopes to obtain at least one new building soon. A space committee made up of members of the

engineering departments has examined the needs of the College, and has recommended to the Dean that the best immediate addition to our part of the campus would be a new Physics Building. He has seconded this recommendation and has obtained the approval of the Administration. The state legislature is being asked for money for a new Physics Building to be built as soon as plans can be drawn. If this request is granted, the present Physics Laboratory would be used for the temporary relief of other departments in Engineering, including our own.

To satisfy our immediate pressing space needs, Prof. Read some time ago suggested to Dean Everitt that the attic of the Ceramics Building might be remodelled to provide some relief. This proposal has become fact, and the finishing touches are just now being put on this remodelling job. The finished space will have a usable area of about 2500 square feet, divided into seven laboratories. The largest two of these will be used by Prof. Rose for teaching and research in petroleum. The rest will be used by the graduate students of Profs. Metzger and Wert for research purposes.

We continue to occupy rooms in the Mechanical Engineering for research at the expense not only of physical separation from the rest of the department, but at the hazard of eviction as Mechanical Engineering's own need for space increases. It is clear that our progress will be greatly handicapped until we can consolidate our activities under one roof.

Alumni Aid High School Contacts

In a letter to metallurgy alumni in the early Fall reminding them of the Alumni Luncheon held during the Metals Congress, a new program for informing high school students concerning the field of metallurgy was described. The alumni were asked to obtain from their local high school science teachers the names of a few top students who might be interested in the field of metallurgy, and to send the names to the Department. We would then mail the student some descriptive literature concerning the field. If the student exhibited any interest, the alumnus would be asked to have a personal interview with him during which the student could be given more detailed information.

We would like now to make the same appeal to our mining alumni. A new pamphlet, "Careers in Mining Engineering," published by the department with the financial support of the coal mining industry is available for use in this connection, and we shall be glad to supply you with as many copies as you can use.

We would like to thank all those who responded to our first appeal for help in this program. This includes Glen O. Burger, Paul A. Jensen, J. H. Mendenhall, R. W. Reynolds, J. W. Sherman, and C. M. Squarcy.

NEW COURSE ADDED

Another course will be added to the growing list of offerings available to our graduate students when Met. E. 485 is initiated in the Spring semester. The course is entitled "Dislocations and Mechanical Properties of Metals", and will consist of a quantitative treatment of the properties of dislocations in crystals. Mechanical properties of metals will be discussed in terms of dislocations where possible. The course is being prepared and will be taught by Prof. Balluffi.

policy of bringing outstanding scientists from other countries to our campus for summer lectureships.

Dr. Lomer Gives Cummer Lecture Series

Dr. W. M. Lomer was associated with the department during the past summer as Visiting Associate Professor of Metallurgical Engineering. Dr. Lomer came to us from England where he was Principal Scientific Officer in the Solid State Section of the Theoretical Physics Division at the Atomic

Energy Research Establishment at Harwell. While here, Dr. Lomer taught a course in the electronic structure of metals and alloys.

At the end of the summer term, Dr. Lomer visited a number of laboratories in this country before returning to England. His visit was a continuation of the department's

NEW MEMBERS OF THE STAFF

Prof. Walter Rose joined the departmental staff last year as Associate Professor of Petroleum Engineering. Since this time, he has been occupied with problems regarding the curriculum and facilities of the petroleum engineering option in mining. His experience eminently qualifies him for this work. Since receiving his B.S. from Chicago in 1944 he has held several positions in the petroleum field: Research Chemist, Carter Oil Co.; Research Physicist, Gulf Research and Development Co.; Asst. Director of Research, Texas Petroleum Research Committee; and Senior Research Engineer, Continental Oil Co. More recently, he has been Petroleum Consultant, located in Denver. He has also had previous associations with Oklahoma A. & M. and the Univs. of Texas and Colorado as part-time lecturer. Prof. Rose's particular field of interest is polyphase flow of fluids through porous media especially as related to the physics of oil production from underground reservoirs.

Dr. George Baker was appointed Research Associate in Metallurgical Engineering this Fall, and has since been working with the group studying martensite transformations, particularly in Fe-Ni and Au-Cd alloys. George received his B.S. from Purdue and his Ph.D. from Illinois, both degrees being in physics. His doctorate research was concerned with dislocation damping in copper, aluminum, and lead. He is also a recognized authority in the preparation and study of properties of metal whiskers.

Prof. Yasumitsu Shimomura of the Department of Physics, University of Osaka Prefecture, Japan, arrived in Urbana last September to carry out research on the alloying behavior of transition elements, mainly by means of X-ray diffraction. Before his appointment to the University of Osaka Prefecture, Prof. Shimomura had been associated with the well-known scientist, Prof. Z. Nishiyama at Osaka. In addition to his scientific work, Prof. Shimomura is also interested in judo, and in his evening hours has been teaching other members of the staff this useful art.

Prof. Sho Yoshida of Okayama University, Japan, has been appointed half-time on a research project in the Physics Department and half-time in this department to work on the effect of annealing on cold worked metals. Prof. Yoshida's current interest is in studying screw dislocations in zinc single crystals by means of the spiral etch step technique. Prof. Yoshida is deeply interested in the arts and poetry.

Dr. Hein P. Stuwe received his doctorate a year ago at Gottingen University in Germany and he has been working here since last May on the annealing of cold worked metals. Dr. Stuwe's plan calls for a study of creep in single crystals of zinc, with a particularly simple dislocation arrangement. In Germany, Dr. Stuwe was a student of the famous Prof. Masing. Dr.

Stuwe has many hobbies and interests, including golf, which he started playing since coming to this country. He will be shortly married in New York, where his fiancée will arrive from Gottingen in the first week of January.

Prof. Erwin K. Weise is now Research Associate Professor in the Department although he is not new to the campus. For the past six years he has been in the Electrical Engineering Department conducting a program of basic research concerning the electrical and magnetic properties of the metal titanates. Before coming to Illinois, Dr. Weise was engaged in research at Wright-Patterson Air Force Base. At the present time, he is teaching our course in metallurgical thermodynamics in addition to continuing his research work.

Development of Petroleum Production Option Directed by Professor Rose

As the first semester of the 1956-57 school year draws to a close, the advantages offered to students interested in petroleum engineering careers are increased enrollment, new facilities, and more laboratory space.

Of major importance is the establishment of a petroleum production laboratory in the attic of the Ceramics Building. This provides some 700 square feet of work space in two rooms. Additional service space will be available in the dark room and shop room which are part of the metallurgical facilities also now located in the Ceramics attic.

The new quarters are already provided with the usual service facilities (gas, compressed air, water, etc.). A safety shower for acid and inflammable solvent burns also has been installed, and before the end of the year the physical plant will start installation of a large hood.

In addition, a grant made by the University Research Board in the amount of \$12,177 will be used to purchase specialized equipment having the dual purpose of undergraduate student instruction and graduate student use in thesis work. Major items to be purchased

include scalar and scintillation counter facilities for tracer work, electronic equipment for the control and measurement of small pressures, constant flow pumps, and the like.

Evidence of growth is in the fact that five seniors will graduate in 1956-57 with bachelor's degrees in the petroleum option, and one master's degree candidate will graduate. Altogether, eleven undergraduate and graduate students are enrolled in Fall semester courses. A total of five separate petroleum engineering courses will be offered in the coming Spring term, not including the undergraduate seminar and graduate special problems and thesis courses.

Especially important and gaining more attention and emphasis are the various graduate research programs. For example, one student started work last spring on studies of network models of porous media. Staff members have continued this work making use of ILLIAC computing, and this has resulted in a number of publications. Currently, another student is working on an analytical and experimental demonstration of conditions for inducing fractures in underground sediments.

NEWS ABOUT ALUMNI

Jack Raymer, '50, who is with the Lycoming Division of AVCO in Stamford, Connecticut, was here last Spring to interview graduating seniors. Jack is working in the gas turbine field on materials and fabrication problems.

Sam Leber, '47, has resigned his position with Horizons, Inc., and is now with the General Electric Lamp Division's wire plant in Cleveland. Sam is conducting the work of the X-ray department of the research laboratory and is concerned primarily with problems with tungsten and molybdenum.

John Pugh, '48, who has been with General Electric at Schenectady in their research labs for several years now has transferred to the company's Lamp Division at Cleveland in the same laboratory with Sam. They exchanged "I've seen that guy someplace before" looks for some time before realizing they had received their degrees here within a year of each other.

R. M. Necheles, '51, has finished his two-year term in the service and visited the laboratory during the Open House last Spring. Bob is now at Armour Research Foundation where he is working on the brazing of zirconium.

We see that W. E. Ellis, '47, is now chairman of the Canton-Massillon Chapter of the American Society for Metals. Gene is still with Timken Roller Bearing at Canton, Ohio.

Al Jensen, '40, visited the department last Spring looking for men interested in non-ferrous process metallurgy. Al is located in DePue, Illinois, at the smelter of the New Jersey Zinc Company.

Bruce W. Clark, '51, has recently written the department, and reports that he expects to be discharged from service sometime this summer. Bruce is a navy lieutenant (jg) and is Assistant Production Officer at the U. S. Naval Ordnance Plant at Macon, Georgia. Before leaving for the navy, Bruce was process engineer at the Baton Rouge refinery of Esso Standard Oil. The Capeks now have two children: a boy, one year, and a girl, two and a half.

Jim Bechtold, '47, was here in the Spring to interview students for Westinghouse Research Laboratories, where Jim directs the work of the metallurgy department. We enjoyed recalling the days when Jim was student and then staff member here.

Richard J. Evanson, '54, was released from service with the air force recently, and has joined the metallurgy staff of the Reynolds Metals Company plant at McCook, Ill. This plant was on the itinerary of the senior inspection trip this Fall, and gave us the chance to visit with Dick, who is very enthusiastic about his civilian status and new position. We also talked with Bill Bond, '53, who is also located at the McCook plant as well as is Fred Haarbye, '54, whom we unfortunately were unable to contact. Bill reported a visit from Martin Coale, '53, while Bill was still with Reynold's Phoenix Extrusion Plant. Martin is a navy jet pilot, and was on his way to report for Pacific carrier duty.

Walter Bott, '54, who was stationed in San Antonio with Dick Evanson and released at the same time, has joined the Caterpillar Tractor Company at Peoria, where he is working in the metallurgy laboratory. Wally thus joins the growing group of Illini at the big tractor plant we enjoy seeing at the Peoria ASM meetings.

Also among those recently returned to civilian status is former Lt. (jg) Dan Hallahan, '53, who spent three years aboard a destroyer as Communications Officer, then as Operations Officer. Dan enjoyed considerable travel, having circumnavigated the globe as well as having many shorter cruises under his belt. Dan visited the campus shortly before his discharge, and since has entered Northwestern University, where he plans to earn a degree from their School of Business. His address is: 1011 Hull Terrace, Evanston.

Football season usually brings its share of familiar faces back to the campus, and on one of those weekends, we enjoyed visits by Tom Noggle, '48, Roy Brodnick, '49, and Mike Nevitt, '44, and their families. Tom is in the solid state

division at Oak Ridge since completing his doctorate last year. Mike Nevitt is in the metallurgy division at Argonne Laboratory, as was reported in the last Newsletter. Roy has given up his school supply business in North Dakota, and has returned to metallurgy. He is now in the research laboratory of Micro-Switch Company in Freeport, Illinois, where he is particularly concerned with the design of a high temperature switch. The Brodnick family now includes two boys, aged four and two.

John W. Emison, '56, was presented with the annual Old Timers' Club award in recognition of his outstanding record as an undergraduate in mining engineering. Mr. W. E. Goodman, president of the Goodman Manufacturing Company, personally presented the award, an engraved gold watch, to John at a special meeting of department staff and students. John accepted a position with Sahara Coal Company at Harrisburg, Ill., following his June graduation.

We had to brush up on our French to translate the announcement received recently from the Lew Markows, '53, and concluded that a daughter, Denise Louise, was born on June 26. Lew is a lieutenant stationed with the army in France.

Harry Czyzewski, '41, was the subject of a front page column in the Portland Oregon Journal of Commerce recently on the occasion of the state convention of professional engineers. Harry is the new president of the Professional Engineers of Oregon. Harry is enjoying continuing success in his consulting business, Metallurgical Engineers, Inc.

C. W. Beattie, '36, was here for homecoming and the 20th anniversary reunion of his graduating class this Fall. He is supervising metallurgist in the research laboratories at Armco Steel Corporation in Middletown, Ohio.

The Earl Carlsons, '56, announced the arrival of a 9 lb. boy this Fall, and Earl assures us that he has already been dedicated to a career in metallurgy. Earl was here re-

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cently with the interviewing team from his employers, Electromet in Chicago.

Two of last year's graduates who joined General Electric at Schenectady, Ken Zeman and Orville Kimball, have enrolled for graduate study at Rensselaer after completing the company's Advanced Technical Course.

Apparently the Bill Craigs, '41, were never able to get the sand out of their shoes after having been in Albuquerque where Bill worked for Sandia Corporation a few years ago. Bill has resigned his position with Borg-Warner in Chicago and returned to the West—this time going all the way to the coast to take a position with Lockheed. The Craig's address is 10830 Hayvonhurst, Grenada Hills, California. If you can't find it on your map, it's near Van Nuys.

Robert C. Bertossa, '49, has resigned his position as head of the metallurgical research laboratory of Chicago Bridge and Iron in Birmingham, Ala. Bob is now on the staff of the metallurgy department of the Stanford Research Institute, Menlo Park, California.

Among the graduates in mining who dropped in during Homecoming weekend were Sven Gafvert, '53 and Mr. and Mrs. Bert Iversen, '51.

Don and Pat Simpson, '53, sent their Christmas card from Indianapolis, where Don is now with the Design Department of Shell Oil Co. The Dick Siefermans, '52, sent Season's Greetings from the famous Jackpile uranium mine of the Anaconda Mining Co. at Grants, New Mexico.

The John Brattons, '53, announce their transfer to St. Paul, Minnesota. John is with Minnesota Mining & Manufacturing. The Brattons now have three daughters.

Harold C. Rolseth, '53, and Charles D. Dobson, '51, who received their master's degrees in Mining last September, have gone East with their families. Harold has taken a job with Linde Air Products and lives in Clifton, N.J. The Dobsons, who have a second daughter, live in Aliquippa, Pa. Chuck is connected with the Dravo Company.

Annual Open House Exhibit Planned

At this time of year, students and staff alike are beginning to plan the department's part in the annual Engineering College Open House, to be held this year on March 15 and 16. Last Spring, our exhibit was augmented by an interesting display of processes and materials loaned by International Harvester through the good offices of Paul Nichols, advisor of our Mineral Industries Society from the AIME Chicago Section. Howard Briske, a met grad of '40, visited the campus to direct setting up the exhibit, and we all enjoyed

the chance to visit with him.

It would seem likely that many of your organizations might have exhibits which would be appropriate for this event. If you are aware of such displays which might be available to us, we would greatly appreciate it if you would contact the department. The college hosts thousands of visitors at this time, the majority of whom are high school students interested in science and engineering. This is a tremendous opportunity to present the attractions of careers in mining and metallurgy to them.

ITEMS ABOUT THE STAFF

Students of the past ten years who recall that some of the staff have been working on advanced degrees will be interested to learn that Professors Eckel and Bohl have at last received their Ph. D. degrees.

Prof. Eckel's research was a study of the rate of ferritization in nodular cast iron and the relation of structure and properties, while Prof. Bohl's thesis was concerned with a thermodynamic study of binary alloys by electrode potential measurements.

Prof. Bohl, who has acted as faculty adviser to the **Illinois Technograph**, the monthly publication by the students of the College of Engineering, for some years now, was recently elected chairman of Engineering College Magazines Associated. This is the national organization of engineering college student publications, and is dedicated to improving the publishing practices of the member magazines.

Two promotions were announced by the department this Fall. George Eadie was promoted to the rank of Assistant Professor in Mining, and Bob Bohl was made Associate Professor in Metallurgy.

Professor Walter Bruckner is chairman of the cathodic protection short course to be given Dec. 9-13, 1957 in the College of Engineering. Details regarding curriculum, speakers, and physical arrangements must be made a year in advance of the event. The course attracts engineers of every description from over the entire country

who have an interest in the mitigation of corrosion losses.

Prof. Bohl spent an interesting summer at Argonne National Laboratory where he joined a group of sixty engineering professors from all over the country in a study of Argonne's International School of Nuclear Engineering. The purpose of the study was to familiarize engineering faculties with the field of nuclear engineering, and teaching methods in that area.

Prof. Bohl is now serving on a college committee studying the development of a graduate program in nuclear engineering at Illinois. In view of the wide range of metallurgical problems in this field, it is expected that many of our students will be interested in this program.

The growing interest in metallurgy and necessity for increased appreciation of metallurgical problems is being reflected in the requests by industry for extension courses by our department. At the present time, Dr. Wert is conducting a course in metal physics at Caterpillar Tractor Co., and Dr. Forsyth is presenting a survey course in metallurgy for the personnel at Chanute Field. Dr. Bohl is teaching a course in introductory physical metallurgy at Allis-Chalmers' Springfield plant to a group of engineers who intend to follow this course with more advanced topics. Jack Sayles, a graduate student in the department, is also presenting a general survey course in practical metallurgical problems to a group of non-technical people at Allis-Chalmers.