

# NEWS-LETTER

UNIVERSITY OF ILLINOIS

Department of Mining and Metallurgical Engineering Alumni

JANUARY, 1960

## BOND ISSUE SUPPORT VITAL TO UNIVERSITY

Next Fall, a decision which will greatly affect the future of the University will be made when the voters of the state cast their ballots on the \$195,000,000 bond issue for construction of facilities at the state institutions of higher learning. A similar bond issue failed in 1958 even though a majority of those voting supported the issue because the total votes cast did not meet the legal requirements (failure to vote on the proposition is equivalent to a "no" vote). The issue in 1958 included funds for public welfare buildings; this year voters can decide on the issues separately.

The need is urgent. The tidal wave of college-age population is nearly upon us, and if the University is not to close its doors on those wanting the opportunity of college education, expansion of facilities must start now. Expansion on a pay-as-you-go policy simply will not create space fast enough without substantial tax increases. The University must operate as industry does when it expands, or as you and I when we buy a home: borrow for today's needs and pay off over the years of use through current revenue. This is the only way to meet the need without tax increases.

Much of the opposition to the bond issue derives from unfound-

ed fear of a state property tax. Such a tax is on the books now, but has not been used, there is no intention of using it, nor any likelihood that it will be used. It is only a convenient uncommitted tax used to satisfy the constitutional requirement of the pledge of a specific tax to any bond issue. Not only is the amount of repayment a small part of the state budget (about 2 per cent), but institution of such a tax would be political suicide for legislators.

From a purely selfish point of view, the bond issue is of great importance to us in this department. Our hope for consolidation in one building instead of being scattered over eight as we are now depends on more buildings for the engineering campus. To wait for funds under the old system of biennial appropriations would be uncertain and at best in the distant future.

We hope that all of our alumni will see the importance of the bond referendum, and give this issue their strong support. Speak out in favor of the issue whenever the opportunity presents itself: at work, professional meetings, service groups, church organizations, etc. The bond issue cannot fail to pass if the voters realize its importance to the future of higher education in the State.

## OPEN HOUSE SET FOR MARCH 11-12

This year's annual Engineering College Open House is scheduled for March 11 and 12. The undergraduates are already hard at work planning new exhibits, and this promises to be one of the better displays in recent years. We hope you are trying to promote an interest in mining or metallurgy in some promising high school student and will find this an ideal time to either bring him to the campus for a visit, or recommend

## Win AIME Awards

Two mining students won awards in the annual AIME technical paper competition. Madan Mohan Singh won first place in the national Graduate Division with his paper on the "Audibert-Arnu Dilatometer Test in the International Classification of Coals." Robert Murray took second prize in the St. Louis Section undergraduate competition with a paper entitled "A Drilling Pattern and Blasting Study in an Illinois Fluorspar Mine."

that he comes with his high school class.

## Staff Helps Start New ASM Chapter

Several members of the staff have been active in the organization of a new chapter of the American Society for Metals which has just started its first full year of meetings. Called the Sangamon Valley Chapter, the site of the meetings is alternated among Decatur, Springfield, and Urbana.

Prof. Carl Altstetter is a member of the nominating committee, Prof. Bohl is on the executive committee, Prof. Eckel serves on the membership committee, and Prof. Ricketts is co-chairman of the arrangements committee.

Profs. Bohl and Eckel, together with Prof. Ken Trigger of the Mechanical Engineering Department, presented talks in the chapter's first educational series dealing with mechanical properties and heat treatment.

The chapter's programs have been enthusiastically supported, with an average attendance of over 90 at the educational series, and regular meetings have had an average attendance of about sixty.

## Chedsey and Eadie Give Coal Preparation Course

Last Spring, a 32-hour course in Coal Preparation was presented to mining people in the Belleville area by the Division of University Extension and taught by Prof. George Eadie. A similar course is now in progress in the Benton High School, and is being taught by Prof. Bill Chedsey who is reluctant to take his retirement too seriously. Among the alumni attending the Benton class are: Walter Lucas '54, Preparation Engineer for the Sahara Coal Company; John Janes '50, Production Engineer for Old Ben Coal Corporation; and Eugene Moroni '40, Asst. Vice-President, Operations, also of Old Ben.

# ON METHODS OF TEACHING

## TEACHING METHODS

Last issue, Prof. Robb Thomson summarized some aspects of educational policy raised during staff discussions. Below, Prof. Earl Eckel continues this discussion with his ideas on teaching methods. Your reaction to these views, based on your own experience, is invited.

A number of courses in metallurgy lend themselves to two methods of teaching which for convenience may be called the material method and the phenomenon method. The metallography courses and our course in alloy steels are particularly amenable to optional treatment.

As an example, the alloy steel course might be discussed. Using the phenomenon approach, a series of topics such as the following might be included: secondary hardening, temper brittleness, corrosion resistance, martensite transformation, and creep. Theory would be given as detailed as time permitted and some alloys would be cited as examples. Because there would be little hope of discussing all the topics involved in alloy steel work, the teacher could exercise to a considerable extent his interests in choosing the topics he included. It also would be a relatively straight forward procedure to review the literature dealing with a given topic or phenomenon. As more was learned about the individual topics, the instructor would likely increase the detail of his treatment and be forced to reduce the number of topics. This would not noticeably upset the schedule of the course, because the topics were relatively independent anyway.

The material method in the extreme case would divide the alloy steels into classes, and consider for each class the various characteristics and phenomena of importance to the engineer using that group of materials. The discussion could include, for example, phase diagram effects, recommended methods of heat treatment and the changes in microstructure and properties that result, hardenability, wear resistance, red hardness, and any unique characteristics. A phenomenon such as secondary hardening could be discussed in detail when the first alloy group that had this property was considered.

Comparing the two methods of presentation, a student having been exposed to the phenomenon teaching method would be familiar with a number of phenomena, but have little knowledge of specific materials. Should the student obtain employment as a fundamental research worker and become involved in an area concerned with one of these topics, he might well be better prepared than if he had been taught by the material method. The material method of teaching, on the other hand, would leave the student feeling that he was familiar with alloys and related phenomena. Because the metallurgical engineer must be able to make decisions regarding the steel that will be satisfactory for a given part, or foresee what trouble might result from the substitution of one metal for another, he should be familiar with the package of characteristics which are associated with the metal considered. An example of the value of the material viewpoint is shown by a recent incident in which a foundry wished to know what was causing low fatigue strength of their malleable iron castings. The answer involved a consideration of composition, casting practice, microstructure, and method of testing. Training through phenomenon alone most likely would omit the subject of malleable iron entirely, and probably leave the engineer at a loss in trying to make recommendations.

It is possible to combine these two methods of teaching in a single course and obtain some of the advantages of both. In the early part of the alloy steel course, for example, discussions might be confined to general phenomena. Later, various classes of steels, and their good and bad characteristics could be considered. This would include references to the pertinent general phenomena discussed in the early part of the course together with other pecu-

liarities associated with the group being discussed. Still greater familiarity with the materials could be gained by studying the metal specifications for a given application such as the jet engine, or an automobile. A determination of why a certain metal and treatment should be required would be of interest. Discussions might also be held on methods used by engineers for finding the right metal for a specified use.

In view of the fact that research in a department such as ours must of necessity be for the most part confined to the study of phenomena, with each member of the staff specializing in one or two of them, the phenomenon method of teaching does enable the instructor to derive the maximum professional benefit from his course preparation, was well as allow a greater use of his own research in the course presentation. The hours of preparation required to keep abreast of the materials field, including the procedures for treating metals and properly designing them into structures unfortunately must be looked upon as largely a service to the students.

## ALUMNI MEET IN CHICAGO

The annual alumni luncheon held in conjunction with the Metals Congress is particularly well-attended when the meeting is held in Chicago as was the case this year. A record attendance of 73 alumni and staff was present.

Unfortunately, the large turnout necessitated seating many late-comers in the corridors outside the luncheon room reserved. Although the department had notified the hotel to expect upwards of 65, only about 40 reservations had been made by the morning of the luncheon, and the hotel prepared to serve only this number.

The moral of this experience is to obtain luncheon tickets well in advance so that adequate accommodations will be assured.

# NEWS OF THE ALUMNI

All those who remember Dan Hallowell, Met '47, were saddened to learn that his life was lost in the explosion and crash of a Braniff airliner over Central Texas this Fall. Dan was copilot of the turbo-prop Electra, having returned to his first love, flying, about a year following his graduation. Dan flew in the European Theater during the war and was awarded the DFC. He was 39 years old the day of the tragedy. Our deepest sympathy goes to Mrs. Hallowell and their four children.

Stan Channon, Ph.D. '51, has left the Hunter Engineering Co., and is now with the Rohr Aircraft Company in Riverside, Calif., as Director of Technical Research. Stan made this change in employment without any change in his home address which remains 1495 Columbus Ave., Riverside.

Don and Pat Simpson, Min. '53, have moved from New Orleans to Houston, Texas. Don is with the Head Office of Shell Pipeline Co. The Simpsons had a new addition to the family, son Eric, recently. Their new address is: 7214 Edgemar Dr., Houston.

We manage to keep well posted on Tom Noggle, Met. '48, through his visits here with relatives and with visits by the staff to Oak Ridge. Tom is busy with a new electron microscope facility at work, and his off hours are well-filled with all the chores associated with the move into their new home at 834 W. Outer Drive, Oak Ridge.

The L. L. Felts, Min. '52, sent their Christmas card from Lomoc, Calif., after being transferred from Lancaster, Calif. Leon is now with Convair at Vandenberg Air Force Base. Their home address is 304-B E. Prune St., Lompoc.

Burton C. Person, Met. '47, is now associated with McKinsey and Co., Inc., management consultants, located in New York City. Burt's metallurgical background has proved an advantage as he spends time with clients in the forging and steel-producing industry. His address is now: 5 Northfield Court, Livingston, New Jersey.

Mr. and Mrs. Oleg Terichow, Min. '54, dropped in during a visit to the campus in June. Oleg has acquired a master's degree at Penn State, and is now with Allis-Chalmers in Milwaukee.

The R. A. Weinbergs, Met. '59, announced the arrival of their first child, Robert Marc, on Oct. 13. Dick, who was in the advanced ROTC here, received his lieutenant's commission and is now located at 308 E. Augusta, Chesapeake Gardens, Aberdeen, Md.

A change of address for Marvin Neal, Min. '54, is noted: 306 W. Eiche, Effingham, Ill.

Ven Y. Doo, Ph.D. '58, has been promoted to the position of staff metallurgist in the Exploratory Device Development Dept. of the Semiconductor Development organization at the IBM Labs in Poughkeepsie, N. Y. Ven, who left his family in Formosa while studying here, has been joined by his wife and daughter and they live at Middlebush Rd., Wappingers Falls, N. Y.

Gary Bone, Min. '57, and John Emison, Min. '56, have left their positions in the oil and coal industries of Illinois and have gone to work for the State Highway Dept. Gary is located in Springfield, and John in Carbondale. Jim Yancik, Min. '59, has completed his six-months' tour with Uncle Sam and is working for the East St. Louis division of the State Highway Dept.

Wilson Leeming, Met. '57, recently paid a visit to the department. His work at Sundstrand has led him into problems of protective coatings for metals for high temperature applications in jet engines, and Bill was on the campus to talk with experts in the Ceramics Dept.

Charles Childers, Min. '55, is now Safety Engineer for the Duval Sulphur and Potash Co. in Carlsbad, N. M. Congratulations are also in order for Oscar McDaniel, Min. '54, who is now Superintendent of Old Ben's No. 9 Mine.

Jim Dobbin, Met. '53, has been with Alcoa at their Davenport Sheet and Plate mill in the Remelt Dept. Jim spent 18 months with GE before a two year tour with the Air Force. His address is 2721 Jefferson, Davenport, Iowa.

Robert Clemons, Min. '55, has started working in the operations division of the St. Joseph Lead Co. at Bonne Terre, Mo. Bob has been working in the Engineering Div. of St. Joe since graduation.

Sherwood W. McGee, Met. '52, is located with Armour Research Foundation as Research Metallurgist. He reports his home address now as 5704 So. Lenox Rd., Lisle, Ill.

Jack Tisdale, Min. '55, has been transferred by the Old Ben Corp. from the southern Illinois district to their Virginia properties.

About the only contact Gerry Robinson, the life of the class of '55, retains with metallurgy is his occasional letters to the department. Gerry reports he is still single, and cleaning up in real estate in his home town of Cincinnati.

J. R. Burns, Min. '39, Works Manager for U. S. Gypsum's Shoals, Ind., plant, was on campus in November and reports that Bob Henn, '57, and Tom Brown, '59, who are working with him at Shoals, are getting along fine.

Two of our Met grads completed work for their Master of Business Administration degree at Northwestern this year: Bruce W. Capek, '51, and John Koucky, '57. Judging from the number of reference letters written lately, graduate work is in store for quite a few others: Darryl Albright, '59 (RPI); Allen Lewis, '59 (Carnegie Tech); Charles Schenk, '49 (RPI); and Frank Bolda, '49 (NYU).

Charles Dobson, Min. '51 MS '57, visited the department briefly in November while en route to Kansas to supervise a shaft sinking operation for Dravo Corp.

(Continued on Page 4)

# ALUMNI NEWS . . .

(Continued from Page 3)

Robert C. Bertossa, Met. '49, resigned as Senior Research Metallurgist with Stanford Research Inst. last year to accept the position of Technical Director of Pyromet Company. Pyromet is a brazing and heat treating concern in So. San Francisco. One of the partners of the business is Robert Ray, '44. Both Bobs send greetings to their friends and classmates.

Dean Baseley, Min. '59, the winner of the Old Timers' Club Award last year, has gone to work for the Crucible Steel Co. in their Coal Division.

A delegation of Met grads now connected with General Electric in Cincinnati came to Urbana for the Army game this Fall, and dropped by the Met Lab for some coffee and conversation. Getting bald and fat were W. H. "Red" Coutts, '54, Bill Garcia, '49, Bill Hensley, '49, Ernie Huschke '55, and Roy Athey, '53. John Scherer, '53, came up for the game up from Dow's Madison plant, and enjoyed the reunion.

Three Met grads have returned to the department to work for their doctorates after having spent some time on the "outside." These include: Don Beaman, '58, who was at Inland Steel Research Lab; Roy Diesner, '56, who spent his time in the Navy; and Kevin "Mike" Myles '56, who returns to us on leave from Argonne National Laboratory.

John Birkle, Met. '56, has brought us up-to-date on his activities since leaving the campus. After a year with North American Aviation, Missile Div. as research engineer, he enrolled at the Univ. of Wisconsin and received his MS in Metallurgy in June, 1958, writing a thesis on "Plasticity of Intermetallic Compounds." At present, John is Asst. Technologist for U. S. Steel Applied Research Lab, and was recently on assignment to NAA Atomic International Div. studying ferritic alloys for containing sodium at 1200 degrees. John is married, and should have two children by now, according to the situation when he last wrote.

We had a very pleasant visit last summer from Maurice Boenitz, Met. '54; who was back in the Midwest visiting relatives. Maury is Manager of Materials and Processes in GE's Somersville, New Hampshire plant manufacturing watt-hour meters and instrument transformers. There are now three boys in the Boenitz family—all red-heads, I'll bet.

A Congressional armed services subcommittee conducted a two-day hearing at Wright Field last Spring, and concluded with high praise for Lt. George Healey, Met. '56. George briefed the committee on metals research and his excellent presentation moved the congressmen to inquire "where the AF had secured such qualified men." Congratulations for this fine tribute.

Professor Bruckner attended the annual meeting of the National Association of Corrosion Engrs last March, and visited with several of our Met alumni who were at the meeting: John J. Daley, '41, who is with Continental Can in the Research and Development Lab in Chicago; Don Bertossa '50, with Chicago Bridge and Iron in Birmingham, Ala.; Howard Randall, '47, with American Oil, Texas City, Texas; and Charles Robertson, '56, with Sun Oil at Marcus Hook, Penn.

A change of address is noted for John A. Bez, Met. '42. John's mail now reaches him at 3, Ivy Lane, Glen Burnie, Maryland.

## V. S. TUMAN ADDED TO STAFF

Vladimir S. "Bill" Tuman received an appointment to the staff as Assoc. Prof. of Petr. Engr. this Fall. Prof. Tuman is a native of Iran, and received his higher education in England, with a B.S. in physics (Honors) from Birmingham and an M.S. in geophysics from the Imperial College, London. Bill has had wide experience in the oil fields of Iran, and will greatly strengthen our staff in petroleum. Bill's family consists of his very pretty wife, Turan, and their two children.

## Corrosion Short Course Held on Campus

Prof. Walter Bruckner has acted as general chairman of a highly successful short course in Corrosion Control held on the campus the week of December 7. This course is a biennial event sponsored jointly by the Department of Electrical Engineering and the National Association of Corrosion Engineers. Registrants for the course came from all parts of the country. Prof. Marvin Metzger was co-chairman and delivered several lectures in the field of corrosion and metallurgy, and Prof. B. G. Ricketts also lectured on electrochemistry.

Prof. Bruckner is conducting research in the field of cathodic protection and hydrogen embrittlement under the sponsorship of the U. S. Navy Department, Bureau of Ships.

Plans are already underway for a similar course in 1961, and one on welding engineering and metallurgy in December, 1960.

## Six Ph.D.'s Awarded

No less than six Ph. D. degrees in metallurgy were awarded in the past year. C. H. Cheng and C. T. Wei completed their work last January. Both of these men worked on low temperature specific heats of transition element alloys, and have remained on the staff as Research Associates to continue this interesting work.

Jim Stanley finished his studies of internal friction and diffusion in iron-vanadium alloys, and has taken a position in the Solid State Division at Oak Ridge. Joe Enrietto has just left the campus to join the staff at the Jones and Laughlin Research Lab at Pittsburgh. Joe's thesis was entitled "Strain Aging and Fatigue of Columbium."

Jim Mullendore has taken a position with AVCO Advanced Research and Development Lab at Wilmington, Mass. Jim is working on beryllium which he claims is more unpredictable than gold-cadmium. Jim's thesis research was on the isothermal martensite transformation in Au-Cd. Bill Heitmann is now with the Inland Steel Research Lab where he is putting the finishing touches on his thesis dealing with the relative rates of polygonization in face-centered cubic metals.