

Special E & A Day Supplement

PULL-OUT PAGE



THE SCHOOL OF ENGINEERING AND ARCHITECTURE

TECH NEWS

CITY COLLEGE OF NEW YORK

VOL. XXV — NO. 3

TUESDAY, MARCH 7, 1967

STUDENT FEES

Dr. Gallagher Refutes I.U.S. Intervention

By PAUL SIMMS

Dr. Gallagher informed The City College newspapers at a press conference last Thursday, that he had received an anonymous phone call accusing him of trying to keep the International Union of Students from being a sponsor of the World University Service. He spent the better part of an hour explaining his role in the WUS concerning the IUS.

The International Union of Students, he explained, is the communist-supported student organization receiving funds from Moscow. This organization wanted to be a sponsor of WUS, but insisted on choosing the programs that they would support on a political basis.

Dr. Gallagher stated:

"At the International Assembly of the World University Service I voted in favor of seating the IUS. This proposal passed by a narrow margin — two votes if I remember correctly. The second proposal that we voted on at the Assembly was

whether we wanted to put the veto power in the hands of an organization which already stated it would not adhere to the non-political policy of WUS. This second proposal failed by a considerable margin."

Some years later, at another Assembly of the WUS, the question of seating IUS came up again and threatened to split WUS in half. As International Chairman, Dr. Gallagher suggested that the particular matter of seating IUS be referred to the Executive Committee, and remain in the Committee until they decided to bring it back onto the floor of the Assembly, or until it was resolved. This suggestion was accepted with certain additions.

Thus, the situation has remained and the policy toward IUS has changed. Dr. Gallagher said, in summation:

"The invitation to the IUS as a non-political sponsoring agency is still open. I was opposed to a sponsoring agent having the power of veto."

Quadrangle Sunday Preview To E & A Day Exposition

Plans for a "Happening" were revealed at the March 2 meeting of the Tech Council by Council President Kenneth Flaxman. This happening, during the two-hour break on Thursday, March 9, is being held in conjunction with the upcoming Engineers and Architects Day.

Patell: Graduates Will Participate in E & A Day



For the first time, this March 11, the graduate division of the School of Engineering and Architecture will participate in E&A Day exhibitions, according to Professor Minocher Patell (Chem. E.).

He hoped that with the addition of the graduate exhibits, students of engineering from City College would attend E&A Day and get a "clear picture of the College."

The students, commented Patell, would be able to see the activities of other branches of engineering, which would help them select their careers.

Visitors from outside the College will have an opportunity to see what a free higher education is at City, said Patell. High school students visiting the laboratories and exhibits will have a first hand opportunity to learn about engineering and architecture and the way in which it is taught here.

Arrangements for the operation of E&A Day were finalized at the meeting.

E&A Day will be on Saturday, March 11, 1967, from 10:00 a.m. to 2:00 p.m. The School of Engineering and Architecture will be open to the public, and tours of the school and its laboratories

will depart from the lobby of the new engineering building at 140th Street and Convent Avenue.

Two sliderules will be given away as door prizes at a drawing held at one o'clock on that day. Refreshments will also be served to all the visitors. Free parking for visitors, in Jasper Oval, has been arranged.

A few disappointments were expressed by the E&A Day Committee. The first was that there will be no one present from the Board of Education at E&A Day. Since the Board of Education has always encouraged students to continue with their education, the Committee registered their disappointment that a representative would not be present. The Committee said that Dr. Donovan had declined to come and would not even suggest that one of his aides be present. The second source of discontent was the apparent lack of participation of the Mechanical Engineering Department.

Prior to E&A Day, the Technology Council has planned a "happening" for Thursday, March 9, in the Quadrangle. Final announcements for the event will be given by Ken Flaxman, President of the Council.

The "Happening" will be a further attempt to make the students aware of E & A Day, but it will not be just an advertisement. Tech Council has appropriations from Student Government, and with some of these funds the Council has hired entertainers. The entertainers will perform, with the benefit of a P.A. system, at the Quadrangle, which is the grassy expanse between Wingate and Baskerville Halls. Butenweiser Lounge, in Finley Center, is being held in reserve in case the Quadrangle cannot be used.

New entertainment personalities will be on hand who could not only help make March 9 a very exciting day, but who also could make big names for themselves. Among others, a folk-rock group called The Lotus-Eaters, and a bagpipe player named Paul will perform.

For the benefit of the aeronautically-oriented engineers, two flying events will take place: 1,000 balloons will be launched with "E & A Day 1967" printed on them, and Jeff Grossman, TECH NEWS columnist, will fly a kite.

The perimeter of the Quadrangle will be affixed with cotton material; brushes and gallons of water-soluble paint will be provided for the audience.

The aim of the March 9 "Happening" is to get the C.C.N.Y. students aware of E & A Day, and the program for that Day.

Kenneth Flaxman stressed that the March 9 "Happening" has these serious goals, but will also be fun.

BLOOD BANK

The City College Blood Bank collects blood once each term from students, faculty members and staff members.

This blood, collected through the American Red Cross, is credited to the College's account, and may be drawn upon until emptied. The blood is given free of charge to all students, faculty and staff members, and their respective families.

New Computer Course; Or Thinking MAD-ly

MAD — an acronym for Michigan Algorithm Decoder, a computer language — is "just like any other foreign language, according to Professor G. D. Brandt (Civil Engineering). He says that he teaches the two credit course, E100, by the "Bertlitz method." "I get up there and talk. But no one should make the mistake of thinking that this is an easy two-credit course. It requires a good six hours of work each week."

The only requirement is Math 3 or 8 as a corequisite. However, the experience of students who took the course when it was offered for the first time last term was that this requirement is unnecessary. What is not stated in the catalogue, and what is just as important, is that the student have a very logical mind. Although a computer can work with incredible speed, it is useless until it has been properly "programmed." But a programmer cannot merely type out on punch cards "SOLVE THIS

EQUATION" as an instruction to the computer. The only instructions comprehensible to a computer are in a special programming language, such as MAD.

Problems

The object of the course is to teach the student to change a problem from its general statement to the precise program instructions in the MAD language. An intermediate step, called the algorithm, is used. In this step, the problem is changed from ambiguous everyday English to a set of verbal instructions which are easily followed (by a computer). A diagram or "flow chart" is also used. Then the algorithm is changed to the MAD programming language.

Although MAD resembles spoken English because the statements are in English, they cannot vary by even so much as the omission of a letter if the computer is to understand them. As an example, the student may

(Continued on Page 8)



TECH NEWS

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Exposing C.C.N.Y.

Engineers and Architects Day should be an established tradition at City College. Its main purpose is to exhibit the technical facilities and teaching potential of City College to anyone who is interested. But another goal of this event is to interest more students in City College.

As worthwhile as E & A Day is, it could be even better if it were expanded to attract more students. The main supporters of E & A Day are engineering students, architects, and their respective faculties; therefore, the exhibits come from only these departments.

According to President Gallagher, there is no reason why other departments could not also present an exposition day to complement E & A Day. Better yet, most of the faculties could combine their efforts and present the public with an "Exposition Day" to represent almost all of City College.

The Speech department could introduce visitors with arousing speech, and could even perform a play. Surely the Art department must have some beauty of its own to show the outside world. The English Department could easily have some of its talents read its works. Promethean would be only too glad to sell its issues on Exposition Day. How are men and alligators related? Ask the Biology department to show you. And how about a recital by the Music department?

The Administration sometimes grumbles about the trouble it goes through in organizing tours for visitors at City College. Guides are needed, schedules have to be altered, and many other inconveniences are created. But most of these recurring problems could be solved if the College had an official Exposition Day reserved for visitors.

Preserving Views

Separate newspapers developed on this campus because there was a need for them. The editors of certain newspapers hold political beliefs that are contrary to the beliefs of other editors. The preservation of these divergent viewpoints is essential to a realistic free press. As is apparent, some of the newspapers are definitely anti-Administration and make no secret of the fact. Other newspapers are directed to a specific segment of the student body, and therefore cover news that is ignored by other newspapers. In addition, it would be almost criminal to call City College a free university and put a muzzle on the press. Thusly, aggregating the leading newspapers on campus into a single 'party line' would be utter nonsense.

Inquiring Technographer

Question: Do you think that the food in the cafeteria is worth the price?

Where asked: On Campus.

Fred Talmud, Lower Senior, Mechanical Engineering. The food in the cafeteria is worth the money but not the heartburn afterwards.



Talmud Hudgins

Joseph Hudgins, Philosophy. It is an established fact that the South Campus cafeteria gets the leftovers from North Campus; this is the outrage. Moreover, at N.Y.U. downtown a student can get a meal of soup, two vegetables, bread and butter and coffee for sixty cents. Beyond that, it tastes like food, a phenomenon unknown in C.C.N.Y.

Norman Meisner, Upper Senior, Physics. Unfortunately, no. The variety and quality is below the level for enjoyable human existence. Paying sixty-five cents for a hot pastrami sandwich consisting of one slice of bread and five slices of thin pastrami is an offense to the status of the poverty stricken C.C.N.Y. student.



Meisner Lehrman

Marilyn Lehrman, Upper sophomore, Mathematics. In North cafeteria, the sandwiches are very bad, but the salads are very good. Those are worth the money. In the snack bar the sandwiches are very "tasty" and well-worth the price. The only trouble about the cafeteria is that the supervisor (the slimmer one) hocks-me-a-chainick.

Eunice Rapchik, Upper Freshman, Pre-Med. I definitely think the food is worth the money. I went to school down south where the food was expensive and not very good. CCNY food is a very big improvement. Only one thing is overpriced — the coffee. The cafeteria should pay us for drinking it. UGH! There's a rumor that they wash the pot over intercession. I must try it now.



Rapchik Davidi

Ahron Davidi, Lower Senior, Math. After waiting in line for so long it is not worth the price. The cake is stale, the soup is too salty, and the coffee is mud. The only thing worth the price is the salad. It's only a day old. And besides, the cafeteria's help takes your food away before you're through eating it. The cafeteria supervisors always pick on the Israeli table; they don't leave us to eat in peace.



Gross Sayings

BY JEFF GROSSMAN

Who says the U.S. is happy and fat? I don't know about the "happy," but I can use myself as a case in point about the "fat" part. Since I am reasonably large, people seem to think it is their duty in life to feed me. Unfortunately, I like to eat. I find it very hard to say "No!" to food. The fact that I am a true omnivore, few things being safe by virtue of being disliked, is no help to my middle. Compounding my problem is my huge "Crunch Tooth."

Never heard that before? Don't sweat. I just made it up to refer to the fact that potato chips, pretzels, and nuts are liable to disappear in copious quantities if I am left unguarded in their vicinity. I buy them in quantity: 3 pound bags of chips, 5 pound cans of pretzels — ostensibly for parties, but practically, for eating. And, if this seems like a waste of money, it is; but next time you shell out a dime for a ½ ounce bag of potato chips, do a little quick figuring. I may have more behind me, but I am still ahead.

Overheard: Prof.: "Well, what did you think of the course?"

Engineering student: "I thought it was very well covered. Everything that wasn't covered during the term was covered on the final."

Talk-About-Invoking-Guilt-Department: The following ad appeared in UB's *Spectrum* — "Lost: Lady's watch. Will the man who found it please return it to the bookstore's lost and found."

From the personal ads: "Jim A. has ben reclassified a virgin and elected leader of the beaver patrol."

How about this winner: "Poodgo Evangelist — Peter T. has been elected president of the Poodgo chapter at UB. Says Peter, 'Poodgo is an up-and-coming organization'." Why doesn't City have Classifieds like that?

I would have thought that Timothy Leary left Harvard a completely enlightened campus; but not so. Harvard students who purchased LSD capsules from a campus agent spent their exam week in the john. It seems the capsules contained a powerful powdered laxative. Remember — A trip to the john is better than no trip at all.

Games-Students-Play-Department: There are two new games floating around campus (no, not craps) these days. The "Thin Book Game" is easy. Take a public figure, add a witty (?) book title and you've got a "Thin Book." Some better known "Thin Books" are *Decisions I Have Made* by Dwight Eisenhower, *Effective Riot Prevention* by Samuel Yorty, and *The Johnson Wit* by Robert Kennedy.

The other one has no real name but is usually called "Exams for the Examined." For example:

The Hubert Humphrey Exam — You start off with an original thesis, but end up repeating the lectures verbatim.

The George Hamilton III Exam — You flunk the exam but get an "A" in the course.

The Adam Clayton Powell Exam — You get caught cheating.

The Robert Kennedy Exam — Pretty good, but not nearly as good as the last one.

The George Wallace Exam — Your girlfriend takes it for you.

The Draft Exam — You try to cut the class.

The Lyndon Johnson Exam — You can't believe the questions.

The Gross Sayings Exam — You leave very quietly.

MECHANICAL ENGINEERS

STUDENT - FACULTY

Coffee Hour

WEDNESDAY, MARCH 8, 1967

11:30-1:30 — Faculty Lounge — T 163

Sponsored by:

A.S.M.E. — DANFORTH FOUNDATION — M.E. DEPARTMENT



THE SCHOOL OF ENGINEERING AND ARCHITECTURE

TECH NEWS

CITY COLLEGE OF NEW YORK

E & A Day Supplement

Tuesday, March 7, 1967

TECH NEWS

Page Three

GREETINGS

"E and A Day" is a student-faculty activity of the School of Engineering and Architecture; our program offerings are illustrated in the numerous exhibits and demonstrations. The School gives young men and women basic educational preparation for professional careers in engineering and in architecture. Opportunities in these fields are unlimited — a glance at the Business and Finance Section of *The New York Times* on any Sunday bears this out.

Graduates in engineering may go into the traditional fields or into the glamorous space-age technologies — we prepare them for both to the bachelor's, master's or doctor's level. Graduates in architecture are prepared for satisfying and rewarding professional careers based on the aesthetic and the technological requirements of the total field of urban design. The practice of engineering and of architecture is not only a science but also an art involving human imagination, judgment and decision. Our programs are designed accordingly.

We are proud of our graduates; many work in the professional fields for which they studied; others, by choice or by chance, are in other fields but all attest to the value of the education they received in our School.

We welcome all visitors and will do our best to give them any information they may desire.

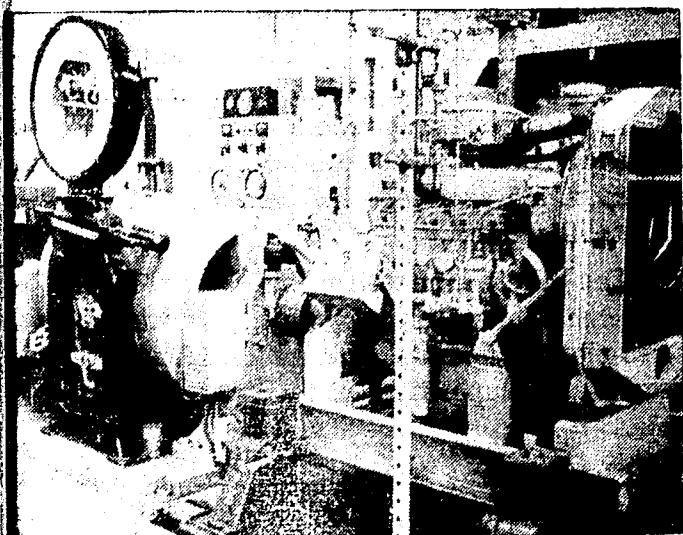
William Allan, Dean

March 1, 1967



Steinman Hall, where the Engineering exhibits will be displayed on E&A Day. Architecture displays will be in Goethals Hall.

The Significance of E & A Day at CCNY



This dynamometric motor is from the Mechanical Engineering Labs.

By LEONARD SOLOMON

As student chairman of the Engineers' and Architects' Day Committee, I cordially welcome all to this year's exhibition.

E & A Day is a very special event. It climaxes three and one-half months of work into the short span of four hours. Much hard labor is involved: exhibits must be set up, refreshments arranged, hundreds of mailings sent out on schedule. For example, each high school in the city was sent from four to seven different letters; each school was telephoned at least once; and several schools were visited by committee members, with the purpose of talking to various student groups.

What are we trying to accomplish? Why is all this work done? The most direct answer is that we are trying to interest high school students in engineering and architecture, and in The

City College in general. City College is one of the finest schools in the country, yet many people only list it as a second or third choice when they apply to college. City College is a bright, vibrant, and lively school, and should not be looked upon as just a continuation of high school.

Secondly, E & A Day is held for its educational value. Many of the people who attend the exhibition come to learn something of the new technology that is increasing at such a rapid rate in the world today. Many of the new breakthroughs in science evolve directly from the elementary experiments that are performed at this college every day. By holding an Engineers' and Architects' Day, the public has the opportunity to view things that they have never seen before.

E & A Day is also held out of a sense of responsibility, and this is, to me, the most important reason for having it. We must put on E & A Day. Our society and our world are segmented by walls of ignorance. People tend to stay within their own group, out of ignorance and fear of the rest of the people that surround them. Stereotyping and intolerance are thus given the breath of life. People start to think of themselves as superior to the "outsiders." The concept of difference on the same level is thrown out as heresy.

By holding the exhibition, outsiders can obtain during these few short hours an insight to the problems and way of thinking of an engineer. By the same token, engineers also can experience the benefits of this interaction.

Although four hours, once a year, is all too short a time, it is at least a beginning. So, welcome, enjoy yourselves, and come back next time.

The Committee

Tech Council, working with the Tech Faculty chose Leonard Solomon and Prof. Minocher K. N. Patell as Co-Chairmen of the Engineering and Architecture Day Committee. It has been the responsibility of these two men, to insure that E & A Day is a success. Mr. Solomon, who is now associate editor of *TECH NEWS*, is handling much of the co-ordination between school and the invited public. Other members of the committee who are members of *TECH NEWS* are Otto Hammer, editor-in-chief, Ken Flaxman, and Joel Dreyfus. The entire E & A Day Committee is:

Co-Chairmen	Prof. Minocher K. N. Patell Leonard Solomon
Committee	
Architecture	Bill Cavallini Prof. F. Codola
Chemical Engineering	Larry Bogart Prof. M. Patell
Civil Engineering	Bill Strenk Prof. D. Muss
Electrical Engineering	Jacques Salmon Mr. P. Brown
Mechanical Engineering	Joel Stevens Prof. H. Burns
Military Science	Joel-Philippe Dreyfus Captain Kaplan

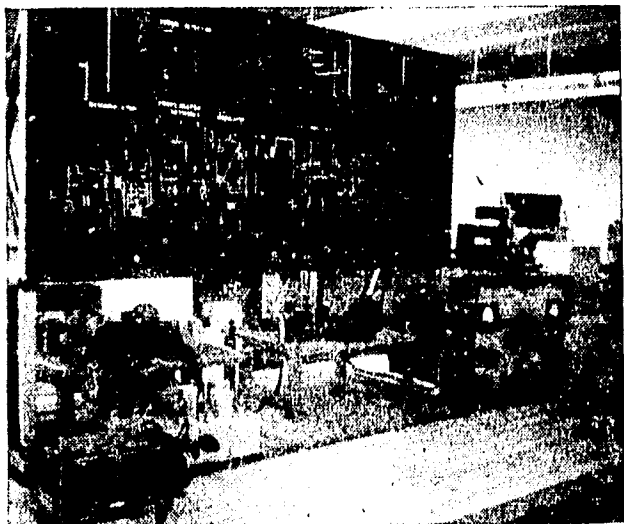
Publicity Committee
Bill Cavallini
Otto Hammer
Leonard Solomon

Committee at Large
Ken Flaxman
Mark Gerhardt
Joel Schesser

ELECTRICAL ENGINEERING

List of Exhibits in the Electrical Engineering Department

- Room
- T 501 Laser Communication System
Microwave Systems
Sonograph Demonstration
- T 601 Time Multiplex Transmission
Analog Computer



Servo-mechanism is feature at EE's lab.

The City College's School of Electrical Engineering is rated one of the finest in the country. Its faculty and students are the finest in the area, and a CCNY diploma in EE is highly regarded throughout the field. It is said that when a student drops out of City's EE curriculum and transfers to another school, the standards of both institutions are raised.

Engineers at City also take two years of what is known as pre-engineering. Included are the basic physics, math, and other science courses which are necessary prerequisites for the more involved analysis courses that follow. The student takes a wide variety of liberal arts and general interest courses so that he may become an individual integrated into modern society, instead of merely a human adjunct to some complicated machine or computer.

City's Computation Center, located in Steinman Hall, is equipped with an IBM model 7040 unit which handles all computer requirements. EE students are required to take a programming course in which they learn the fundamentals of computer programming by working with the IBM machine. This training has proven invaluable in modern engineering work.

The EE faculty is highly rated. It includes experts from such diverse corners of the field as communications, design, and power. The student is exposed to all of these areas of his field, and more in the analysis, electronics, and power class, and laboratory sequences that make up the first part of the curriculum after pre-engineering. Later, up to ten credits of engineering electives in any special area of interest are provided for. These electives can include advanced math, physics, engineering, or other courses related to some branch of EE.

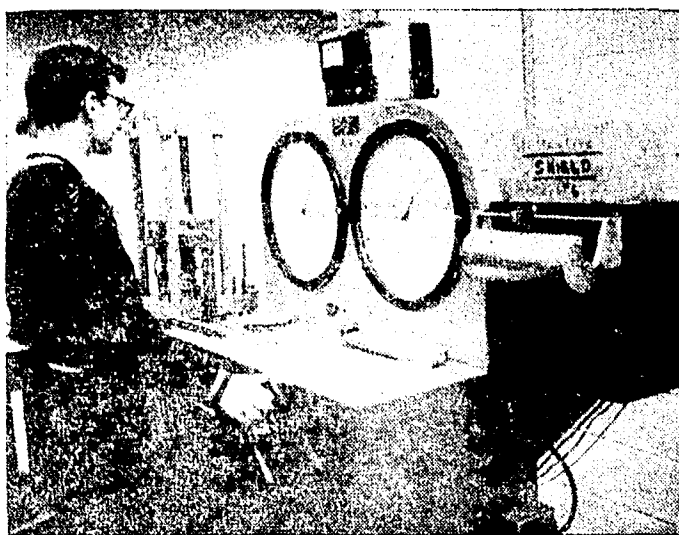
The academic course of study at City is enhanced by a full honors and leadership program. Students of high standing may be elected to the local chapter of Eta Kappa Nu, the EE national honor society, which is quite active at City. Students may also become active in any of over twenty engineering organizations including the IEEE, Tau Beta Pi, (the national honor society for all engineers), Tech News, and many others.

All of the above facts have made City College so well known in the field of electrical engineering, producing engineers among the best to be found anywhere.

CIVIL ENGINEERING

List of Exhibits in Civil Engineering I Fluid Mechanics Laboratory

- Room
- T 14 Hot Wire Anemometer
Hydraulic Jump
Wind Tunnel & Smoke Tower
Oil Flow Unit
Tilting Flume
Centrifugal
- T 1 II Materials Testing Laboratory
Tension Tests of Engineering Materials
a) Steel c) Concrete
b) Wood d) Plastics
Compression Tests of Engineering Materials
Flexure Tests of Engineering Materials
- T 207 III Survey Equipment
Engineer's Transit
Engineer's Level
Theodolite
Self-Leveling Level
Plane Table Mapping
Steel Measuring Tapes
Stereoscopic Viewing Equipment
- T 125 IV Sanitary Engineering Laboratory



Universal Tester which is set up to measure the compressive strength of a material.

Civil engineering is the branch of engineering concerned with the development and construction of large facilities in the public interest. As with all other fields of engineering, the purpose of civil engineering is to apply the principles of science in an economic way to the needs of mankind. With this aim, civil engineers design, construct, and operate a large variety of works and structures. These projects include many phases in building of roads, railroads, waterways, bridges, airfields, and water supply and sewage systems.

Divisions

Of the divisions within civil engineering, structural engineering is the largest. Civil engineers in this specialty are involved with the design and planning of environmental buildings, industrial facilities, and public works and utilities. A civil engineer must have a knowledge of other branches of his profession, such as materials, soil mechanics, and foundation engineering.

Other divisions in civil engineering are hydraulic engineering, which is concerned with structures to utilize and control water; highway engineering, a field in which civil engineers locate, design, and maintain the nation's roadways; and city planning, in which the engineer is involved with the comprehensive planning of new communities and the redevelopment of existing cities. In all, the American Society of Civil Engineers lists seventeen divisions which are affiliated to the profession.

The nature of a civil engineer's work requires not only the knowledge of the physical sciences, but also an awareness of the economic and social significance of his work. The largest number of civil engineers is employed by various agencies of the government which require his diversified knowledge. The country depends on its civil engineers for the functioning of all of the vital public facilities.

CE Departments

The Civil Engineering Laboratories contain modern tension, compression, torsion and hardness-testing machines. For advanced study and research, a large size Bausch and Lomb metallographic microscope with camera attachment and magnification capacity of 2800 diameters is available. Experimental stress analysis equipment includes two photo-elastic stress analyzers, soap film apparatus, and resistance bridge for performing electric strain gage analysis.

The additional facilities of the soils and materials laboratories make possible the study of mineral aggregates and their blends, soil-stabilization phenomena, and mix-design and properties of portland cement concrete.

The Soil Mechanics Laboratory is equipped to perform such tests as the determination of soil grain size distribution, liquid and plastic limits, shear strength and co-efficient of consolidation. Facilities are available to study retaining walls, footings, seepage flow under dams, and dynamic loads on structural foundations.

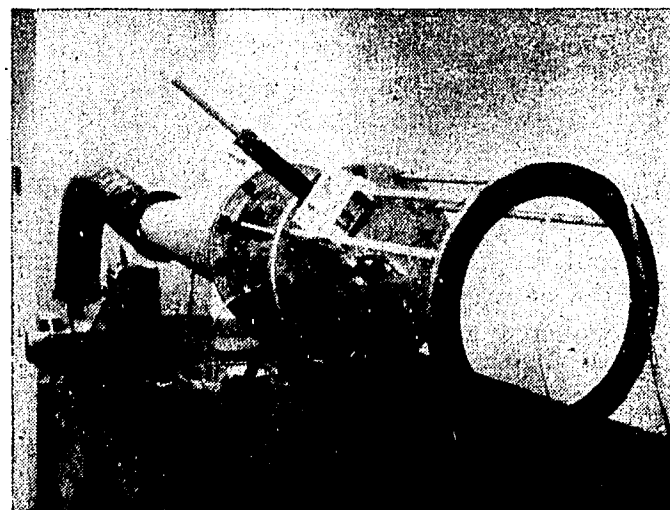
The Experimental Stress and Structures Laboratory can be used for experimental analysis of engineering components subjected to various loads and environmental conditions. Separate areas are devoted to photo-elastic, x-ray and brittle lacquer experimentation. Equipment is available for the making and testing of structural models, both large and small. A special area is assigned to research and development problems.

The Fluid Mechanics Laboratory is equipped for experimental study of both compressible and incompressible fluid media. Flow rates of up to 5 cubic feet per second of water are provided by each of three independent high pressure systems.

The Sanitary Engineering laboratories consist of pilot plants for the study of processes for the treatment of water, waste and polluted waters, and a fully equipped laboratory for sanitary engineering analysis and bench scale studies. Processes available for study include chemical mixing, coagulation, sedimentation, filtration, ion exchange and aerobic and anaerobic stabilization.

The photogrammetry laboratory is equipped with a three-projector Multiplex, stereoscopes, stereo-plotters and a sketch master. Aerial photographs and diapositives of many areas are available.

The Highway Laboratory offers facilities for investigating the properties of the basic materials and mixture that comprise pavements. A sliding plate microviscometer, a variety of strength and stability equipment and other apparatus are available for determining rheological and physical properties, and for experiments in the design and testing of bituminous mixes.



Hot-wire Anemometer is a feature of C.E. Fluids lab.

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- T 410C M
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CHEMICAL ENGINEERING

List of Exhibits in the Chemical Engineering Department

Room	
T 201	Tray Drier Gas Chromatography Pressure Drop in Pipes Extraction Column Distillation Column Evaporator Cooling Water Tower Double Pipe Exchanger Heliflow Exchanger
T 301	Jaw Crusher Filter Press
T 303	Plastic Extruder Nylon Rope Instron Tester Hydraulic Molding Press Scott Tester Colloid Mill X-Ray Diffraction
T 320	Electric Furnace
T 323	Analog Computer Liquid Level Control Sinewave Generator Pyrometry Capacitance Sensor Manometer Board
T 326	Process Reactor
T 408	High Frequency Furnace Rolling Mill
T 410B	Plastic Mounting Press
T 410C	Metallurgical Microscope X-Ray Film Measurer

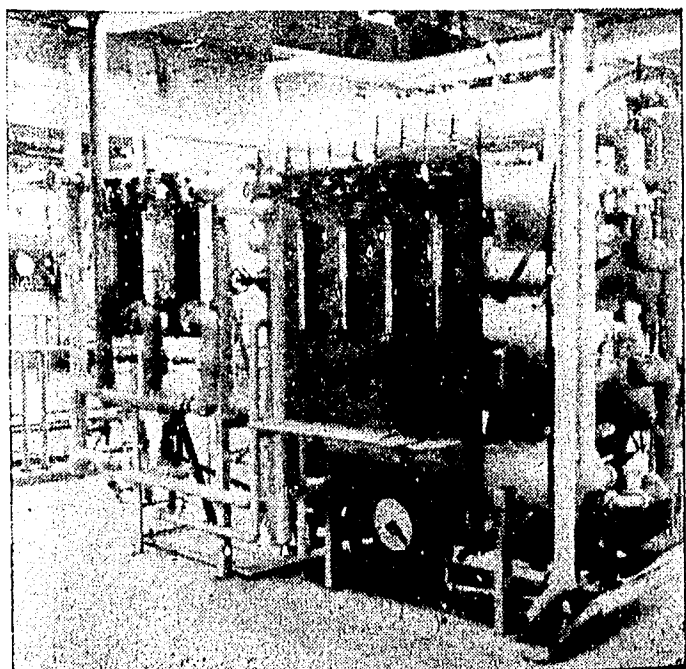
By TED LEMOFF and LARRY BOGART

Chemical engineering as an organized discipline, is still very young. Today 85 per cent of all the people who have graduated with a chemical engineering degree are still active in their fields.

Before the appearance of the chemical engineer in the present understanding of the profession, the industrial chemist was called upon to solve production problems and to design new equipment. Each individual industrial chemist had his own approach for solving a problem and since his approach was due to his individual preferences he has to be considered more of an artist than a scientist. As these problems became more and more complex a systematic method of analyzing and solving them was developed, and the profession of chemical engineering developed.

Wide Range

A chemical engineer's range is as wide as



Double pipe heat exchanger: designed for the most efficient transfer of heat from a hot medium to a cooler medium.

the use of chemicals in the world today. This may range from foods to exotic metals for the aerospace industry. The chemical engineer may involve himself in, basic research studying basic problems such as catalysis, process development where he scales production from the test tube quantities of the research lab, to the ton quantities demanded by industry, production where he is responsible for the quantity and quality of products or sales. All of these positions can invariably lead to some aspect of management in the company in which the engineer is employed.

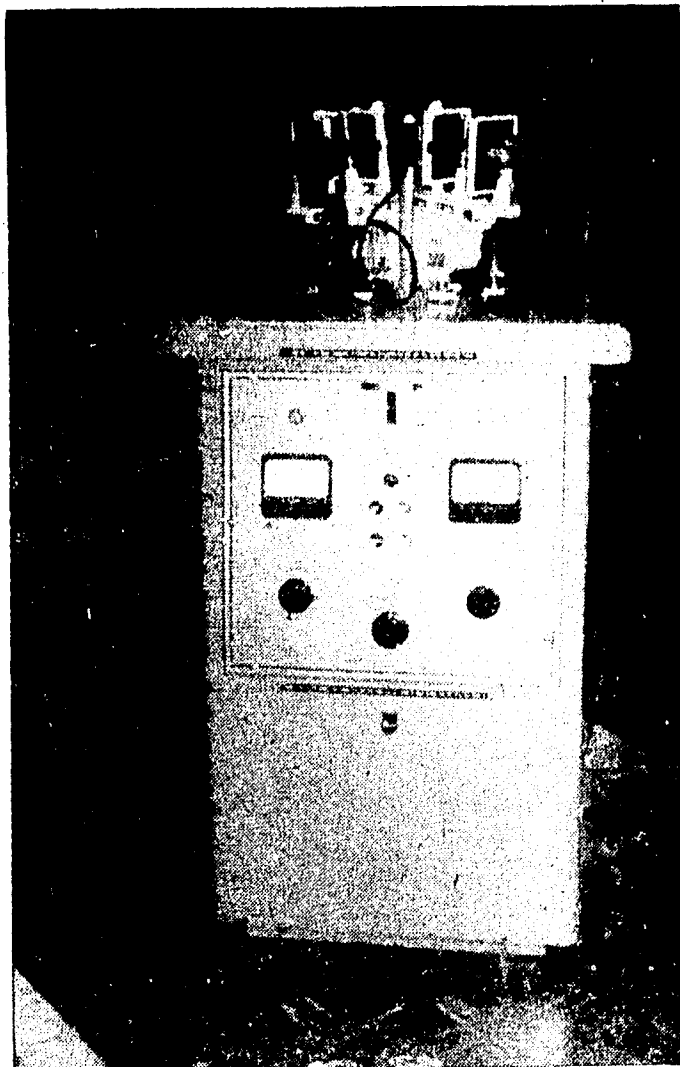
The chemical engineering degree is one of the most flexible, because of the great demand by industry giving the individual the latitude to make his life whatever he wishes.

Equipment

The department of Chemical Engineering provides separate laboratories for the study of unit operations, measurement and control of process variable, metallic and nonmetallic materials and research.

In the Unit Operations Laboratories major items are distillation columns, packed absorption towers, apparatus for study of flow meters, fluid flow, heat transfer, drying, filtration, etc. This equipment is of pilot plant size and permits study of design theory and industrial chemical technology practice.

The Process Control Laboratory is equipped with transducers for process variables, pneumatic and electronic controllers, and examples of thermal, liquid and pneumatic process systems.



The Chem. E. Gas Chromatography Equipment uses 4 cameras to record results. The chromatograph is located in a special light proof room.

For simulation of process dynamics, an electronic analog and a pneumatic analog and a pneumatic analog computer are available.

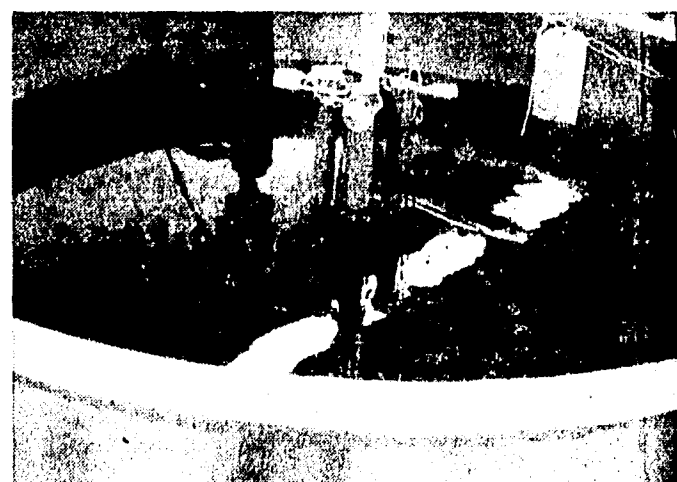
The Metallic Materials Laboratories contain equipment such as furnaces, rolling mills, swage presses for fabrication and heat treatment, as well as equipment for preparation of samples and for microscopic and x-ray examination of metals. A minor amount of physical testing may also be performed.

The Nonmetallic Materials Laboratory contains equipment for the preparation, compounding and testing of rigid and elastomeric non-metallic materials. The apparatus includes an x-ray diffraction unit, roller mills for compounding rubbers and plastic materials, hydraulic presses, plastic injection molding machine, plastic extruder, Instron tensile and compression testing machine, Scott tester, colloid mill, resin reaction apparatus and polymerization ovens.

MECHANICAL ENGINEERING

List of Exhibits in the Mechanical Engineering Department

Room	
T 04	Metrology - Measurements Nuclear Engineering Interferometer Pressure Transducers Pyrometers Beta Emmission Counter Hydraulic Systems Dynamics



Subcritical nuclear reactor: the source of radiation which all Engineering Departments use.

Mechanical Engineering covers a wide range of professional services, from theoretical work in research and development to industrial applications in design, production, and sales.

The scope of activity includes all aspects of the mechanics of equipment and processes used in the technical era. Mechanical engineers play a major role in our space program, in the design of both conventional and nuclear power plants, in the automotive field, in heating and air conditioning, refrigeration and cryogenics, and in the fields of automation, fluid machinery, production, and processing machinery, consumer goods and appliances. They have responsibility for research, design, development, testing, control, and manufactures in these many and diverse fields. Many mechanical engineering graduates assume positions of management, while others prefer a career along technical and professional lines.

The aeronautics industry has become one of the primary employers of mechanical engineers to solve problems in aerodynamics, structures, and missile systems.

Laboratories

City College Mechanical Engineering Laboratories include experiments in energy conversion, internal combustion engines, gas turbines, and steam engines. In the field of production there are laboratories in foundry process, metallurgy, heat treatment, motion and time studies, plant layout, and machine tools. In other areas there are experiments in mechanics, fluid flow, heat transfer and the nuclear reactor.

The Metallurgy and Materials Science laboratories of the Department are extensive in both teaching and research. Complete metallographic facilities are available, including a dark-room, Leitz metallograph and X-ray diffraction equipment.

The Nuclear Laboratory is shared by all the engineering and science departments. It houses a water-moderated sub-critical reactor fueled with over 2½ tons of uranium and equipped with a neutron source. The laboratory contains counting equipment, gamma ray spectrometers, survey meters and dosimeters. Neutron flux measurements may be made by foil activation as well as by submarine boron trifluoride detectors.

architecture



In the Department of Architecture, curricular requirements in the design sequence sometimes require students to work on their designs — buildings, parks, urban renewal . . .

In fact, the large part of the footings staff, which usually supplies material on Architecture to this paper, had to turn in designs last week — buildings, parks, urban . . . etc.

So, we had to stay in school Wednesday night to finish. The students of Architecture have the privilege of staying in their own design rooms — where every student has his own desk, and where posters and maps and trash, like the 1893 Hood's Sarsaparilla Calendar above, are plastered around the place — and where students spill coffee all over their designs.

But the Architecture courses are not all blood, sweat, toil, and coffee. Designs are due only once in a while — usually when TECH NEWS is going to press. Other courses include background in Landscape Designing, Building Equipment, Urban Design Theory, Construction, Rendering, and Sketching. The Architecture students also have to take some Civil Engineering courses, but this is another blood, sweat, toil, and coffee affair. We also have a choice of many art electives, and they throw in a sociology course or two.

If you enjoy what you're doing, work is not all that bad. The smallness of the Department creates an atmosphere where the students and teachers can meet frequently and get to know each other better.

And you can hang up your Hood's Sarsaparilla calendar above your own desk if you want. Below, in fact, is a picture of one of our Design Rooms, Harris 001.

The Department of Architecture also has a model shop; an architecture library will open this term.

List of Exhibits in the Architectural Department

- Room
- G 112 Model Shop
- Model Building Equipment
- Design and Working Drawing
- Scale Models
- G 206 Jury Room
- Sketching
- Working Drawings
- Materials of Construction
- Equipment of Buildings
- Structural Design
- "Le Modulor"
- Hallways
- 1st and 2nd
- Floors Design Projects
- Renderings
- G 111 Continuous Slide Show
- Works of Prominent Architects



Hunter College Begins Plus and Minus Grading

By KENNETH N. FLAXMAN

A plus - and - minus grading system and a program of pass-fail courses will be instituted at Hunter College this fall. Affecting both the uptown and downtown campuses, the grading system will be as follows:

Grade	Relative Weight
A+	13
A	12
A-	11
B+	10
B	9
B-	8
C+	7
C	6
C-	5
D+	4
D	3
F-FW	0

Note: An FW is the Hunter College equivalent of an H — a drop for excessive absences.

The Meridian, a Hunter College newspaper, claims that this system would "alleviate the inequity of giving a grade 'B', for example, to two students who have averages of 81 and 89, respectively. It will now become possible to distinguish between the two students and mark on an accurate basis. Also, a change to the plus and minus system will place the graduate student in a better position in the professional world, and in the competition for graduate school."

Pass-Fail

Starting in September, lower juniors and all those of higher classes will be able to register for six credits of pass-fail courses. A maximum of six credits of pass-fail courses may be taken, with certain conditions: 1) Courses selected for pass-fail grades must be outside the student's prescribed base, his major and minor, and the Education De-

partment. 2) No more than one pass-fail course may be taken in any one term. 3) After classes have begun, a student may not request a change on the basis of his grading. 4) In the event of a student selecting as his major or minor, by change of major or minor, a department in which he has taken pass-fail credits, such credits may not be counted toward the number of credits required in the major or minor.

Meridan believes that "The establishment of a plus-and-minus and pass-fail system of grading reflects student and faculty opinion determined in referendums held last year. In the student referendum, 94% of those who voted wanted a change in the present grading system and 49% wanted a plus and minus system. In a similar faculty questionnaire, 97% wanted a change and 82% were in favor of the plus and minus system."

A full explanation of the pass-fail system and of the plus-and-minus grading system will be contained in the Hunter College Bulletin, to be available in September, 1967.

The Air Force doesn't want to waste your college education any more than you do.

Are you afraid of becoming part of the woodwork on a job? Your career stunted by boredom? Few promotions in sight?

You didn't go to college for that. And it needn't happen, either. Because you can pick the United States Air Force as your employer. Career opportunities are so vast... you'll get a better chance to specialize where you want... in the forefront of modern science and technology.

Suppose, just for example, you wanted to be involved in Electronics. This area alone includes Communications-Electronics, Missile Electronics, Avionics, and others. And these, in turn, involve administrative, research, and other technical aspects.

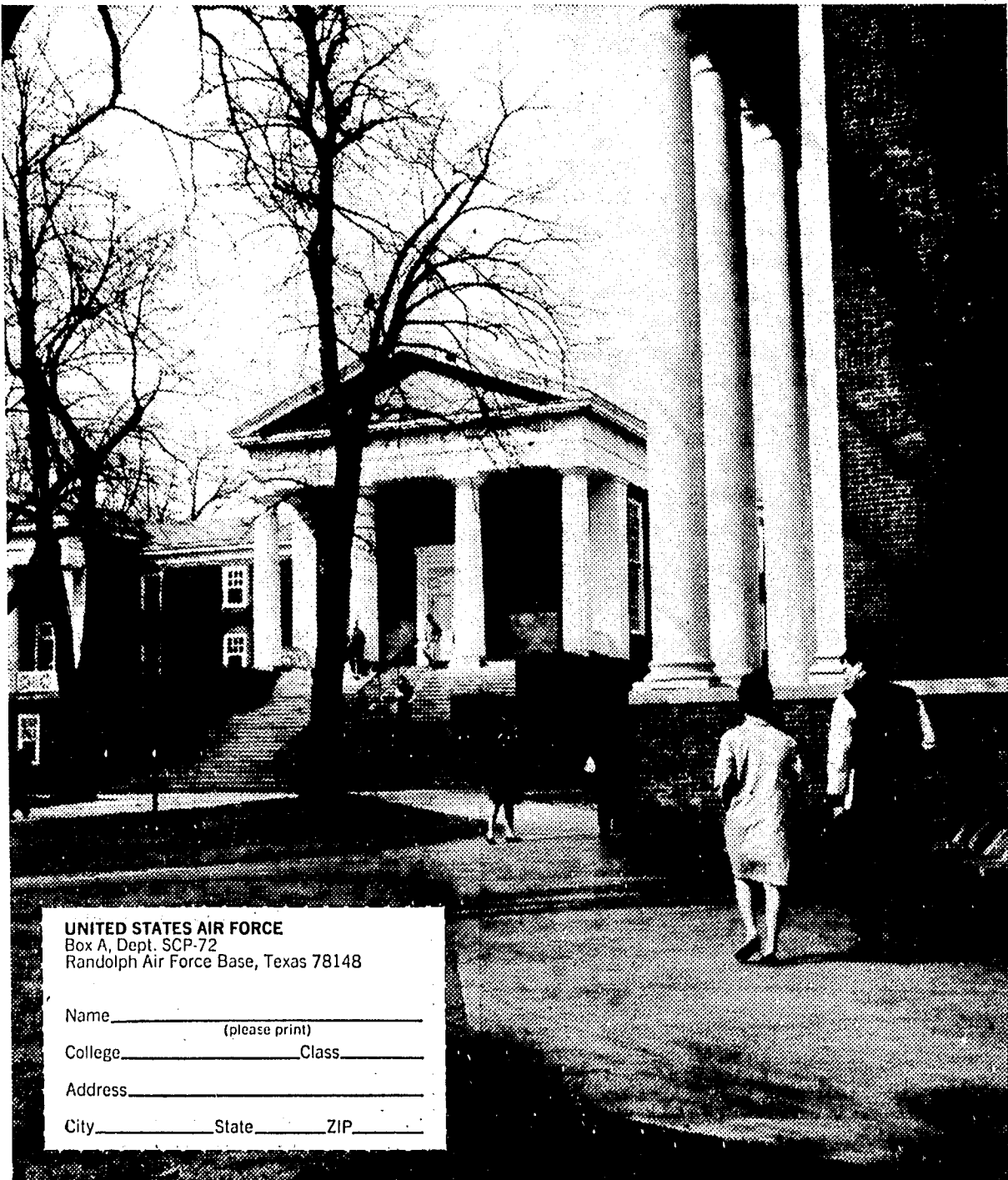
That's just a tiny part of the whole Air Force picture. Just one brilliant opportunity area among many.

You'll enjoy good pay, promotions, chance to travel, active social life, fine retirement benefits. And you'll be serving your country, too.

Or maybe you want to fly? That's great. The Air Force is certainly the place to do it.

As a college graduate you want something extra out of life—to aim at an exciting goal. So send in this coupon.

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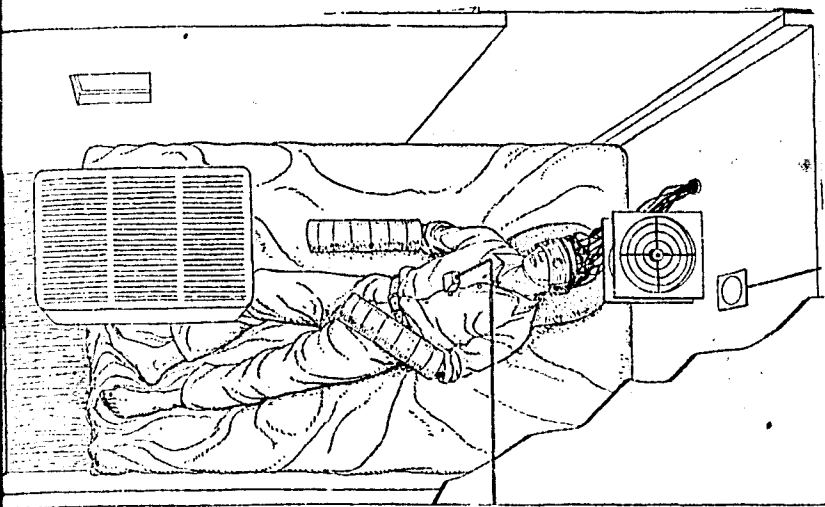
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\$70 Per Student for Sensory Deprivation



By ARNOLD SANDLER

The Albert Einstein Medical College is presently engaged in a number of experiments in the field of sensory deprivation.

The psychologists at the school are trying to collect data that will give them a basis for predicting the future effects of ever-increasing leisure time, and are willing to pay \$70.00 for three days' work. The only requirement is that you must be a full-time student at City College.

The subject will be isolated for three days, will wear translucent glasses, cardboard cuffs, and other apparatus designed specifically for sensory deprivation. He will hear only a constant buzzing noise. If the subject changes his mind during the experiment, there is a panic button.

For further information, contact Mrs. Katherine Brooks, 432-2298, at the Albert Einstein College of Medicine.

Army Corps Seeks Civilian Technicians

The Army Corps of Engineers is looking for civilian engineers, architects, and geologists to replace some of its senior staff nearing retirement age. The current civilian work force of the Corps includes more than 9,000 professional engineers, the largest concentration of professional engineering and construction talent in the world.

This organization is engaged in large scale engineering works for military and public service. At present it is involved in the design and construction of multi-purpose systems for flood control, hydraulic power generation, fish and wildlife conservation. It takes part in the Appalachia Anti-Poverty Program and the Inter-Oceanic Canal Studies Program, as well as extra-terrestrial construction, lunar mapping, and construction support facilities for NASA.

In addition to these projects, the Army Corps of Engineers is working on current design of military structures for the Nike X anti-missile system, and is administering engineering and construction contracts in friendly foreign countries as part of the U.S. Military Assistance Program.

Job Demands

At present there is a demand for civil, construction, soils me-

chanics, structural, hydraulic, mechanical and electrical engineers, as well as architects and geologists. Specialists in materials, highway design, electronic, marine, chemical and industrial engineering are needed, as well as in operations research, photogrammetry, cartography, geodesy, physics and mathematics.

Openings exist in Alaska, Hawaii, the Pacific Islands, the Near, Middle and Far East, Vietnam, Europe, and the Caribbean area.

The civilian engineer entering the Corps' employment has two great advantages: an opportunity to enter an organization where he can learn from top caliber professionals with many years of experience; and excellent chances for advancement. Salaries are comparable to those offered in private industry, and the fringe benefits, including government retirement plans, are excellent.

More detailed information about civilian employment can be obtained by writing to the Chief Employment Branch, Office of the Chief of Engineers, Department of the Army, Washington, D.C. 20315. They request that you indicate the area in which employment is desired and the minimum acceptable salary.

Meetings

A. S. M. E. is having a general membership meeting on Thursday, March 9 in Shepard 135 at 12:15. All members must attend.

Happy Birthday

Wink the Drink

Love: TECH NEWS

In the last issue of TECH NEWS, the reference to the Foundation for Youth and Student Affairs should have read FYSA, not NSA. Sorry!

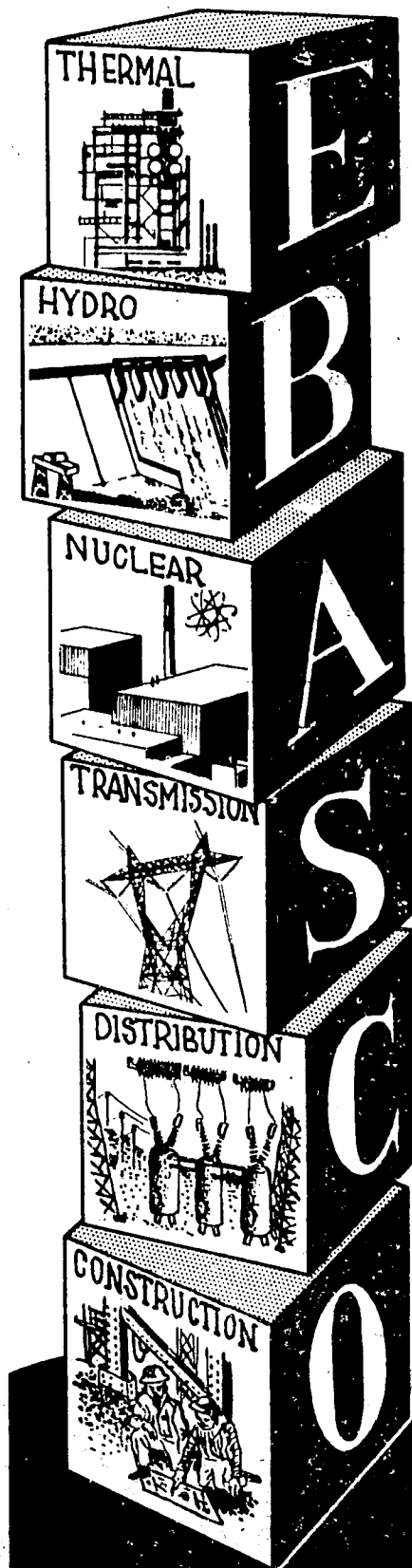
CUNY Receives Grant For Overseas Study

Twenty Chancellor's Scholarships of \$500 each have been created by The City University of New York for students who enroll in its 1967-68 program of study abroad. Chancellor Albert H. Bowker, in making the announcement, said the scholarships would reward academic excellence and encourage the growth of the university's overseas program, now in its second year.

Students in the program enroll in regular courses at the foreign universities and are integrated into the universities' life as much as possible. They also attend special courses and seminars given by Queens College faculty members. Regular college credit is awarded for their work.

The program is open to all matriculated undergraduate students in the City University above the freshman classes, and to all men and women who meet the requirements for graduate study at the university. Students are evaluated on the basis of their academic ability.

Ten of the \$500 awards will go to students enrolled in the new City University center for education majors at the University of Puerto Rico in Rio Piedras, near San Juan. The other ten awards will go to students attending centers at other universities in Europe and England.



OFFERS CAREER BUILDING OPPORTUNITIES

When looking for employment the young graduate engineer considers many things—challenging assignments, good salary, benefits, a company in which to learn and grow—both professionally and as a leader of men. All good things come with responsible growth.

Knowledge and experience only come in time. At Ebasco this time is greatly accelerated because the graduate engineer becomes associated with professional men who have the experience and the knowledge and who have a definite and desired interest in providing the young graduate with the tools for professional development.

The professional engineers at Ebasco, headquartered in New York City, have made the firm a world-leader—a growing company that has worked in over 60 countries and in every section of the United States.

An Ebasco man might find himself building a nuclear power plant in Connecticut or engineering a hydroelectric development for Japan or he might watch the setting sun in the Andes while engineering and constructing a transmission line. The Ebasco engineer has been building for America and the world for the past 60 years—in almost every aspect of industrial growth.

A formalized program of development is established for the graduate engineer at Ebasco. In addition, the company has an education assistance program that reimburses the graduate for his tuition if he wishes to continue his education.

Right now we have career openings for recent graduate electrical, mechanical, civil and nuclear engineers.

Our interviewer will be on campus Thursday, March 16
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THE CLASSIFIED

Does anybody have the C.E. homework?

The Greeks are really Italian

I still think Julius La Rosa is the tops

Large engineering firm with New York headquarters seeks all girl engineers for immediate placement in its newspaper division. Contact Editors-in-Chief of TECH NEWS. Placement as writers, photographers, and paper cup washers. Address all inquiries, with resume, and salary requirements to the TECH NEWS mailbox in the Civil Engineering office, Steinman 110.

WINK can drink and juggle books too.

November comes once a year.

Hey Jeff, where'd you get the dopey hat? ? ?

Hello largely to Surfer Jo & Linda from R.W. & J.G.

Dr. Meisel is really Harry'd.

Vogel flies by night.

Morris has a good TICKER.

Badillo, Cariello, & Proccacino in '68.

North meets South, Love, Otto.

La Belle de Mott She No Operate

For the past three terms the bells in Mott Hall have not been working properly; during the last term they did not ring at all.

The students most affected by this are those with classes on North and South Campus. They are frequently penalized for arriving late to class when it is not at all their fault.

Roger Deakins (English Department) feels that the situation puts "an undue responsibility on the students," who must remind their professors when the hour is over. Byrne Fone (English Department) calls the situation "a damned nuisance."

The English office has notified the Department of Buildings and Grounds of the situation on several occasions. Early last term, when the bells rang on the average of every five minutes, they were stopped completely and haven't rung since then. Nothing has been done to correct this.

"I have a physics class in Shepard right after my English class. My English teacher lets us out at five minutes before the hour, and my physics teacher always demands an ex-

planation of why I walk into class at five after the hour," says Linda Cutrone (C.E.). "If they don't do something soon I'll be overcut because my teacher counts each lateness as a half absence." Linda is currently on attendance probation, and if she is dropped from her class with an "H" there is danger of her being dismissed from school.

Even if a teacher dismisses a class on time, there is difficulty in getting to a class on North Campus on time. Students have to battle for right-of-way with other students entering the building, and everyone is late.

Andy Goldman, a bio-chemistry major, is locked out of his class each time he arrives from his course. "If this happens, I may not graduate in June."

Professors sympathize with the students, but find it difficult to do anything about the situation.

During finals last term this proved disastrous for one student. "I had to run from Mott to Wagner to take my finals. I never heard a bell in Mott and got to my other final five minutes late." Ronnye Teitel never finished her finals. She attributes her "C" in the course to the aforementioned fact. "I would have received a 'B' if I finished the test."

A petition is currently being circulated, urging the Department of Buildings and Grounds to fix the bells. Maybe by finals they will do so.

ENGINEERING OPPORTUNITIES

for Seniors and Graduates in **MECHANICAL, AERONAUTICAL, CHEMICAL, CIVIL (structures oriented), ELECTRICAL, MARINE, and METALLURGICAL ENGINEERING**

ENGINEERING MECHANICS, APPLIED MATHEMATICS, CERAMICS, PHYSICS and ENGINEERING PHYSICS

CAMPUS INTERVIEWS

MON. & TUES., MAR. 20, 21

Appointments should be made in advance through your College Placement Office

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MAD . . .

(Continued from Page 1)

be required to find the average of a group of numbers. This is the everyday English statement of the problem. Then the algorithm will be as follows: "There are N numbers, A (1) to A (N). The sum is initially 0. Varying the index I from 1 to N, read the number A (I). Add A (I) to the sum of numbers. Then increase the index by one and repeat the addition process provided that the index does not exceed N. Whenever the index is greater than N, divide the sum by the value of N. Print the value of sum." The same problem expressed in the MAD language is as follows:

```
SUM = 0
DIMENSION A (N)
I = 1
ALPHA READ DATA A (I)
SUM = SUM + A (I)
WHENEVER I.E.N,
TRANSFER TO BETA
I = I + 1
TRANSFER TO ALPHA
BETA PRINT RESULTS SUM
INTEGER I, N
END OF PROGRAM
```

Of course, this program is very elementary. Actual programs are much more complicated.

Last term, the first homework assignment consisted of a sample card on which the values of A, B, C, D were supplied by the student. This assignment was intended to give the novice some practice with that formidable device, the IBM cardpunch. Subsequent assignments gave the student practice in writing programs, each program utilizing the last test wrinkle in technique just learned in class. For five assignments last term, the object of the program was to have the computer read in the latitudes and longitudes of certain given cities. The output consisted of an "AIRLINE DISTANCE TABLE." Each stage of the problem was more complex than the last, asking for a more complicated input and output.

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CAMPUS INTERVIEWS MARCH 13, 1967