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Buckminster Fuller Exhibit

— See Page 3



THE SCHOOL OF TECHNOLOGY

TECH NEWS

CITY COLLEGE OF NEW YORK

VOLUME XI — NUMBER 4

THURSDAY, NOVEMBER 12, 1959

222

BY STUDENT FEES

ASME Symposium Gives Career Tips

By HERB MISKA

One of the questions a Tech-man asks himself at one time or other during his undergraduate days is: "What am I likely to be doing out in the field once I graduate?" Last Thursday's ASME "Careers in Engineering" symposium provided some extremely interesting and authoritative answers to this question.

About 60 ME's listened to Prof. Steinhauser, Prof. Rothbart and Mr. Anderson of the ME department recount their widely different, yet all typical experiences.

Professor Steinhauser stressed the necessity of close cooperation between the design and production groups in an engineering firm. Only by this close working together can the final product be both functional and economically produced. Professor Steinhauser also found, that while working in engineering, one runs into totally new and different problems, which must be tackled by the application of other fields of learning. He mentioned that

(Continued on Page 5)

MICROCOSM

Those Tech societies and fraternities who wish to have their group photographs in this year's Microcosm are requested to send a representative to room 223 Finley for appointments.

The picture dates are December 3, 10 and January 7. Prices are fifteen dollars for a half page and thirty dollars for a full page.

Vector Doubles Selling Record

Trying to follow-up the November issue of Vector, the best selling issue in recent terms, with an even better number for January, has the staff of the College's engineering magazine already hard at work. A sales net of over 1100 more than doubled that of the last issue.

Credit for the extraordinary number of paying readers is attributed by the magazine to its "active publicity staff, and to TECH NEWS and Main Events. Vector feels that the help given by Campus and Observation Post was all too small in consideration of the great number of students interested in the magazine. (The two daily papers combined for a total of 4 column-inches this term.) Material for feature stories and boxes had been supplied the papers by the Vector staff. The editors are "considering contacting the fee commission because of the actions of the newspapers."

This week the sales staff is occupied with selling the "best of Vector." Surplus copies of past issues from 1955 through 1958 are offered, at two for a quarter, in Lincoln Corridor and Knittle Lounge. Experimental sale of these back numbers has indicated a "surprisingly great interest . . . and we hope to give lower classmen, and students who missed these issues, a chance to read them," according to the editors.

As for the January issue, the

ROTC DANCE

The Department of Military Science and Tactics is sponsoring a Military Ball, November 28, 1959. Tickets are \$5.50 per couple. The Ball will be held at the Sheraton Hilton Hotel, in Manhattan.

All Military Science students are invited. Lowerclassmen will be especially welcome.

feature articles include: the story, with drawings and pictures, of the double-decking of the George Washington bridge; a review of the rapid development of the oil industry, as it begins its second century; an article on "wash 'n wear" fabrics; "A comprehensive analysis of the differences, similarities, advantages and disadvantages of Chevrolet's Corvair, Ford's Falcon and Chrysler's Valiant"; a story on video tape; a continuation of the "Lab Close-Ups" series begun last March; the usual Vector departments, and a brand-new one called "Wheels," profiling the presidents of all the engineering societies at CCNY. At this point, the reader should be out of breath.

Leadership Program

The Technology Intersociety Interfraternity Council has begun planning a leadership training program. It is hoped that institution of such a program will solve the problem of continuity of leadership encountered by



Judy Perry, TIIC President

most Tech organizations each term.

A committee to study the feasibility of such a program and its possible aims was set up at the October 22 meeting of Council. Under the chairmanship of Rita Sher, Corresponding Secretary of TIIC, the committee advised institution of a plan whose goal would be to insure this reservoir of trained leaders through training in the mechanics of group organization.

At its October 29 session, (Continued on Page 7)

TIIC Sponsors Theatre Party

After it was discovered that having an Opera Party was impossible due to the lack of seats it was decided that TIIC should sponsor a Theater Party instead.

A block of 46 tickets for "Raisin in the Sun" has been purchased for the Theatre Party which will take place on Tuesday, December 29. On the basis of response received by the representatives of the various tech organizations it is expected that tickets will go very fast. The tickets sell for \$2.90 and will be on sale at Tech Crossroads on Fri., November 13, between 12-3 on a first come-first serve basis. If it is seen that there is enough demand there is a possibility that a second party will be planned for another night.

A number of other plays discussed included "Plume de Ma Tante" and "My Fair Lady," but "A Raisin in the Sun" was chosen for two reasons, one being Council's preference and because this was the play which (Continued on Page 7)

E-Day Chairman Announces Date

By RITA SCHER and CHARLOTTE SOLOMON

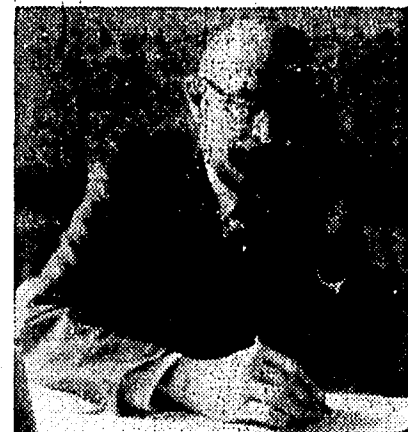
Some of the plans for E-Day 1960 have been announced by Mike Cook, E-Day Chairman. Mike Blum will be Co-ordinator, James Tarangelo will head the ChE Department and Daniel Schutzer will be in charge of the EE Department. The student chairmen for the other departments have not yet been chosen. The faculty committee has been announced: Prof. Meyers (ChE) will be chairman; other members are Prof. Lowen (ME), Prof. Hunt (EE), Prof. Pistrang (CE) and Prof. Codola (Drafting); Capt. Steidel will handle the Military Science Department.

The date has been definitely set for April 2, 1960. There is to be a policy meeting of the E-Day committee very shortly to discuss such issues as whether industry should be allowed to present displays, how publicity should be handled, etc. Mike Cook has done quite a bit to recommend him for the job of E-Day Chairman. While on TIIC, Mike was Corresponding Secretary and head of the publicity committee. As a member of Epsilon Nu Gamma he has been President and Membership Chairman, which indicates that he has leadership qualities and an ability to deal with people and organizational procedure. In addition he is a member of AICHE and House Plan.

In speaking of his present staff, Mike commented: "I feel that all the people who have volunteered thus far are imaginative, resourceful and industrious. Since this program is partially directed toward prospective CCNY Tech Students we will try to have exhibits which they will understand and which will interest them. We plan to have more charts, models and other visual exhibits which should help us toward this goal. We are considering obtaining literature from industry, so that

the demonstrations and displays will not be forgotten."

Mike Blum is E-Day Co-ordinator, a job which is comparable to being an assistant chairman. Mr. Blum has worked with



Dean William Allan

Mr. Cook on other projects, since they are in the same fraternity, and they work well together. Last term Mike Blum was part of the E-Day Ball committee and he has held many positions in his fraternity, ENG, which have familiarized him with the running of organizations.

James Tarangelo, who is in charge of the ChE Department, feels well qualified for the post. Mr. Tarangelo expressed his feeling that "the ChE Department" (Continued on Page 7)

AIEE-IRE Hold Summer Job Talk

The student branch of AIEE-IRE recently held a summer job symposium. Seven senior electrical engineering students told of their summer experiences. Following their talks, a question and answer period was held.

Phil Rubin, president of IRE, spoke about his summer at International Telephone and Telegraph Laboratories in Nutley, New Jersey. That branch of ITT does mostly military work. Phil worked in the Radio Communications laboratory.

Charles Atzenbak then related his experiences at the RCA labs in New York City. Charles spent

most of his time on design of modules used in the Ballistic Missiles Early Warning System (BMEWS).

The membership then heard from Morton Cohen, who worked in RCA's microwave tube division. Morty was a member of the engineering design group, and was occupied with the design and testing of travelling wave tubes.

Bob Kahn, who worked for the Servo Corporation, spoke about the design of infra-red detectors.

Ted Rosenberg, another EE (Continued on Page 5)

Engineering Societies Described Briefly Here

For the benefit of the many new students in the School of Technology and those who, although in attendance for some time, still are not acquainted with the many engineering organizations and societies on campus, we have compiled these short descriptions of Tech societies and fraternities.

Tau Beta Pi

Tau Beta Pi is an honorary Society whose membership includes those juniors and seniors from all branches of engineering whose scholastic and cultural abilities are of an outstanding nature.

The standards are:

- Seniors must be in the top fifth of their class.
- Juniors must be in the top eighth of their class.
- Adaptability.
- Breadth of interest.
- Integrity.
- Service to the school.
- Brotherhood.

The purpose of **Tau Beta Pi** is to keep up the cultural standards of engineers. Many talks are given by outstanding speakers in many fields.

Pi Tau Sigma

Pi Tau Sigma is a national honorary mechanical engineering fraternity. Membership is limited to the top quarter of the senior class and the top fifth of the upper junior class. Pledges are selected on the basis of scholastic average, sociability, and probable future success in mechanical engineering.

Each semester, an award of a Mark's Handbook is made to the student pledge who has made a definite contribution to mechanical engineering at City College. Lab insurance for the ME labs is also sold by this organization.

Eta Kappa Nu

Eta Kappa Nu is an honor-

ary society for electrical engineering students. Its purposes are to reward scholarship, contribute service to the school, and foster good student-faculty relationships in the EE department.

Requirements for admission state that upper juniors must be in the top eighth of their class, have a B plus overall average and a 1.2 index for at least eight credits of electrical engineering. Seniors must be in the upper third of their class and have a .8 index in their electrical engineering courses.

Activities indulged in by **Eta Kappa Nu** include a slide rule contest, the Outstanding Sophomore Award, senior photographs, and EE tutoring and slide rule instruction.

AIEE-IRE

The CCNY chapter of **AIEE-IRE** serves to acquaint the

electrical engineering student with what is going on in industry. This is done through lectures and literature mailed to its membership, and by occasional trips to laboratories in the New York City area.

Included among the speakers of the last few terms have been representatives of IBM, Zenith Radio and Chester Wheeling. This semester, a trip to an electronics concern is under discussion. The society meets in 306 Shepard, Thursdays at 12:30. Membership will be solicited in the EE labs as well as at the regular meetings.

ASME

The American Society of Mechanical Engineers sponsors a student branch here at CCNY. The purpose of this organization is to initiate undergraduates into the practices and developments in mechanical engineering.

This is done through lectures by men in industry, field trips and an annual paper contest where students may develop their ideas in definite projects.

ASME also offers to the stu-

dents use of the complete facilities of the Engineering Societies Library, papers which are printed by the society, and a monthly publication "Mechanical Engineers."

ASCE

ASCE is a professional Civil Engineering Society that maintains a student chapter here at CCNY. Lectures and movies form the main content of **ASCE** meetings.

AICHE

AICHE is another professional organization with a student branch at City College. Lectures on chemical engineering practice and opportunities are delivered at meetings, and movies are shown.

SAME

The Society of American Military Engineers combines aspects of both civilian and military engineering. The City College Post has as its membership students enrolled in the Military Science program. Everyone interested in engineering is eligible to become a member.

The activities in which **SAME** participates include lectures, field trips, films, a drill team and a rifle team which placed first in nationwide competition for the past two years. **SAME** has been awarded the Top Student Post award for the past three years.

Recent outings were to Fort Leonard Wood, Missouri; the Waterways Experiment Station at Vicksburg, Mississippi; and the White Sands Proving Grounds, New Mexico.

SWE

The Society of Women Engineers is an organization for woman members of the School of Technology. Films, lectures and other events compose their program.

TECH NEWS

TECH NEWS is the official newspaper of the School of Technology. All those desiring to write for a newspaper on campus are welcome to join the **TECH NEWS** staff. The **TECH NEWS** Office is located in room 335 Finley. Ask for Art.

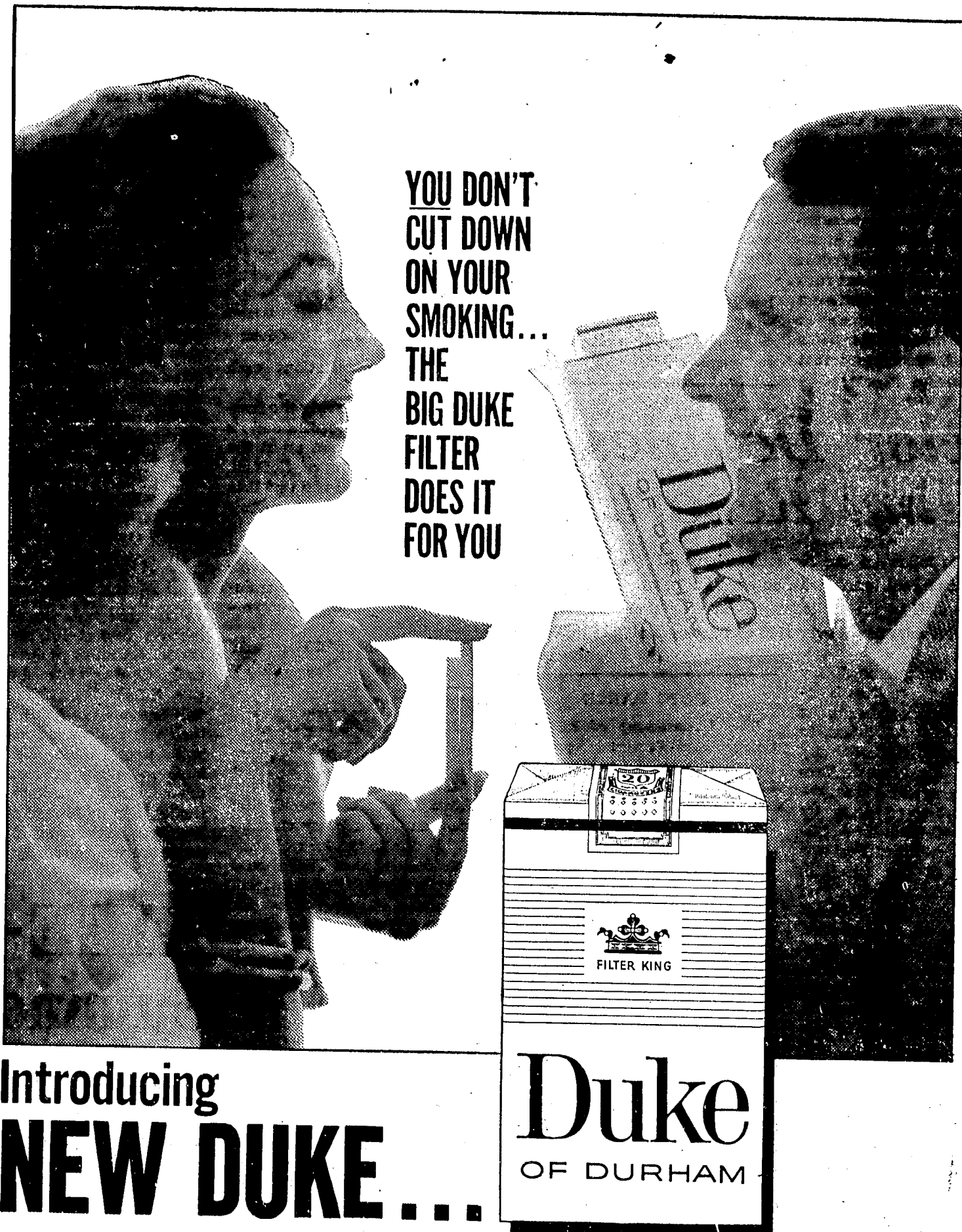
Student Council Makes Changes

This is the first of a series of two reports designed to inform the Technology students of the activities of Student Council which will pertain directly or indirectly to North Campus life.

The first half of the term has witnessed much legislation. Through the efforts of Jay Freeman, Tech. Rep. Class of 1960, Student Council and Dean Peace's compromising spirit, chess playing has been restored to Knittle Lounge during the hours of 12 to 2 p.m. Thursday.

Next term's voting procedures have been changed to insure voting only once and in the correct class. Last term Technology Representatives had to be appointed by Council and most of the Tech Reps elected by the student body ran unopposed. In response to this anaemic political interest in North Campus, the tech representative introduced a resolution, now in committee, to hold a political speech-making rally to stimulate campaigning on North Campus as well as the rest of the College.

Any student in Technology having suggestions for Student Council action please call DI 2-4219 any weekday evening and ask for Jay.



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Introducing NEW DUKE...

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King-Size in the filter where it matters most...
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Buckminster Fuller Show Combines Art, Engineering

An exhibition of three revolutionary structures is open to the public in the Museum of Modern Art outdoor exhibition area. Designed by Buckminster Fuller the three structures are: a 100 foot long space frame of aluminum anodized gold; a green plastic dome 55 feet in diameter, and a 40 foot high aluminum mast.

Models, photographs and drawings of Buckminster Fuller projects ranging from early house and car schemes to a recent proposal for a dome covering half of Manhattan will be on view in a first floor gallery of the Museum of Modern Art through November. These supplement the current outdoor display of three structures (which will remain on view throughout the winter), by the famous philosopher - mathematician - engineer.

These structures of unusual lightness, strength and beauty illustrate Mr. Fuller's patented construction ideas which are based on mathematical formulas and follow patterns found in nature to utilize in an unconventional way the forces of compression and tension on which all buildings depend. The application of his principles could lead to architecture of an entirely new appearance and character.

The space frame, contributed to the exhibition by Aluminum Limited, is a roof 100 feet long and 35 feet wide cantilevered 20 feet above the ground on a single support. It is made of 2,380 aluminum tubes fitted with cast aluminum connectors at both ends. Each tube and its connectors weigh only 3.7 pounds and can be handled by one man. The entire structure weighs 8,800 pounds and has a top surface area of 3,500 square feet.

Measuring from the center of the supporting tower, the roof cantilevers sixty feet toward the street and forty feet toward the wall of the garden. The base, running along the ground behind the tower, serves to balance the entire structure. Although it requires only shallow concrete pads on which to rest, it has been anchored to deep concrete foundations in accordance with New York City building codes. The entire structure has been anodized gold in order

to make it more easily seen against the background of city buildings.

Fuller calls the space frame an "Octet Truss" because it is constructed by arranging the aluminum tubes in a combination of eight-sided figures (octahedrons) and four-sided pyramids (tetrahedrons). Because of the three-way distribution of stresses, this method of construction is extraordinarily flexible. Additions can be made in many directions and supports can be placed almost at random instead of being regularly spaced as in conventional buildings.

The octet truss derives from geometric configurations Fuller believed were characteristic of those found in atomic structure. (Electron microscope photographs have since verified his conclusions.) The truss is composed of tetrahedrons with octahedrons between them, from which combination it derives its name "octet truss." These geometric figures disperse load pressures equally along three sets of parallel planes. Pressure applied at any one point is instantly distributed throughout the entire structure. It is this dispersal of forces which gives the structure its great strength. (See figure 1.)

The most immediately impressive aspect of the octet truss is its delicacy in relation to its size. When it is realized that the entire structure is made of aluminum and weighs only eight thousand pounds, the remarkable strength made possible by Fuller's engineering is more readily appreciated.

The aluminum struts used throughout are all of the same length. Three-pronged aluminum castings have been pressed into the tubes, and the castings are riveted to each other by means of a tool developed for the aircraft industry. Ease of assembly depends on the utmost precision of manufacture for all of the parts.

As demonstrated here, the octet truss is not an actual "building." Its structural principle can be used wherever it is necessary to make large uninterrupted roof-spans: concert halls, factories, museums, train sheds, airplane hangers. A greenhouse of similar design is now being built in St. Louis. The same configuration of tubes may also

be used, as they are here, for the supporting "columns," and the nature of the structural system suggests that we may ultimately learn how to "weave" enormous buildings that will differ in every way from what we now call architecture.

The dome, lent to the exhibition by Lincoln Laboratory, M.I.T. is the only one of the three structures on view which is an actual building. Called a Geodesic Rigid Radome, it is used to house radar equipment on the Distant Early Warning Line in the Arctic. It is made entirely of triangular shaped plastic "pie pans" bolted together on the site. (See figure 2.) Although each single pan is light enough to be handled by one man, and the entire structure

SAILBOAT DESIGNED
BY A FULLER
ASSOCIATE

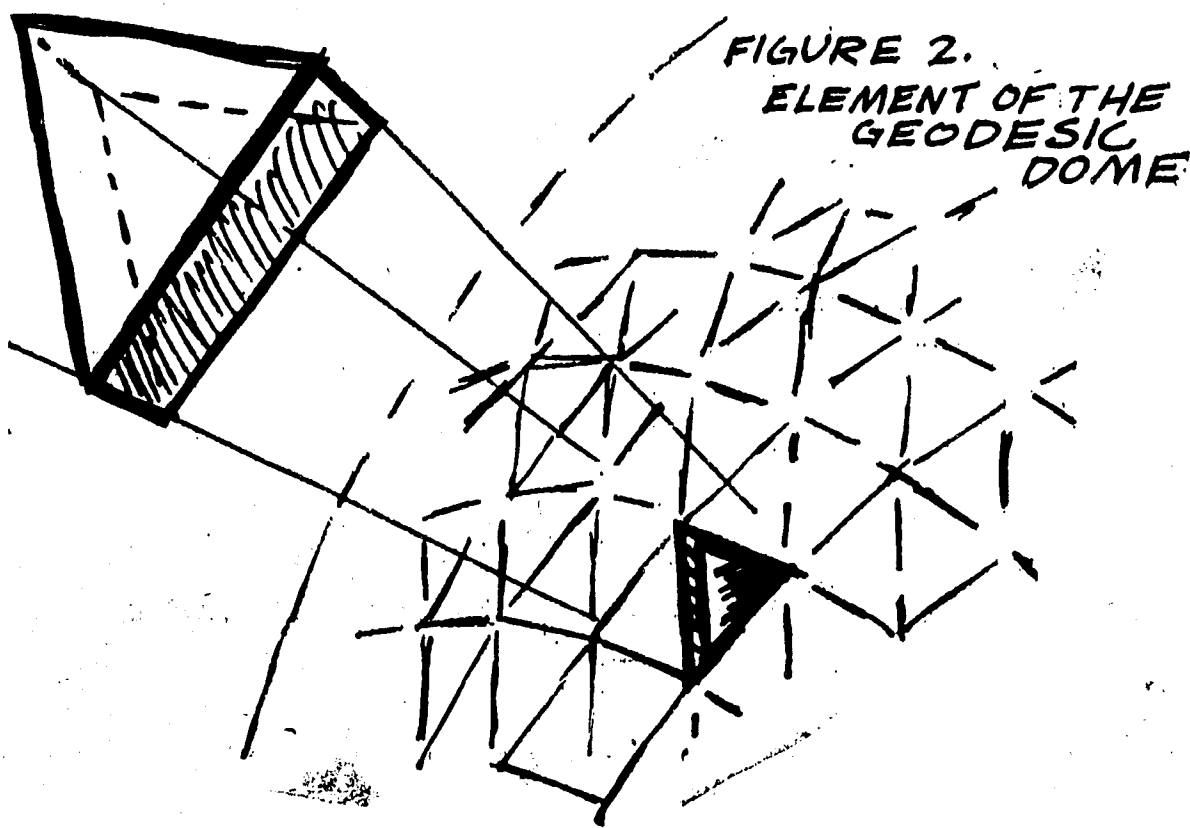
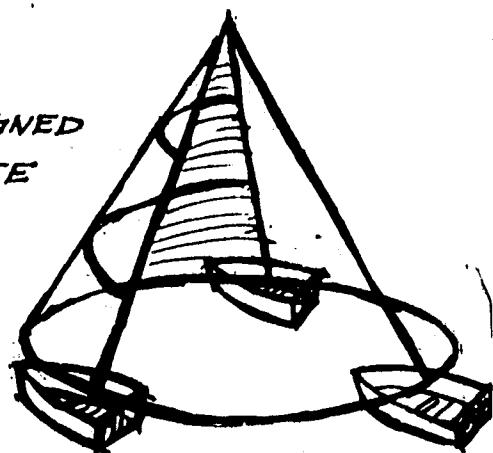


FIGURE 2.
ELEMENT OF THE
GEODESIC
DOME

has no other frame or support except the pans themselves, it can withstand winds in excess of 200 miles per hour.

The dome was one of the first of Fuller's innovations to be widely accepted. More than 1,000 Fuller domes, made of various materials and designed for many different purposes from tank car storage to auditoriums, are now scattered around the globe, including Russia where a Fuller dome was used to house the main section of the American Fair in Moscow.

The Rigid Radome is one of many geodesic domes designed

is an arc of a great circle (called a geodesic), all the force lines of the dome lie along great circles. This arrangement results in an equal distribution of stresses in all directions, balancing tension against compression. It also makes possible the use of light weight materials which in conventional structures would hardly be able to support their own weight. The thickness of the plastic wall on each of its triangular facets is approximately one-sixteenth of an inch. The rims (visible at the entrance and on the inside surface) are approximately one-fourth of an inch thick.

As with other Fuller domes, it is possible to assemble the entire structure, lift it off the ground by helicopter, and fly it to another site where it can be dropped in place. Because they enclose a maximum amount of space with a minimum surface, domes are the most economical shelters in terms of materials. Fuller domes are now in use as train sheds, exhibition halls, etc. They might also be adapted to make giant "houses" enclosing gardens and lakes. And, with variations of the structural principle Fuller has developed, domes might also be used to enclose whole cities on the earth or the moon.

The third structure in the exhibition is a mast built by Shoji Sadao and Edison Price, Inc. It is a beautiful web-like column of unprecedented strength in relation to its weight, which demonstrates Fuller's use of discontinuous-compression, continuous tension. He calls this a "Ten-

pression, we have all observed that steel is far stronger when used for its ability to resist a pull. (The tensile strength of steel is perhaps most familiar to us in suspension bridges, with their vast roadways hung from steel wires.) Since men began to build, the compressive strength of material has increased only very little, but tensile strength has been increased many thousands of times by the development of modern metal alloys.

Perhaps the most dramatic development to grow out of Fuller's theories is the discovery made by Kenneth Snelson, and analysed by Fuller as tension-integrity. Snelson discovered the principle in 1949, following his studies at Black Mountain College with Fuller. In the octet truss, one kind of structural member is used to handle both the forces of tension and compression. Tension-integrity describes a system in which tension and compression forces within the same structure are handled in different ways and with different materials.

The tensegrity mast made for the exhibition assigns compressive forces to aluminum tubes. The tubes separate thin wires of monel metal which are all in tension. The continuous pull of the wires is resisted by the isolated discontinuous tubes. The system is called tension-integrity, or tensegrity, because it uses compression discontinuously and tension continuously.

The mast as such has no practical purpose. In theory structures organized on this principle

(Continued on Page 7)

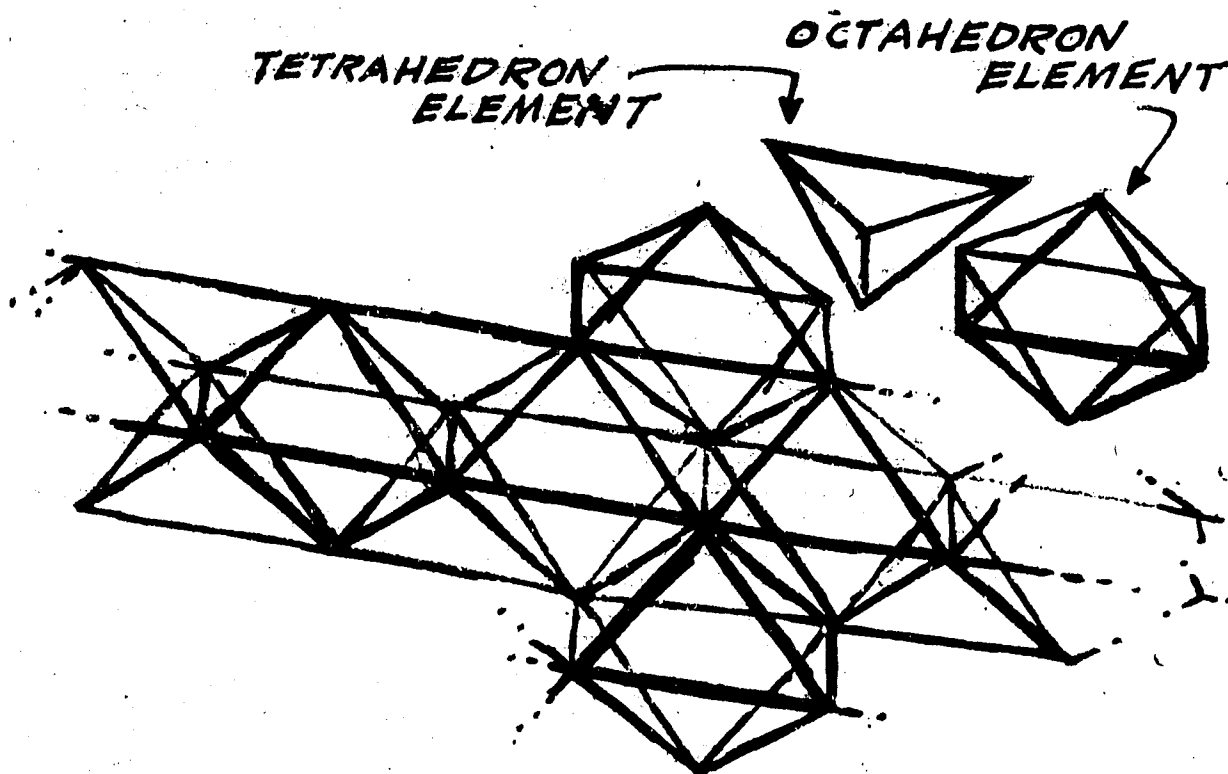


FIGURE 1.
ELEMENTS OF THE OCTET TRUSS.



TECH NEWS

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Leadership Training

The Technology Intersociety Interfraternity Council has recently embarked on a leadership training program. TIIC hopes that this program will remedy the unfortunate dearth of leaders faced by many Tech groups each semester. We are in sympathy with their aims. It is indeed unfortunate that toward the end of a semester many a chairman or president has felt that there were very few in his organization either willing or able to assume leadership during the following term.

While commending TIIC in its effort, we would hope that this program will not seek to develop an "exclusive corps of leaders." We hope that graduation from the contemplated leadership program will in no way be a prerequisite for the assumption of leadership in any organization on campus.

We feel that there is a definite place for a program that will encourage active participation in the many clubs and societies. A program that would teach the mechanics of group organization would certainly be valuable for an engineering student who one day may find himself in an administrative position in industry. A program that would explain the intricacies of Student Life, explain the various services Student Life provides and make clear the obligations of an organization on campus would certainly be helpful.

We will watch with great interest the development of this program remembering that in a truly democratic arrangement leadership comes from within and supposes that all of the members are fit to rule.

Excellent Example

Last term the Committee on Curriculum and Teaching of the School of Liberal Arts and Sciences adopted a plan for inviting several students to attend meetings and voice their opinions. This plan was put into practice three weeks ago, and has been enthusiastically endorsed by the six member students and their classmates. We see this as meeting a long-felt need, since it is the student body which must profit by or suffer under the rulings of such a faculty committee.

Moreover, we wonder if this commendable action will serve as an example to the administration of the School of Technology, for we are sure that there are among tech men those whose experiences and ideas would constitute a valuable contribution.

LETTERS

To the Editor:

I am writing this letter because of the recent refusal of TIIC to co-sponsor a program with the Committee for a Sane Nuclear Policy (SANE). The reason for this decision by TIIC (as reported in last week's Tech News) was the inadvisability of association with a controversial organization for fear of endangering future jobs in government projects. Although I am not myself a member of either organization, I find myself intrigued by the situation.

Our country has achieved its current place in the world not only by dint of great technological advances but also because of the freedoms which we have maintained. One of these freedoms is the freedom to express and discuss controversial ideas. If we are to remain the hope of the free world, we must protect these freedoms.

Evidently, the members of TIIC feel that they do not have the freedom to discuss controversial ideas. I cannot seriously blame them for protecting their futures. I can only blame the conditions that force them to choose between security and freedom in a country where the two have always gone together. One might think that the spirit of the late junior senator from Wisconsin is still hovering over us, for if free speech without penalty of loss of future security is not to be found at the colleges and universities of our nation, where then can we find it?

Perhaps this is the very reason for the decrease of engineering participation in most of our extra-curricular activities since the early '50's. Surely this is the reason why engineers and science majors refuse to sign anything.

Is this a portent of things to come? Perhaps we may see the day when the Tech Building is surrounded by a deep moat and a wall of T-Squares, Slide Rules, Voltmeters and Vacuum Tubes. Our scientific minds can thus be kept pure and unsullied, untouched by controversy and also, I might add, by humanity. Thus, they can be sure of government jobs and security clearance.

I can only hope that some day, at this college and everywhere, scientists, engineers and everyone else will be free to debate and discuss all ideas of importance to mankind without fear of any kind. Then, scientists and engineers will become citizens and human beings, and the non-scientific world will be able to understand the scientist as a man.

Very truly yours,
Nels Grumer '60

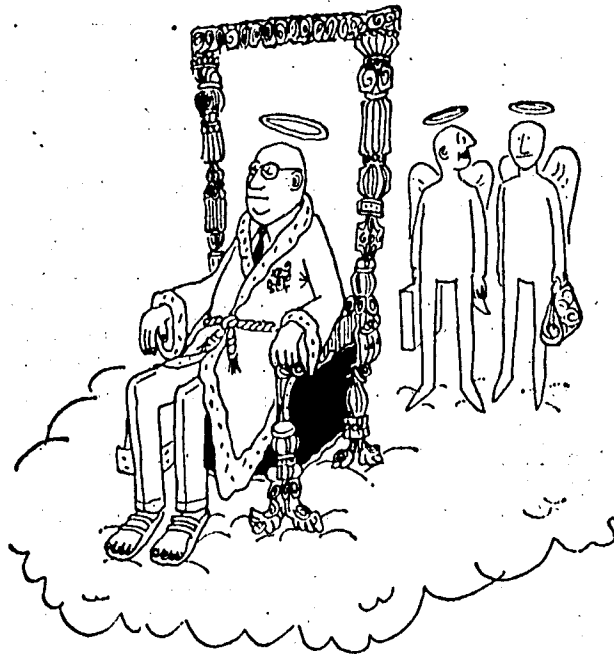
Debaters Win

The CCNY Debating Society, in a contest at Brown University, has made a clean sweep of their debates, according to Prof. Nicholas (Speech), faculty advisor to the Debating Society.

Winning all eight rounds of the event, our team emerged with the winner's trophy.

Attention members of TECH NEWS Staff. There will be a general meeting of all staff members on Thursday, Nov. 19.

PURDUE RIVET



"I'll be... Professor Jones IS God."

Vector Review

By HOWARD WHITE

Buy VECTOR! For the first time in five terms, I can, with a clear conscience recommend that every student buy Vector. Although far from perfect, I find Vector's new look refreshing and interesting.

Beginning with an outstanding, observant editorial the magazine is interesting reading throughout.

Although many of the features are delightfully technical they are written so that they can be understood by all classmates, including lowertermers. To select the technical article I enjoyed most would be unfair to the others.

Perhaps **Lubrication: Water Vs Oil** is the best example of 'good' tech writing. The only fault I can find with this article is that a bibliography was not included, so that the reader can find more about the subject.

Tactical Air Navigation should be of interest to all engineers. I cannot figure out why the author seems so apologetic when presenting a formula.

Spotlight on Soviet Technology, is written in a tongue in cheek manner, presenting information which many of us were aware of, but are willing to reread because of the style it is presented in.

More Soap in Your Soap, despite its paraphrasing of a commercial for its title is interesting and informative to this reader.

For satire, an article called **Engineering Lab Mathematics** has been included. Although it is not **Mercury** material, it is cute. It perhaps makes up in part for the **Stolen Stuff** which was not worth stealing.

The most outstanding feature in this issue is the section called **Faculty Profiles**. The editors are to be congratulated on their excellent choice of those to be profiled.

The mechanics of the issue leave much to be desired. The cover, although eye-catching, can be improved. The authors' pictures should be placed with the articles, and bibliographies should be included with every article.

To summarize, I risk being called repetitive when I congratulate the editors on a step in the right direction, and advise you, the student body, to buy the magazine.

Tech Societies Meet

AMERICAN SOCIETY OF CIVIL ENGINEERS

Members and guests of ASCE are looking forward to the semi-annual Induction Dinner and Dance to be held in the Grand Ballroom of the Finley Student Center this Friday night.

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS — INSTITUTE OF RADIO ENGINEERS

Last Thursday, in S306, Mr. Don LeVine of the I. T. & T. Labs, lectured the members and guests on the topic "Microwave Techniques." Evidently, the large attendance at the meeting indicates an interest in that phase of Electrical Engineering on the part of the EE student body.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Thursday, in room S200, Mr. Broadfoot of Remington Rand will address those persons in attendance on the subject "Introduction to Computers." Recently, science and engineering authorities have expressed an opinion that the types of engineering (e.g. electrical, mechanical, etc.) are becoming closer together, and, that engineers of one type will have to have more than a surface knowledge of the applied principles of another type of engineering. Therefore, attending this meeting should prove to be profitable to students of any of the four types of engineering at the College.

SOCIETY OF AMERICAN MILITARY ENGINEERS

Tomorrow afternoon, at Randalls Island, the pledges of the SAME will try to achieve their second consecutive upset victory over the SAME members in the American version of football. The members have been established as 14 point favorites for the contest.

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TECH LIFE

By MARK LEEDS

"ADVICE TO A YOUNG MAN"

ACT I

SCENE I: The Curricular Guidance Office of an American High School;

Present: One Guidance Counselor, seated.

Enter: Student.

d. Coun.: Good morning. Please sit down. Now, what's on your mind?

Student: As you probably know, I'm graduating high school next term. I'm planning to go on to college, but I'm not quite sure as to what course of study I should pursue. I figured that you might help me come to a decision.

d. Coun.: Oh, that's right! You are graduating. I thought that you were just completing your second year of study. But, then, I see so many of our students that I couldn't even hope to recognize them on sight, let alone know their class.

Many of your classmates have come to me with the same problem. I'm sure that we'll be able to come up with a solution.

Now, let's see. According to my records, you've studied under an Academic Course . . . and, as of last June, you've compiled an overall average of 86.4. Hmm, I see that your highest grades have come in the mathematical and science areas. You've achieved over a 92 average in those subjects. Oh, what's this? Straight 65s in foreign language?

Student: Pardon me for interrupting you Mr. Brothers, but I do wish to bring out the fact that at the present time, I am leaning towards those fields as a course of study in college. I've always enjoyed taking math. The science courses never failed to arouse my curiosity and to hold my interest. And physics was, well, intriguing. In fact, it was the physics course that led me to consider science as a possible career. I did very well in it and what's more, it fascinated me more than any other subject I had ever taken.

My parents had always expressed a desire for me to become some sort of professional, although, they had always maintained that I'd be a doctor or a lawyer. When I first informed them of my interest in science, they tried to discourage me from enrolling for that course of study in college. But, as of late, they no longer insist that I study law or medicine. In fact, my parents now seem to be pushing me towards the study of engineering in college.

d. Coun.: Your parents are absolutely right! Parents should encourage their sons and daughters to study those subjects in college that they have an aptitude for and an interest in. If a greater number of our students would heed their parents' advice, my job would be made so much easier. Now look. You've done very well in the math and science courses you've taken. Also, you've openly expressed an interest in those fields. Therefore you should study engineering in college.

Why, did you know that engineers have very high starting salaries?

In addition, the engineering profession is very stable, financially rewarding, a challenge to the mind, and more. Also, the country needs engineers desperately. Right now, we only have about 60% of the engineers that we need. The employment opportunities for engineers are fabulous. As an engineer you will be concerned with the study and use of Nature, scientific principles, and technological revelations in an effort to improve human progress.

Yes, by all means, you should study engineering!

Student: Gee, engineering appears to be a wonderful profession. You have shown me that it offers all that I could possibly want as a career. I think you're right. I will study engineering at college. Thank you very much for your time and advice, Dr. Brothers.

d. Coun.: You're very welcome. Drop in and see me again next week and I'll go over the choice of an engineering college with you. It's been a pleasure talking with you and I'm very glad that I've been of some help. Good-bye.

SCENE II: The corridor, just outside the Curricular Guidance Office.

Present, our student just leaving the office.

Enter, second student.

Second Student: Well, was Dr. Brothers of any help?

Student: He sure was. He convinced me that I should study engineering at college. He pointed out that since my interests and high performances lie in the math and science areas, that this was an indication that I'd be best suited to study engineering at college. Well, I've got to be going now. Be seeing you.

Second Student: (to himself) Hmm, if math and science are his academic forte and major interests, I wonder why Dr. Brothers didn't tell him to study math or science??? Hmmm.

THE END

On Wednesday, the 28th of October, at about 5:15 p.m., a crowd of about 200 persons had gathered on the corner of Convent Avenue and 141st Street. Above, what appeared to be a flying saucer, was hovering over the city. That is to say, an object, of about foot largest dimension, with an elliptical periphery in which was embedded a conglomeration of lights, was traveling in a zig-zag motion, often seeming to stop in mid-air and there remain. This was holding the attention of the crowd, which looked on, agog, fascinated, spellbound.

My first reaction to the thing was how was it possible for any object of a non-identifiable nature to enter into our hemisphere without getting detected and investigated by SAC or some other agency. Then, since part of its path was over the College, I began

to say to myself, "What would the better technical minds (the top personnel of the engineering and science depts.) in the vicinity of the College, say, if they were witnessing this object which had mystified the crowd." As far as I could determine, all of the persons in the crowd were students, passerbys, and non-technical faculty members, and what came from their lips was nothing of an astonishing, revealing, deep or technically significant nature.

The next day I told the incident to one of the well-known professors of the School of Technology and asked him, "What would one of the better minds in Tech say if he were watching this alleged flying saucer in the sky?"

The professor replied, "What would one of the tech instructors say if he was watching this object?" He would say, "Look at the Flying Saucer, that's what he would say."

ASME Symposium

(Continued from Page 1)

in the course of designing aircraft guidance instruments a knowledge of not only mechanics and materials was needed, but also of optics, a field not usually associated with mechanical engineering.

Professor Rothbart whose specialty is machine design, stated that this very broad field presents two basic types of problems, namely: 1. The machine exists and must be made to perform its function, or 2. The machine must be made. "The problem," the professor went on, "is to understand the problem." In real engineering one will find the answer neither on the sliderule nor in the textbook. Professor Rothbart said that as soon as preliminary design is made, a model of the machine should be built and tested. If it performs properly on the first test, it can be considered a miracle and the designer a genius. If it doesn't function, a much more likely state of affairs, the designer must determine why it doesn't. A good background in the study of materials is vital here.

Mr. Anderson, a newcomer to the M.E. faculty, has wide experience in the field of applied research and development. He found that companies hiring engineering graduates feel that an

engineering degree means that one should be able to apply scientific reasoning not only to one's own field, but also to others.

A very important point that Mr. Anderson brought up is that a scientist and an engineer both search for answers. The scientist, although he might be glad if he occasionally found an answer, could just as well spend his lifetime searching for and not finding an answer. An engineer must get the answer! Even if only the barest minimum is known about the problem, it must be solved. This means intelligent guesses and complex computing equipment play an important role in modern engineering.

It was appropriate for this excellent program to have ended on the note of computers, because next in this term's series of ASME lectures comes a talk by Mr. Broadfoot, of Remington Rand Univac, on just that subject. November 12 is the date for this meeting.

A. S. M. E.

Program For Fall 1959 Term.

Nov. 12 — Mr. Broadfoot of Remington Rand Univac will introduce us to computers.

Nov. 19 — Film.

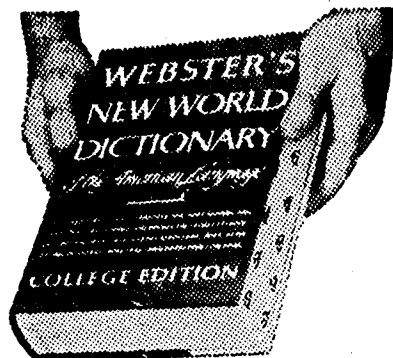
Dec. 3 — "Patent Law" Speaker from Patent Office. Combined meeting with Ch.E.'s.

Dec. 10 — Automotive and Sportscar meeting.

Dec. 17 — Elections.

Jan. — Study for finals.

Plant trip to IBM in Poughkeepsie, N. Y. is being planned.



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Some Unlisted Interviews

The following is a list of companies who will visit campus and are not listed on the schedule presented to seniors at the Placement Office orientation session.

Co. No.	Name of Co.	Visit Date	Sched. Opens	1st Choice	Degrees	Locations	Notes
84	Saunders Associates	11/25	11/11	11/6	EE, ME, Phy, Math	Nashua, New Hampshire	Des, D&V Research
85	American Cable & Radio Corp.	11/30	11/16	11/11	EE	NYC, Possible Overseas	
86	Sloan Kettering Institute-Walker Lab	12/1	11/17	11/12	Chem Bio, Phy	Man. & Rye NY	Laboratory participation in medical research (cancer)
87	Cal. State Personnel Board	11/16	11/2	10/28	CE	Calif	Mainly Dept. of water resources

... AIEE

(Continued from Page 1)

student, passed the hot summer days designing transistor circuitry.

Intercontinental Electronics employed Sy Kaufman this summer in their Mineola laboratories. This firm develops radar for commercial airports.

Al Goodman ended the talks by telling of his work at Western Electric as an equipment engineer.

At the conclusion of the speeches, a question and answer session was held.

AIEE — IRE FALL 1959 SCHEDULE

- Oct. 1—Organization Meeting (Officers)
- 8—Speeches by Profs. Taub, Wolf, Hansteen, Hunt
- 15—Films (Antennas, Radio receivers, CRT's)
- 22—Organization Meeting (Officers)
- 29—Job Symposium
- Nov. 5—IT&T "Microwave Techniques" Mr. Don Levine
- 19—IBM — "Servomechanisms and Analog Computers"
- Dec. 3—Delco Radio — "Transistor Fundamentals"
- 10—Prof. Zambuto — "Color Perception & Techniques"
- 17—RCA — "Information Storage — Principles and Devices"
- Jan. 7—Elections (Picture for yearbook)
- 25—Smoker

... Martini

(Continued from Page 6)

chine would suit the customers particular needs. In other words, this report is designed to sell ideas. Prof. Avallone is therefore very harsh in marking the spelling and grammar of these reports for he feels that it is an insult to the reader if these details are overlooked.

"In the solution of these problems the student must use all the undergraduate curriculum," Professor Avallone stated. For example, if a student wants to use a servo-mechanism or small electric motor, his EE courses will come in handy; or a problem may arise which can be solved by the methods learned in physics. All information and experiences from any source, plus his own imagination are applied to the project by the student.

Martini, Wet or Dry? ME 234 Studies Problem

By RITA SCHER

It can truly be said that the martini is one of today's most popular drinks. This is probably the reason why the students of Prof. Eugene Avallone's ME 234 class designed a vending machine which dispenses martinis.

The machine will mix a martini in any ratio between 1:1 and 1:12 and serve it with an olive in a stem glass. It receives coinage in quarters and sends back the correct change according to the mix selected. The device is similar to the Sunoco gasoline pump which mixes the gasoline in various octanes and the price per gallon registers in accordance with the octane you have selected.

A number of interesting problems arose in the design of this machine. The first was concerned with the actual mixing of the drink. Ordinarily a martini, which is made up of vermouth and gin, is chilled by adding ice. The ice melting dilutes the drink. The problem which arose was whether the ingredients should be chilled by refrigeration and then diluted or should they be chilled by the addition of ice.

Another problem which arose had to do with the embellishment of the drink, the olive. It seems olives must be kept in a weak brine in order that they be fresh, for nothing ruins a good martini like a salty olive. The designers had to find some way of washing them before they were added to the drink.

Some of the other problems which arose in the design process are: getting the olive into the glass without splashing; what to do with dirty glasses; whether the incidence of slugs

The Backgammon Society will hold an organizational meeting today in room 335 Finley. The Society, formed to advance interest in this ancient game of kings, scholars and good fellows everywhere, will welcome all experienced players and those who wish to learn.

Proposed future events include a backgammon tournament and New Year's Outing. Those who have boards, pieces and dice are requested to bring them to the meeting.

would be high enough to add a screening device.

While the primary purpose of ME 234 is to teach machine design, it also tries to give the student some idea of how he might be working when he graduates. Therefore projects are done under simulated job conditions. The student is assigned a problem such as a design engineer might receive. He works with three or four others to set up and design the machine. About 36 work hours are required to do the job but half of them are spent in school.

A report is then written up by the group describing the machine and including neat sketches. The purpose of the report is to present the basic design ideas as they might be presented to a customer. The report should show how the ma-

(Continued on Page 5)

Four New EE Instructors Introduced to Tech Students

By TED SEMEGHAN and
STEVE MAYBAR

Since the advent of the new term, nine instructors have joined the Electrical Engineering staff. In the October 7 issue of TECH NEWS, four of these were interviewed. In the following paragraphs, the remainder of the newcomers will be introduced to you.

Sidney Orback, one of the recent City College graduates among the new instructors, received his BEE in 1959. This soft-spoken young man was born in Poland. He then traveled to Russia and during World War II was sent to Siberia. After the war he immigrated to Poland and then to Germany, where he began his education. In 1949 he again immigrated, but this time to the United States.

In January 1955, he started his undergraduate work at CCNY. At the present time, he is taking his Masters in Electrical Engineering at Columbia. Mr. Orback enjoys teaching. While a student in City College, he founded Compton '59 in the House Plan Organization. He is now acting as faculty advisor to the Union of Orthodox Jewish Scientists.

Another new instructor, Joseph Sigona, graduated from Cooper Union with a BEE degree, and has received a M. S. from Columbia. At Cooper Union he received the Emil Schweinberg Scholarship. At Columbia he was a teaching assistant. This amiable young instructor worked for Sperry Gyroscope as an assistant engineer

where he designed a transistor servo-amplifiers and worked with digital computers.

Mr. Sigona was married on August 17. His hobbies include Israeli Folk and square dancing. At Cooper Union he was a member of the Rifle and Sailing teams. Mr. Sigona says he would like to make teaching his life's work.

Mohammed Adibi received degrees from two colleges in two different foreign countries and

The Peretz Society will hold a meeting in room 305 Finley today at 12:30. All those interested in Yiddish language and literature are invited to attend.

Today's program will include a lecture by President Jack Weisman. Records will also be played, and future activities will be planned. The lecture will be in English.

is now doing graduate work in the United States. Mr. Adibi was born in the city of Isfahan in Iran. He received a B. S. in 1946 at Adaban Technical Institute in Iran. He then earned a fellowship to study Electrical Engineering at Birmingham University where he obtained a BSEE. He is now doing graduate work at Brooklyn Poly Tech in high frequency transmission. Mr. Adibi has worked for General Electric in Birmingham England, and for several Iranian companies as well as EBASCO International Co. At EBASCO he was an electrical planning engineer. Mr. Adiban is married. This congenial instructor is very enthusiastic about teaching.

George Aklu was Dean's List at Manhattan College where he obtained a B.S. He was also a member of Pi. He then received a B.S. from Brooklyn Polytechnic. Mr. Aklu has taught at Manhattan and Brooklyn Technic Institute. He worked for Mergenthaler Linotype where he designed mechanical and electrical devices. He worked for Bogue Electric where he designed electrical machinery.

Mars?

Want a free trip to Mars? Directomat machine Times Square subway is offering one.

Anyone who can picture Martian origin and want to turn to his native planet provided with free transportation by writing the Embassy, 510 Madison

This address turns out the offices of the Directomat Company, designers of the machine from which the paper was obtained.

The trip to Mars, according to Dr. Max Tamir, inventor of Directomat, is offered as a public service to help the populace of New York City better acquainted with our far neighbor.

Although most of the time Mr. Tamir has received been from obvious interest. Many are coded in, as evidence of the

(Continued on Page 5)

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ar repair center and an
ic center. The proposed
ic center is a 650 foot di-
r dome covering a football
a basketball court, a track,
eball diamond, a hockey
a stadium and service fa-
s. The dome, represented
e model by clear plastic,
actually be made of a
frame with plastic panels.
eral diagrammatic models il-
ting various structural sys-
developed by Fuller and
udents are also exhibited.
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grity mast similar to the
t high structure in the Mu-
Garden but more dramatic
demonstration of the struc-
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early Fuller house, shown
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Collection of the Museum,
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ed Dymaxion car, shown
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The disposal cardboard
used by the Marine Corp.,
alled the first advance in
design in 2,600 years is also
n a photograph.
exhibition was selected by
r Drexler, Director, and
r Green, Assistant Direc-
the Museum's Department
chitecture and Design. Mr.
designed the installation.

Mars?
Continued from Page 6)
an derivation, some trinket
mento of the Red Planet.
all of the letters have
from persons claiming
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n by the president of the
s Society and Editor of the
es Revue here at the Col-
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e offer and requested more
nation about the current
of Martian science and
ology.
Other letter, from a doctor,
ned that, although he was
Martian, he was certainly
ual of any Martian in in-
ence and social grace, and,
tired of Earth, would like
re to Mars to live.

Plans for E-Day

(Continued from Page 1)

ment will have the finest display of E-Day." Some of his plans include more action displays such as: polymerization reactions, fluidized beds, and possible glass models which show the operation of bubble cap and packed towers. Mr. Tarangelo has had considerable organizational experience. This term he was Chairman of the Freshman Orientation committee for TIIC, and in the past he has been Pledge Co-ordinator for his fraternity, Alpha Phi Delta, and is a member of the Newman Club and AICHE. During last term's E-Day he was a demonstrator in the Metallurgy Lab.

The chairman of the EE Department, Daniel Schutzer, has a few ideas on how to make E-Day a well organized function. While he has not announced specific plans, in general the displays will show the advancements in the EE field. Some exhibits which were in last year's display will be used, but there will be a considerable amount of new ones. Danny feels that he knows enough students through his organizations to get the best people available. Some of these organizations include AIEE-IRE, Eta Kappa Nu and Tau Beta Pi.

This term Danny is recording secretary of TIIC and during last term's E-Day demonstrated magnetic amplifiers and stroboscopic effect in the Power Lab. In commenting on E-Day Danny said, "I feel that E-Day is important since the attractiveness of the exhibits will sway the impressionable high school student into the technology field. I know how the EE Department should be run for E-Day and have some specific ideas on what should be done. I would rather keep what is to be done a mystery since it will be much more exciting that way."

Honor Students

Each semester, the engineering honor societies select members from the School of Technology to pledge their organizations on the basis of scholarship and school service.

Eta Kappa Nu is proud to announce the selection of the following EE's as pledges:
Upper Seniors: Woinsky, Melvin; Cosentino, Louis; Webber, Gilbert; Felcheck, Marvin; Gil, Ramon; Prestianni, Vincent.
Lower Seniors: Swartz, Jerome; James, Alexander; Jeruchim, Michel; Halpern, Gerald; Silver, Howard; Markard, Edgar.
Upper Juniors: Benton, John; McKenna, Donald; Lueng, David; Boros, Paul.
Night Session: Wolf, Moses.
Pi Tau Sigma welcomes as pledges the following Mechanical Engineering students:
Abramowitz, Richard; Dankowsky, Edward; Exter, Allan; Fein, Stanley; Fleisher, Henry; Goobich, Bernard; Kopelman, Gerald; Rathjen, Kenneth; Rubel, Arthur; Sarrett, Howard; Zipin, Richard.

SPORTOPICS

By DAVE FELLER

What is the mystery behind the absence of the engineering societies at their scheduled basketball games. Could possible answers be misplaced T-squares, a subway strike or broken slide rules? Of course, complete indifference on the part of the engineers must be ruled out for we naturally assume that intelligent college students can present themselves when required. One simplifying factor in this mystery is the appearance of A.S.C.E. Now answers need only be found for the other societies.

The first game on the TIIC schedule was A.S.C.E. vs. A.S.M.E. At game time A.S.C.E. presented a strong contingent to meet all comers, but there wasn't another team to be found. The gym was completely lacking in M.E.'s. The C.E.'s, who didn't seem to be upset, divided themselves and played their own game. It was a very practical maneuver since the society couldn't lose.

The second game proved to be quite unusual. Unfortunately neither society, A.I.E.E. nor A. I. Ch. E., fielded a team. It doesn't seem possible to me to play a game without teams. Taking this into consideration no attempt was made to start the game. The few who did come no doubt weren't too pleased with the incident and probably switched to Civil Engineering, anticipating next term's schedule.

Also absent was the TIIC Sports Co-ordinator, Richard Juliano. Does Mr. Juliano expect to have these games played properly without the proper officials present? Is it his assumption that the Wingate Gym has a Guiding Spirit to see that all games are organized correctly? Perhaps all the happenings of the last two Thursdays could have been avoided if Mr. Juliano had done a proper job.

Leadership

(Continued from Page 1)

TIIC voted to begin work on the details of operation of such a group. The committee, in conjunction with Mr. Sarfaty (DS-PS), is presently compiling data on the operation of student organizations here at the College and making a comparison of similar leadership training plans at other institutions.

Any training sessions decided upon by the committee must be approved by the full Council to be effective. Other details which must be decided by Council include selection of candidates for the program, and duration of the training course.

Theatre Party

(Continued from Page 1)

involved the least amount of difficulty in obtaining tickets. The Opera Party has not fizzled out altogether. TIIC now is a member of the Metropolitan Opera Guild and tickets for most performances are available to all students in the Tech school, ten days in advance. Through the Guild, TIIC can obtain tickets, Dress Circle and above, at a 20% discount; all other seats at full price. In addition, the bother of going to the Met for tickets personally is avoided. For further information as to prices and seats consult the TIIC bulletin board at Tech Crossroads.

Seniors—find out what Kearfott's flexible training program offers You

Check the experiences of four '59 graduates at Kearfott



JAMES KEATING
Villanova University '59



LENNART G. JOHANSSON
Lafayette College '59



STANLEY WALLERSTEIN
Ohio University '59



GARY WOERNER
Newark College of Engineering '59

Not at all sure of the area of engineering (development, design, test, manufacturing) which would interest him most, Jim has been most impressed by the way Kearfott Project Engineers STAY WITH A PROJECT from study phase right through to production, assuming full technical and financial responsibility for the quality and salability (price-wise) of the finished hardware. He finds that this Kearfott philosophy enables him to operate across the broad spectrum of engineering.*** Coming from out-of-town, Jim was also pleasantly surprised by the wide choice of living quarters readily available.

The very advanced nature of many Kearfott projects fired this engineer's imagination. He joined the Electronics Systems Lab, where he worked on the development of a tiny counter—part of what is believed to be the most accurate test equipment yet devised for missile guidance systems. After exposure to the diversity of the projects in the Systems Lab, Stan has decided to look no further, but requested permanent assignment here, where work ranges over space navigation, digital computers, guidance systems, solid state physics, industrial automation systems and diverse electronic systems.

Len is pleased with his six months' experience at Kearfott on two widely different counts. First is the combination of both theoretical and practical know-how he has gained in a field that has fascinated him for a long time—transistor applications. The other is Kearfott's location. Finding midtown New York only 40 minutes away by car, Len, a veteran, is planning to continue his studies for an MS at one of the many colleges in the New York/New Jersey area: Columbia, N.Y.U., Stevens, Newark College of Engineering are all close by. This semester, Len has enrolled for two Kearfott sponsored courses taught at the plant.

Gary has worked by choice in two Laboratories since he joined Kearfott last June—Astronautics and Electronics. He values the opportunity he had to work in direct contact with senior engineers and scientists who have played a leading role in developing the Kearfott inertial systems and components which have been selected for application in over 80 aircraft and 16 major missile systems. Gary now leans to the choice of a permanent assignment in the Electronics Lab but has decided to work a few months in the advanced Gyrodynamics Division, before coming to a decision.



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