



Physicists Lectured On Pi-Zero Meson

Last Thursday the Physics department was fortunate to present Professor Snowden Taylor of Stevens Institute at their weekly colloquy. His lecture topic was "The Lifetime of the Pi Zero Meson." These lectures, which are of a highly technical nature, have been given since the Physics Department began offering a Master's Degree. While it is recommended that advanced students and students who have interests in the lecture topic attend these discussions, it is also strongly recommended that lowerclassmen shy away because of the highly technical lecture subjects.

There are essentially three types of Pi Mesons; the Pi-Plus, Pi-Minus, and Pi-Zero Meson, all of which have approximately 270 times the mass of an electron. The lifetime of the Pi-Zero Meson can be measured by an elementary technique. Since one can readily measure the energy associated with the Pi-Zero Meson, and since one knows the mass of the Pi-Zero Meson, one can readily calculate the velocity of the particle. If the distance that the particle travels could

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Tech Council To Act on NC Cafeteria

By HERB GELLER

Technology Council, at its meeting on Thursday, October 4, discussed the situation in the North Campus Cafeteria. Among the more frequently heard complaints is the fact that there is no space to store wet raincoats or books while eating, and some of the delegates felt that the rules are too stringent.

A motion was passed by acclamation asking for the placement of a box outside of the North Campus Cafeteria, in which suggestions to improve cafeteria and lounge conditions can be placed. The box will be placed outside of the Cafeteria this week, along with a supply of paper for students to write their suggestions on.

Two sites for lounges were discussed by the Council. One of these is the lobby of Steinman Hall, which would make an ideal lounge. The other is the ROTC supply room in Shepard Hall, if it is not used for a Computer Complex. Martin Kaufman '65 was suspended from membership on the lounge committee because of his injudicious handling of the campaign to provide more lounge space for North Campus.

Technology Council still does not have a Corresponding Secretary, and any student who would like to serve the Council in this position is requested to leave his name in the Tech Council mailbox. A meeting will be held on Thursday, October 18, and any interested student is invited to attend.

SAB Forms Newspaper

By S. S. EIFERMAN

This year a new newspaper is to make its appearance before the Student Body. This newspaper will be devoted to publishing the activities of the clubs and organizations on the campus.

The newspaper is the Student Activities Board Newspaper which is provided for in the constitution and by-laws of the Student Activities Board. It is composed of nine editors, one from each of the nine federations belonging to the Student Activities Board, and a staff recruited from the Student Body. The nine editors, who will run the newspaper, will get their news from the organizations in their federations and will coordinate this information into one paper. The newspaper has a mailbox in room 152 Finley which will be used to gather information for the newspaper through correspondence with the many organizations on campus.

The Student Activities Board Newspaper will be published weekly, giving a calendar of all regular meetings of organizations and any special program that may be planned for that week. The newspaper will be designed to attract outside attendance for the campus organizations.

The newspaper is well on its way even though it does not at present have an editor-in-chief, which will be elected from one of the nine federation editors. The editors that have been already elected from their federations had their first meeting on Wednesday, October 3.

These editors are: Wendy Kane, from Tech Council Federation; Steve Goldman, Religious and Cultural Groups; Charles Sandbauk, Inter Fraternity Council; Arlene Blecher, Science Federation; Lucy Ehrlich, Arts, Social Science and Humanities Federation; Robert Croghan, Military Groups; David Falk, House Plan Association; and Jim Baltaxe, Political and Social Action Groups.

AIEE-IRE

On October 18, at 12:15 P.M., the AIEE-IRE will present a lecture by IBM on "The Use of Computers for solving Problems of an Engineering Nature" in Harris Auditorium. All welcome.

THE MARLIES AWARD

An award of \$50 and a certificate is made each Fall to a student of the School of Engineering and Architecture for service to the College and the community. This award was established by the Engineering Alumni in memory of Professor Charles A. Marlies.

Applicants must make their intentions known by reporting in person to Mrs. Herring, room 201 Goethals Hall, on or before October 31st. The winning of this award carries with it an honor far more important than any immediate material benefits.

Vector Wins Four National Technology Magazine Awards

Vector, the College's Engineering Magazine, won four awards at the Engineering College Magazine Association convention held at Purdue University on the weekend of Oct. 5th. The Association is composed of forty-eight college Engineering Magazines in the United States and Canada.

This is the first year that

Vector has won four awards. In previous years, as many as three have been added to the trophy case. The four awards given to the magazine, out of a possible ten, were for the Best Technical Article, Best Single Cover, Best Editorial, and Best Covers (all issues).

Ed Rosenthal's article on the Automotive Gas Turbine, which appeared in the March 1962 issue, was adjudged the best Technical article of the 1961 season. Ed is at present working for the Republican Aviation Co. on the west coast.

The cover on the May 1962 issue, an impressionistic view of Mars, won the award for the Best Cover of the year. Vector's covers, supplied through the courtesy of Astronautics, the official publication of the American Rocket Society, won a third place award for Best Covers (all issues).

Ira Skurnick's editorial, "To Pay a Debt," which was an attack on those pragmatic people who want to see the practicality of the science before they believe the existence of it, won the second place award for the year's best Editorial. Ira is now doing graduate research at Western Reserve University.

Vector attributes its success at the college to the fact that its articles are written to be understood by all students of Science and Engineering regardless of their major fields. Dr. Gallagher has repeatedly praised the magazine for its high quality of writing and printing.

First Issues of the Term

Al Gardner '63 and Dan Davis '63, Co-Editors-in-Chief, expect to continue the award winning tradition with the next issue, which will appear on the college scene November 13.

The three feature articles for the November issue are: "Manufacture of the Silicon Mesa Transistor," and "Controlled Nuclear Fusion," and "Isotactic Polypropylene."

The Silicon Mesa Transistor is a special transistor that is used at ultra-high frequencies. The article describes the manufacture of this micro-miniature part.

If man can harness the power
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GRADUATING????

To accommodate North Campus graduates, Microcosm '63 will have its photographer on North Campus Nov. 13-21 in Shepard 115. Appointments can be made Wednesday and Thursday, Oct. 17-22 at Knittle Lounge booth from 11-3. Microcosm staff will be there to take care of those interested.

City University Receives \$30,000 Nucleonics Grant

By STANLEY ALTMAN

President Buell Gallagher recently announced that the Atomic Energy Commission has given the College a thirty thousand dollar grant for the expansion of its nucleonics teaching program.

In a recent interview Professor Menkes of the Mechanical Engineering Department revealed that one-third of the grant has been set aside for the acquisition of a Cobalt 60 Gamma Irradiator. The Irradiator will be loaded with 1,500 curies of Cobalt 60 (equivalent to more than three pounds of radium) and will be completely shielded by lead. The basement of Steinman Hall will serve as its permanent home. The present time schedule on the Irradiator calls for it to go into operation this coming Spring Term, with the faculty members of the Mechanical Engineering, Chemical

Engineering, and the Biology Departments planning to use it to study the effects of intense gamma radiation on metals, organic materials, and living organisms. By the Fall Term, 1963, this facility will be made available for both graduate and undergraduate research.

Irradiation with gamma rays has a wide variety of applications to production and research in various fields. The irradiation of foods and drugs provides a ready means of preservation by sterilization. If the intensity and duration of the radiation is properly controlled, this objective can be achieved without causing changes in the product itself, which in the case of food, has a deleterious effect upon flavor. Irradiation with gamma rays has great usefulness also in the control of insect and

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System Planning and Microelectronics Discussed At AIEE-IRE Meetings

By SAMUEL S. EIFERMAN

On Thursday, October 4, the AIEE-IRE held its initial lecture meeting in Harris Auditorium. The guest speaker was Gregory S. Vassell, representing the American Electric Power Service Corp. His lecture was entitled "System Planning."

Upon introducing Mr. Vassell, Barry Horowitz, president of the organization, mentioned that this company had a plan for summer employment on both the junior and senior levels.

As stated by Mr. Vassell, System Planning is the optimization of the overall system design in terms of economical and technical performance. The basic elements in system planning are: power demand, generating systems, transmission systems, and interconnections with power generating stations. At this point a rather interesting and relatively new method of gen-

erating power was described. This was M.H.D. (Magneto-Hydro Dynamics). This system uses heated gases and magnetic fields rather than steam or water to convert thermal energy to electrical energy. The different types of analysis and synthesis used in designing these systems were discussed.

Although the lecture lasted approximately one and a half hours, time did not permit the speaker to discuss many details. The lecture ended with Mr. Vassell mentioning that his company is cooperating with engineering colleges on thesis requirements for BS, MS, and PhD degrees.

On Thursday, October 11, the AIEE-IRE held its second lecture in Harris Auditorium on Microelectronics. The guest speaker for this lecture was Mr.

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Inquiring Technographer

By BARRY PRESSMAN

QUESTION: If your curriculum permitted a choice of liberal arts or technical electives, which would you choose and why?

Peter Rosenberg — 506 — I feel that there are so many technical courses now given that a few liberal arts courses would be a pleasant change.



Fred Borah — 707 — At the present time liberal arts is the outer shell of the engineering kernel. My first choice would be engineering courses.

Fulvio Corti — 807 — I would choose technical electives. I completed my pre-college schooling in Italy. There, having had a huge number of Liberal Arts subjects, I developed what is now a natural love for such subjects. While being educated I was taught unequivocally the importance of the culture that I was absorbing. To my mind a man is educated because he is introduced, so to speak, to such eternal veins of life (that transcend any immediate interest of his or his social class) as beauty, justice, science and so forth. Thus he, the educated man, develops his personality by sharing such values, and the degree of quality of personality he achieves is as great as the effort he makes to develop those values in his life. Such a man is involved in a process that cannot ever be stopped in his life, and that he certainly cannot understand by taking the six credits of L.A. It is a process that requires time and sweat, and must be started early in pre-college schooling so that a student, growing to be a man, learns to be an individual, and continues this process through his own effort.



Larry Klein — 807 — To get along in our modern society I feel that an engineering student should be familiar with liberal arts subjects. The best way to get some background in these subjects is to study them as an undergraduate. Once a person enters graduate school his courses are technical in nature. On the other hand, if he finds a job, he is cut off from the discussions of the classroom.

Phil Heyman — 807 — I feel the required courses at City are sufficient for an undergraduate EE curriculum, and since I intend to go on to grad school, where I will be, in a sense, taking advanced electives in EE, I'd probably choose liberal arts electives.



Foreign Job Applications Open to Upper Classmen

The United States Committee for the International Association for the Exchange of Students for Technical Experience (IAESTE), sponsored by the Engineers Joint Council, is again arranging for Upper Juniors, Seniors, and Graduate Students, with outstanding academic records, to go abroad during the summer of 1963 for on-the-job training in industry. This program has provided, within the last three years, twenty-eight City College Students with the opportunity of working and traveling abroad. In 1962 alone, the Committee was able to secure positions for a total of one hundred and eleven American students.

IAESTE aims at training university students of both engineering and the natural sciences in the industrial techniques of other nations and to build a foundation for international understanding and goodwill between these potential leaders and the host companies.

The greatest number of positions are available in the fields of chemical, civil, electrical and mechanical engineering. A few positions are available in the fields of architecture, chemistry, and physics. The students selected to work abroad during this eight to ten week period are expected to pay for all of their traveling expenses (\$300-\$400), and in addition they must have both accident and health insurance coverage. In return for their services they will receive a salary or maintenance allowance, in local currency, designed to cover normal student-type living expenses.

All students who are interested in this program may obtain an application by making an appointment with Dean White in the Office of Curricular Guidance (Adm. Bldg. Rm. 205). The completed application must be returned **not later than January 1, 1963** (since faculty endorsement is required this

Atomic Energy Grant...

(Continued from Page 1)

other animal infestations in grain, spices and other raw foodstuffs. Irradiation of plastics with gamma rays often accomplishes useful purposes. The effects sought by use of the radiation may be to bring about or accelerate the polymerization of monomers (single molecular species) to form the polymers, or another objective may be to produce further chemical changes, such as cross-linking between long-chain polymers, with a corresponding modification of the properties of the product.

The remaining twenty thousand dollars will be spent on equipment to increase the school's sub-critical nuclear reactor Laboratory facilities. The present equipment available for undergraduate laboratory work will be doubled in an effort to allow each student a greater degree of exposure to this equip-

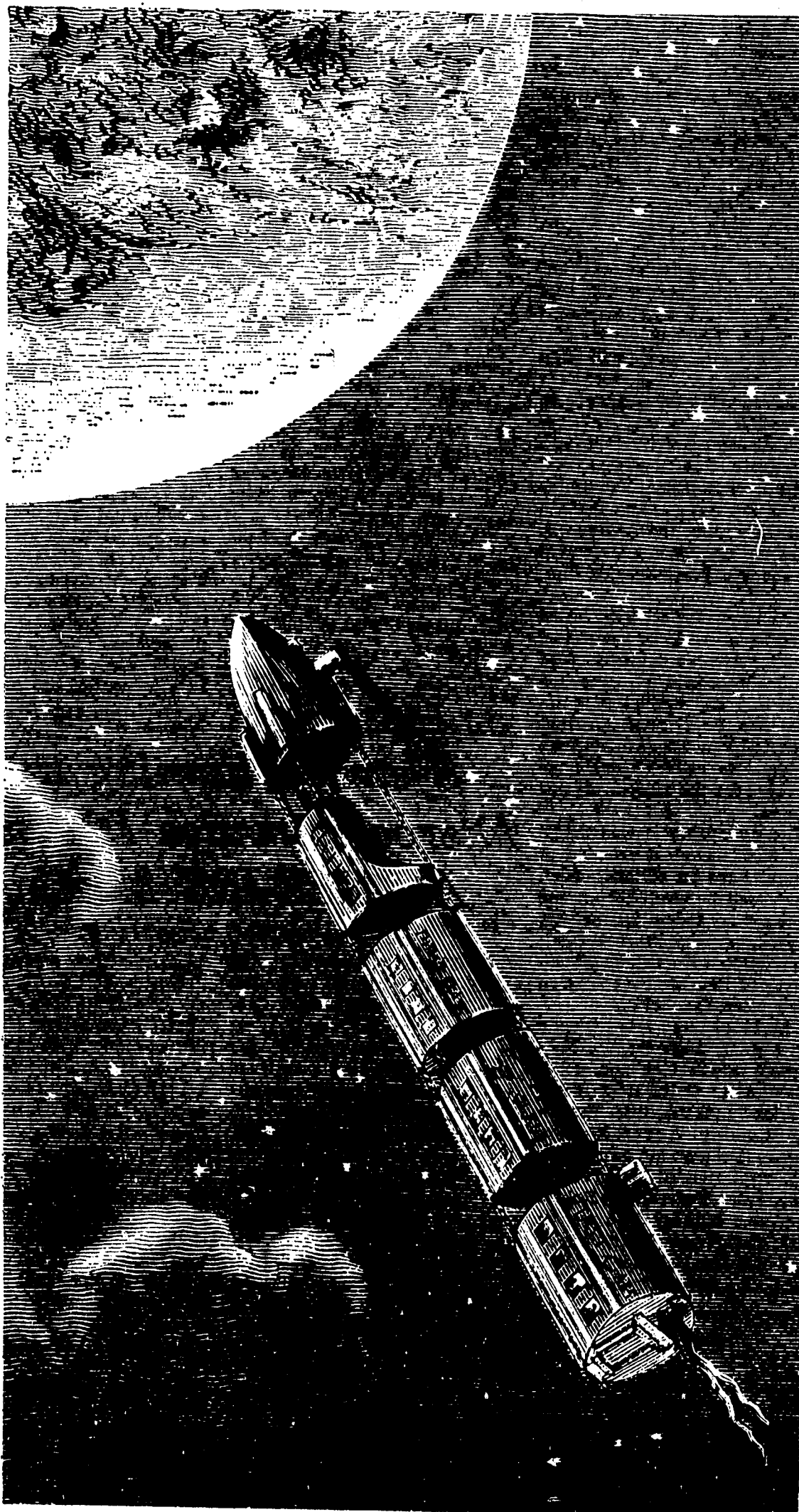
means **before December 15, 1962**, and must be accompanied by a \$20 registration fee.

ment consists of an Electronic Counter with three pickup heads. This counter emasures the intensity of alpha particles, beta rays, and gamma rays.

In addition to expanding the laboratory facilities a Proportional Counter and a Single Channel Pulse Height Analyzer Mass Spectrograph will be purchased.

The Proportional Counter will be used to measure the radioactivity of gases. Its sensitivity will make it possible to count very low activity of gases. This instrument will make it possible to study the effects of fallout on the atmosphere.

The Pulse Height Analyzer Mass Spectrograph is a device which records or counts a pulse only if the amplitude of the pulse falls within a specified limits. It thus yields the pulse height spectrum of a group of pulses. It will be used to give the energy spectrum of nuclear radiations, thereby allowing one to identify different isotopes of radioactive materials.

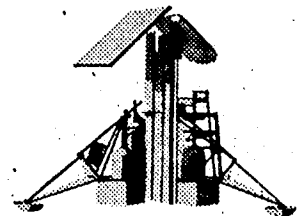


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Physics Lecture...

(Continued from Page 1)

be measured before it decayed, then, by elementary laws of Physics, one could calculate the lifetime of the particle.

However, measurement of the distance traversed before decay of the Pi-Zero Meson presents several difficulties. Because of the extremely short distance, the "bubble chamber" device cannot be utilized. Therefore, ultra-fine grain photographic emulsions, made principally by the Ilford Company of England, is used as the primary detector for the measurement.

The process of obtaining the Pi-Zero Meson is as follows: A target is bombarded by high energy protons in a device such as the Bevatron at Berkeley California. The target then emits all sorts of atomic particles; among these being protons, K-Plus Mesons, and Pi-Plus Mesons. These particles are then sorted by a bending magnet and a collimating slit which passes only particles of equal momentum. However, it is possible for particles of different masses to have equal momentums. A device very similar in principle to the Mass Spectrograph is used to eliminate all but the K-Plus Mesons. The beam, which now contains only the K-Plus Mesons, is focused and aimed at the photographic emulsion detector.

Professor Taylor further explained that K-Plus Meson decays into one Pi-Plus Meson and one Pi-Zero Meson. (I.e. the de-

sired atomic particle.) When the decay takes place the Pi-Plus Meson shoots off in one direction (completely arbitrary), and then from the conservation of momentum principle it is expected that the Pi-Zero Meson would shoot off in the exact opposite direction. However, after a very short time, the traveling Pi-Zero Meson further decays into a Gamma ray and an electron pair. It is possible, by noting the point of origin of the electron pair, to measure the distance traveled by the Pi-Zero Meson. This would ultimately yield the desired lifetime of the particle. The results obtained by the Stevens Institute research team yield the lifetime of the particle as 2.8 (plus or minus 0.9) times ten to the minus sixteen seconds. This result is obtained after having performed the experiment 88 times. It is of the same order of magnitude that has been obtained by other research groups in Germany, England, and the United States.

On October 18 the lecture topic will be "Recent Experiments on the Mossbauer Effect." The October 25 lecture topic will be "Nuclear Electric Monopole Transitions." Your attendance is welcomed, however, you are cautioned as to the high level of the discussion.

Job Situation...

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It was not until 1957 that the average salary of the electrical engineer became the highest of all the engineering salary averages.

Before electrical engineering became highest, mechanical engineering salary averages were the highest. According to a 1953 survey, mechanical engineers were getting, on the average, \$15 more than electrical engineers. In 1954 the margin was skimmed down to \$3 more for mechanical engineers over electrical engineers. In 1955 the margin went up \$1 to \$4 more for mechanical engineers over electrical engineers. In 1956 the margin went down to \$3 again. Then finally in 1957 the news came back that electrical engineers were being offered an average of \$477 while the mechanical engineers were being offered only \$464. The upward climb continued in 1958 so that electrical engineers were offered \$491 while mechanical engineers received only \$478 on the average.

1959 and 1960 were astonishing years because the averages were exactly the same for both years. The electrical engineers were offered \$520 and the mechanical engineers were offered \$501 on the average for these years. An upward rise in salary averages was again experienced by engineers in 1961. The electrical engineers were offered \$560, and the mechanical engineers received offers of \$530 on the average.

The prediction for this year is that all previous salary averages will be topped by the January Graduates salary average which in turn will be topped by the June Graduates salary average.

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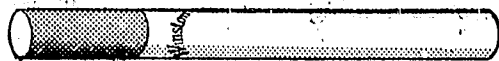
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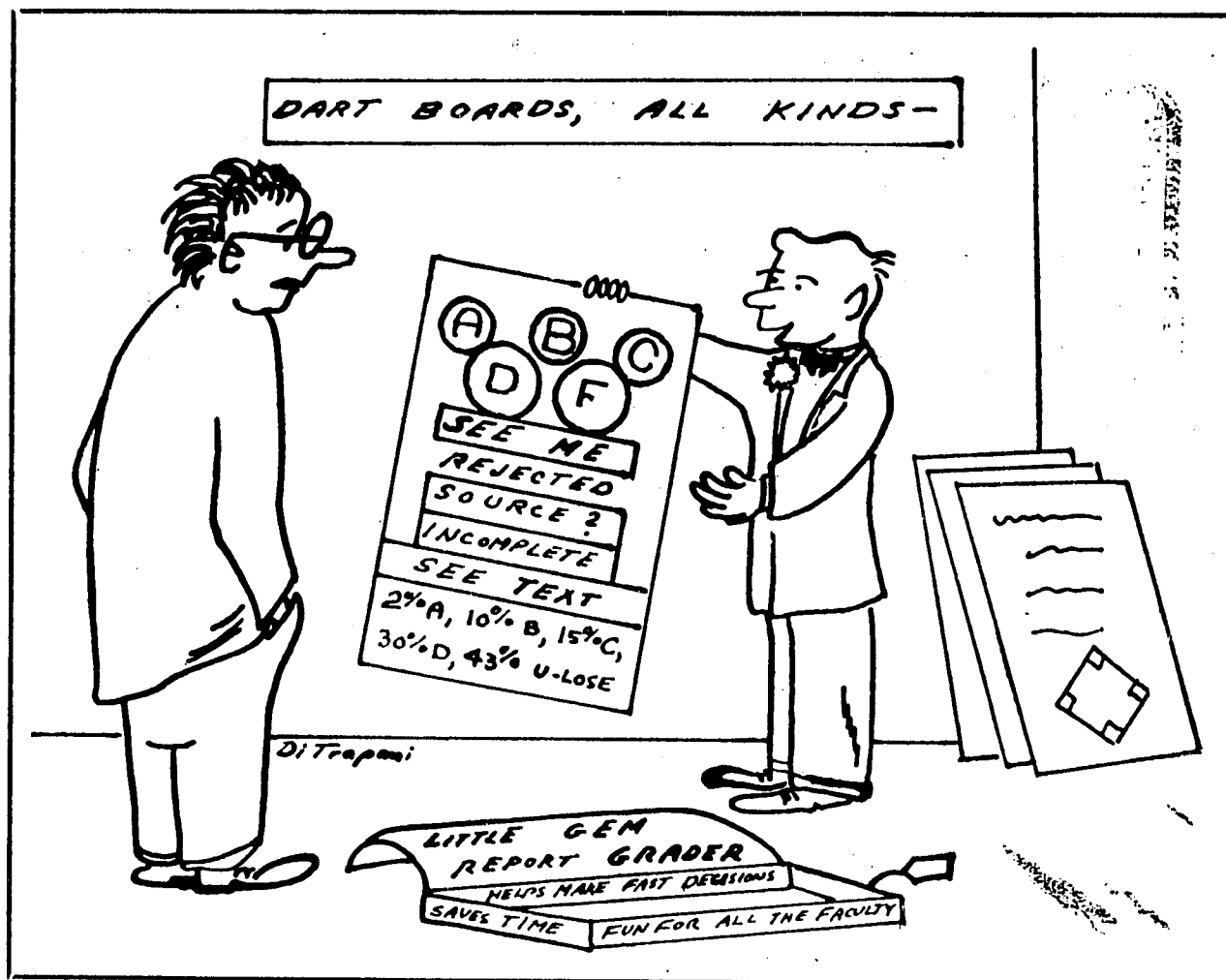
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And here's a little number that has been quite popular with M.E. professors lately.

OP Editorial Views Distort and Damage

TECH NEWS' editorial policy has been to avoid all political conflicts. However, a recent OP editorial has compelled us to further discuss a "political topic." We are nauseated by the masks these "responsible individuals" are placing on the lucid issues before us today.

The OP editorial entitled "Progress" argues on the premise of the inherent freedoms, that a student should not be forced to sign "a loyalty oath or a disclaimer affidavit." This vow is not, as we interpret it, "an affront to the individual's intelligence and integrity." It is rather a guarantee; a bond of dedication to the ideals of democracy that is to be signed to demonstrate good faith on the part of the student. To reason otherwise would indicate either an illogical approach or a veil to disguise the true beliefs of the editorial board.

The repulsive editorial states . . .

"Wasn't the U.S. government attempting to stifle radical and dissenting opinions by refusing to aid people who held them? Wasn't this an annoyance and an unnecessary subjection to governmental interrogation to people who feel that their 'beliefs' are private and should remain such?" . . .

No! As accepted today, and as defined by the Supreme Court, the primary purpose of the Communist Party is the forceful overthrow of the government. Surely, this purpose cannot be misconstrued as merely "a radical opinion." Nor can the interpretation of the phrase, "believe in," cloud the underlying intentions of the Act. There are no stipulations in the National Defense Education Act restricting opinions and/or ideas that are not in agreement with governmental policies. It, however, does limit the recipient of Federal financial aid from membership in the Communist Party. This is an entirely different matter and should not be confused with the fiction outlined in the OP editorial. The Federal Government cannot be expected to support something directly advocating its overthrow.

It is our further opinion that the OP editorial is usurping one of our basic American Freedoms — Freedom of the Press. When a "captive audience" (such as we) are subjected to such drivel and minority opinion, some provision should be made to limit the publication of these views. By frequency alone, these publications, bearing the name of the City College, create a widely distorted image of the CCNY student. Perhaps the answer lies in stricter control of fee allocations or in regulation of the student press, however distasteful this may appear at first. No longer do we wish to have our careers hindered by this false impression of CCNY being created by a small minority.



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Among the young people being graduated from college in these times, there are some who think and feel—perhaps a little more deeply than the others—about the world we live in, the future we face. They ask, "How can I make my career really meaningful? More than just personally rewarding?"

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TECH LIFE

By RONALD ANTONINO

We all have a stake in what has happened and what is happening in Oxford, Mississippi. We all are involved in what has taken place at the University of Mississippi.

It is appalling to think of the sorry state of affairs in the state of Mississippi. That the Supreme Court decision of 1954 was being implemented with something other than a "prompt and reasonable start" is a cause for disgust; but that the binding rulings of a court of law could actually be flouted and treated with utmost contempt, and this in a nation based and established on the principle of the rule of law, is at once reprehensible, despicable, and depressing. That rioting and mob violence, by merely trying to supplant order, caused two deaths and many injuries, is lamentable — who knows what might have ensued if the mob had prevailed against reason.

The presence of Ole Miss students in the rioting concerns us. We cannot, in conscience, dismiss what has happened with, "Well, what do you expect from those Rebels," and let it go at that. I say this because as college students and as Americans, we all stand accountable for the actions of our Mississippian counterparts, for any such flagrant and overt acts of violence, any such attacks on human dignity, reverberate throughout the elastic mass that is America, and touch us all, whether we like it or not, whether or not we acknowledge it. We are the lesser for it.

And yet, being able to recognize our responsibility seems to me to be of great import. For, while the eruption of violence in Oxford could very well indicate what each of us, as human beings, might be capable of, the awareness and the assumption of the responsibility of an individual in a civilized society is an indication of how well that society can hold itself together as a unit, and not blast itself into ineffectual splinters. In the same way that a person matures and rises above his childish tantrums whenever his every wish is not satisfied, so a society, made up of individuals, matures and respects all its laws. Respect for the law does not have to mean agreement with every law, but it does mean agreement with the idea of law and its foremost place in a civilized society.

The plight of James Meredith and the Federal Government's unavoidable use of force to put the court's ruling into effect are not the concern of this or that "type" of student. While it could be argued that there is a basic difference in the studies pursued in the various schools here at the College, such that certain students are naturally surrounded by the mainstream of current events and human relations by their school work, and other students deal with principles and ideas removed from the surface of everyday discussion and events, which involve very little of the human element as such, our studies make up but a part of our life; a large part, true, at this stage, but not all. Nor is what has taken place at the University of Mississippi the sole concern of students. It is the concern of all who believe in the dignity inherent in humankind, of all who believe man capable of living by reason, of every man.

It is hoped that by the time this article is in print, the University of Mississippi campus and Oxford, Mississippi, will have returned to sense and normalcy. How nice it would be if by that time Tech students will have voiced their protest and concern, and if Tech Council will have gotten off its parochial posterior and issued a statement or resolution concerning this matter.

Speaking of Tech Council, it was good to hear that they will continue the fight for additional lounge space on North Campus. The need is great.

I always get the feeling that I am entering a railroad waiting room whenever I happen on Knittle Lounge. It just presents that indifferent, transient, cold atmosphere. The chairs are arranged so imaginatively around the lounge — one row smack up against the two side walls, another row — get this now — placed about ten feet in front of the wall rows and fronting the massive and decorative columns. Letting no wall space go uncovered, the alcoves beneath the window contain two double seats facing one another. All the chairs are flush against each other. The arrangement brings to mind the design problem in the now defunct Drafting 109 course — some of the CE and Architecture upper classmen remember this — where the object was to fit into a given space the maximum number of parking spaces, or bath-lockers, or what-have-you. The seating arrangement is thus probably striving for efficiency in numbers, and will undoubtedly soon cause the large, barren floor area in the middle of the Lounge to be filled with more of the efficiently even-rowed seats.

One of Knittle's prime functions seems to be a place in which to do homework, albeit difficult balancing books on the laps of the hapless students who didn't move fast enough to get a space at the long table or small side tables. But how long will this function be fulfilled once the Tech Library becomes more the place to do homework?

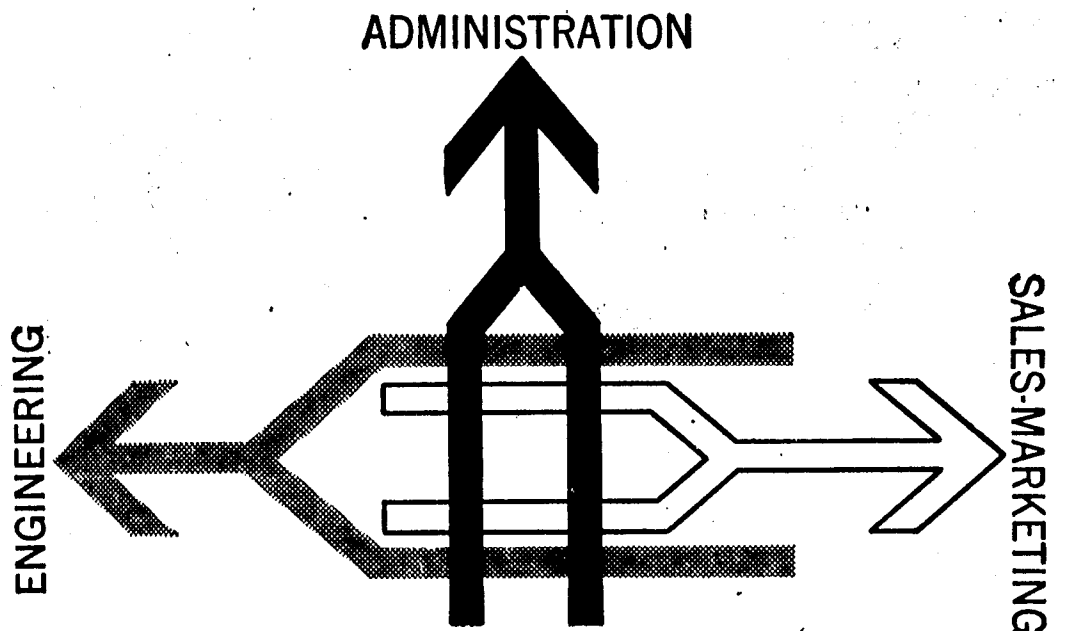
And then what? Knittle seems hardly the place in which to relax. As things are, you cannot feel relaxed there, you feel like you are waiting on line for something even while sitting down. Contrast the relaxing atmosphere of Bittenweiser Lounge in the Finley Student Center with Knittle. This lounge must be at least twice the size of Knittle, yet the arrangement of seats is such that the entire area is broken into smaller areas. There are small tables with lamps placed all around the room, drapes on the windows. All of which adds up to a feeling of intimacy, privacy, and relaxation, if you so desire. There is even music played at various times throughout the day.

North Campus does not need an exact replica of Bittenweiser, which, for various and diverse reasons, would be impossible. What we could use is a facsimile, namely, a room in which to relax and feel relaxed, a place in which a student can sit down and rest for five minutes between classes or after lunch, and not necessarily another homework room.

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No matter which career path you choose at New York Telephone, you get these advantages: good pay, a chance for rapid advancement.

For full information about New York Telephone — and your future here — write to Ed Dooley, College Employment Coordinator, Room 1770, 140 West Street, New York 7, N. Y. Or inquire at your College Placement Office.



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EDITORIAL

Support Needed

Once again Tech Council is leading the fight for increased Lounge space on North Campus. We are afraid that this will prove to be a waste of valuable time. It seems that the school administration has decided that Finley Student Center is to be the only space allocated on the College scene for students. It is indeed unfortunate that it is not seen how North Campus office space and lounges for tech organizations and students would increase school interest and spirit. It is even more unfortunate that those same individuals who always complain about the lack of school spirit are doing nothing to help attain these goals.

It is most hard to believe that all available space on North Campus is being utilized. It is ever harder to understand how the school existed before Steinman Hall and the Administration Building. It is our opinion that if the school administration would change its antiquated policies on Student Activities that space could be found to house all North Campus Activities and Lounges.

HILLEL DISCUSSION

On Wednesday afternoon, October 17, at 4:00 P.M., Hillel will present a discussion of the civil rights controversy between the Howard Johnson "chain" and the Congress of Racial Equality (CORE) in the Hillel Lounge. Hillel has invited a speaker representing Howard Johnson and a representative from CORE to participate in the program, the purpose of which is to hear both sides of the controversy. (Hillel is located at 475 West 140th Street, between Convent and Amsterdam Avenues).

AIEE-IRE...

(Continued from Page 1)

E. B. Sussman of the Integrated Circuits Sales department of the Texas Instruments Inc. region office in Elizabeth, New Jersey.

Mr. Sussman received his initial technical training at City and Guilds Colleges in London, England. He graduated from Newark College of Engineering with a BSEE and Polytechnic Institute of Brooklyn with an MSEE. Mr. Sussman has had industrial experience in Radar, Color Television, Semi-Conductor circuit design, and has been a Chief Applications Engineer.

In his lecture, Mr. Sussman explained that a Solid Circuit semiconductor network is a complete electronic circuit fabricated within a single piece of silicon material. By combining oxide masking, diffusion, metal deposition, and alloying, a complete network with active and passive components is made completely within a single semiconductor wafer.

Mr. Sussman showed slides of six different networks that are available from his company. The slides showed the Series 51 networks which are a compatible line of digital networks designed to fulfill up to 95% of the logic functions of a complete digital equipment. They are specifically designed for applications requiring low power drain and moderate speeds. These semiconductors operate over a temperature range of minus 55 degrees Centigrade to plus 125 degrees Centigrade and between 3 and 6 volts.

The Series 51 consists of: the SN510 which is an R-S Flip-Flop/counter network with power dissipation between 2 and 8 mw; the SN511 which is an R-S Flip-Flop/counter network with Emitter-Follower Output with a power dissipation between 3 and 18 mw; the SN512 which is an NOR/NAND gate network with a power dissipation between 2 and 8 mw; the SN513 which is an NOR/NAND gate with Emitter-Follower Output network with a power dissipation between 3 and 13 mw; the SN514 which is a Dual NOR/NAND gate network with a power dissipation between 2 and 8 mw; and the SN515 which is an "Exclusive Or" gate network with a power dissipation between 4 and 16 mw.

All semiconductor networks, both digital and linear, are fabricated using the same process steps. The various elements (transistors, diodes, resistors and capacitors) are formed by diffusions in the planar configuration. Inductances cannot be made into one of these networks because the planar configuration does not allow the inductor to have a large charge.

The initial silicon slice, in this process, has a very high resistivity and forms an electrical isolation between the diffused areas. The dimensions and positioning of the diffused areas are accurately determined by photolithographic processing of a silicon dioxide coating formed on the wafer. Silicon dioxide is an effective masking agent for the diffusants used, and thus, diffused paths will be formed only where the Silicon Dioxide has been selectively removed. During diffusion, silicon dioxide is reformed over the entire wafer, protecting all electrical paths and the entire surface area. Aluminum is deposited over the insulating silicon dioxide surface, providing point to point connection of the path areas into

the particular electronic function desired.

The semiconductor network, after assembly, contains the equivalent of 31 conventional components, and is only .250 inches by .125 inches. In comparing micro-semiconductors with conventional components, Mr. Sussman cited an example where a 115 pound Missile Computer of 3300 cu. in. volume became a 5 pound Missile Computer of 50 cu. in. volume when made out of micro-semiconductors.

Mr. Sussman ended his lecture with a question and answer period that lasted about twenty minutes.

COMPUTER LECTURE

Computer lectures given by Prof. Demos Eitzer of the Electrical Engineering Department will be offered to the student body in two series. Series I is offered on Tuesdays, October 16, October 23, and October 30. Series II is offered on Fridays, October 26, November 2, and November 9. The lectures are held from 2-4 P.M. in room 123 Steinman Hall.

Steinman Hall: A Summary

City College began its fall semester, September 17, with the opening of a new engineering building on the College's north campus. The six-story, \$9,000,000 structure on Convent Avenue, between 140th and 141st Streets, is named in honor of the late David B. Steinman, internationally famed bridge designer and engineer and a 1906 alumnus of CCNY.

The building's 280,000 square feet of space will provide laboratories, administrative offices, library facilities, and an auditorium. The School of Engineering is the third largest in the nation with a current enrollment of 4,400.

Steinman Hall will enable the College to centralize its technology laboratories and other engineering facilities previously scattered in various buildings throughout the campus. According to Dean Allan, "The additional facilities will enable the College to increase its research

potential for faculty and students engaged in private work as well as in serving governmental and industrial organizations." The outside research projects of the School of Engineering and Architecture include those with the National Science Foundation, the National Aeronautics and Space Administration, and the Health Council of the City of New York.

Each of the College's engineering departments will be centralized on different floors, with the mechanical engineering department occupying the lowest stories, and the civil, chemical, and electrical engineering facilities on the higher floors, ascending in that order. Electrical engineering students, on the top floor, will thus have access to the roof where they can utilize radiation and electronic antenna equipment needed in their laboratory work.

The sub-basement is sunk into Manhattan schist bedrock

to allow for the installation of such heavy machines as turbines, steam engines, and civil engineering equipment used for compression and tension testing of materials. The last development as much as 600,000 pounds of pressure.

Plans for the expansion of engineering facilities go back nine years, and the new building has been on the drawing boards since 1955. The designers were Lorimer and Rose, Architects and Engineers.

NOTICE TO E.E. STUDENTS

If you are graduating in Feb. 1963, and are in the top 1/3 of your E.E. class, but do not have the necessary 1.0 grade point average (in E.E.) to qualify scholastically for Eta Kappa Nu, you are still eligible for election under a "Special Consideration Clause" of the Beta-Pi Chapter By-laws. If you are interested in applying for membership under this clause, consult the HKN Bulletin Board, on the sixth floor in Steinman Hall (to the left of the up escalator) for additional information.



Hey there, you with the raft of ideas! ME, EE, AE ENGINEERS

Get that raft afloat fast, and head for the land where ideas multiply. But before you set your course, you'll want to compare the opportunities... the challenge... offered by potential employers with what you can bring to your employer.

What's up at Hamilton Standard? In brief, a diversification program that includes design and development of propulsion controls, life support systems, other environmental control systems, electron beam machines, automatic stabilization systems, propellers, and ground support equipment.

We're looking for men with ideas... ideas ready to be launched. If you're an engineering student looking for the best means to an end, pick up a Hamilton Standard brochure at your placement office. It may hold the first clue to how you can get started toward the best company for you.

A Hamilton Standard college personnel representative will be on campus soon. He'll be glad to answer your questions, and to take your application for a position if you decide you like what you've learned about us.

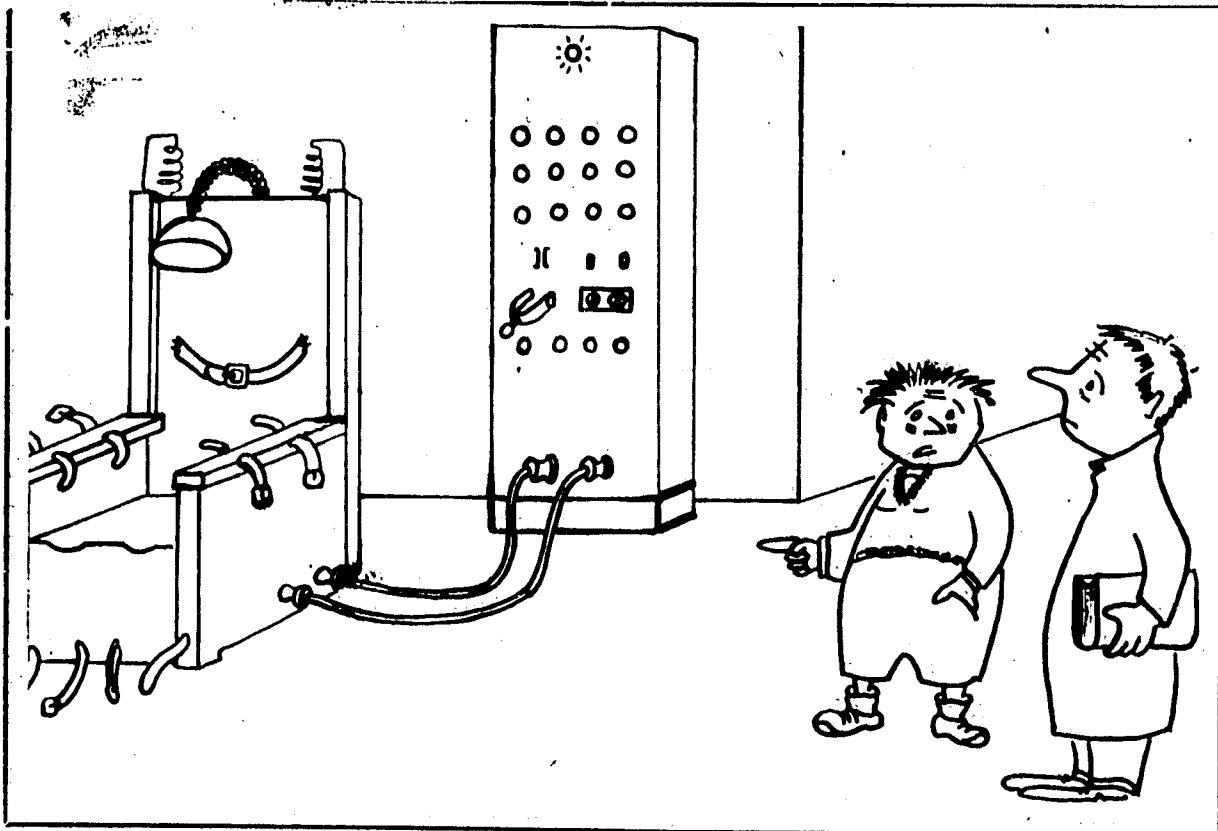
THE DATE: October 30, 31, 1962

Hamilton Standard

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Looks like a pretty tough experiment in EE this week.

Vector...

(Continued from Page 1)

of controlled nuclear fusion, a vast new source of energy will be available. The power of fusion of nuclei is evidenced by the explosion of a hydrogen bomb. The slow, controlled fusion of atomic nuclei will be the subject of the article by David Blerkom '63, *Vector's* Managing Editor.

The article on Isotactic Polypropylene deals with the uses of this macromolecule. The Molecule is made through the polymerization of smaller molecules.

In addition to the feature articles, the regular features will appear. These include "Faculty Profiles," "Engineering Highlights," and the Crossword Puzzle. As usual, a one year subscription will be offered for the first four correct solutions to Vector Volts.

Roll in the Hay

at the

Hay Ride

and

Barbeque

at

Clove Lake, S. I.

9:00 P.M., Sat., Oct. 27

\$4.50 per couple (incl. food)

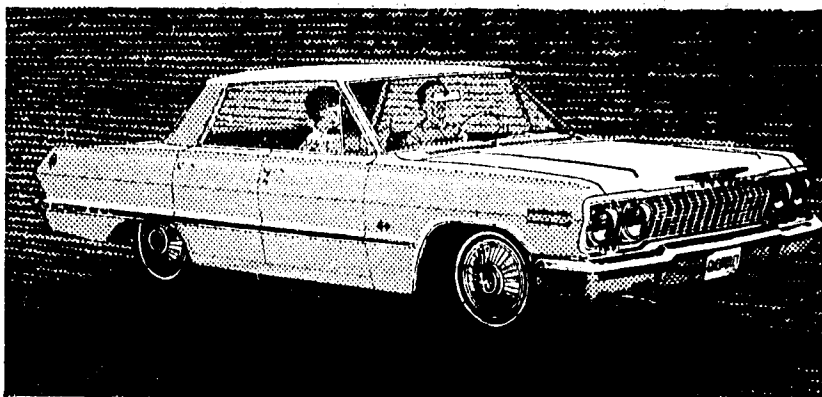
Tickets Sold

Thurs., Oct. 18 — 12-2

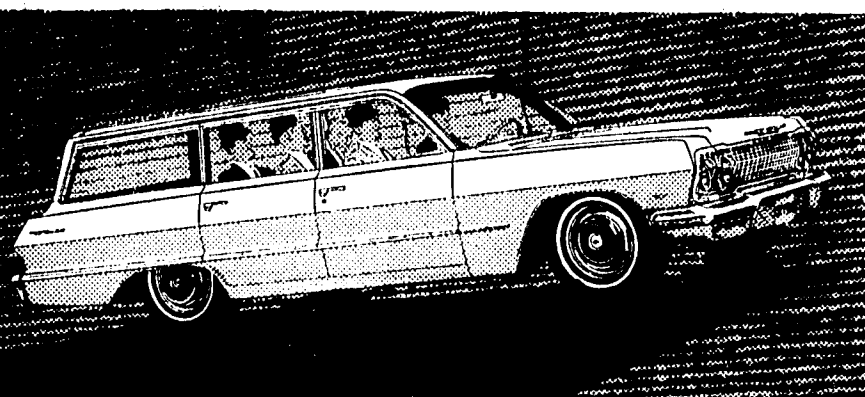
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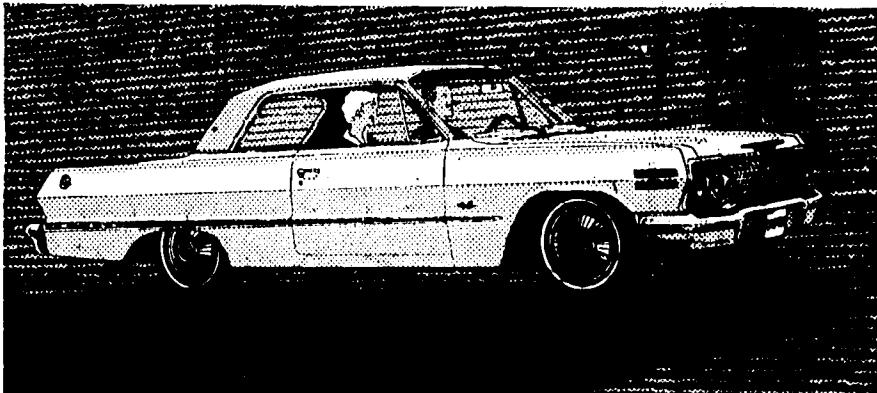
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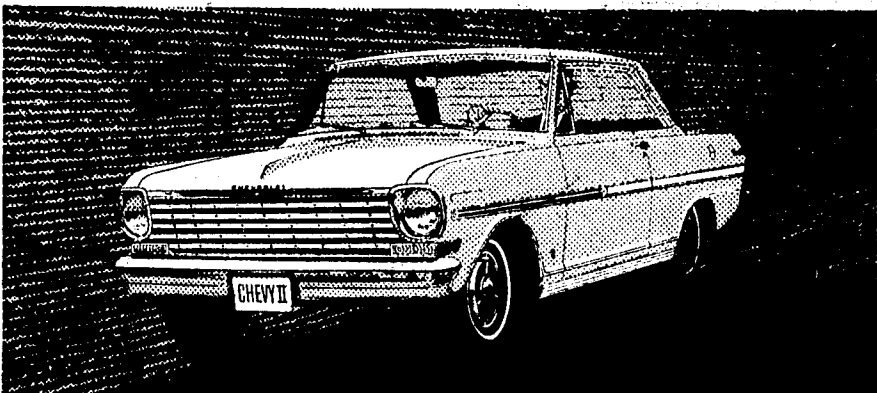
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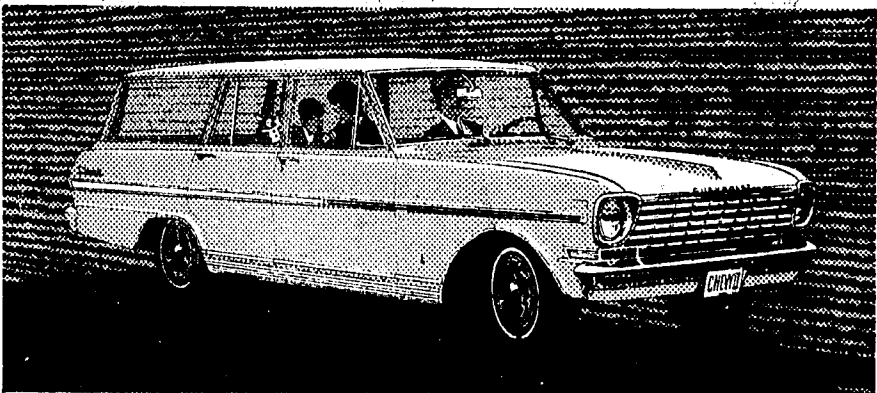
'63 CHEVROLET BEL AIR STATION WAGON



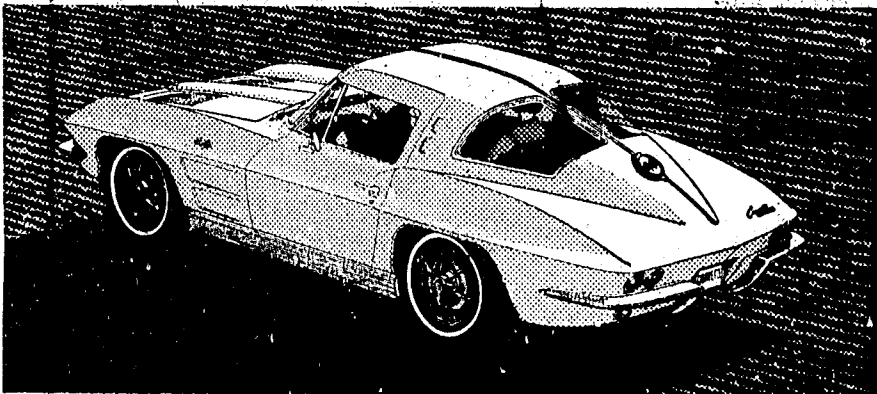
'63 CHEVROLET IMPALA SPORT COUPE



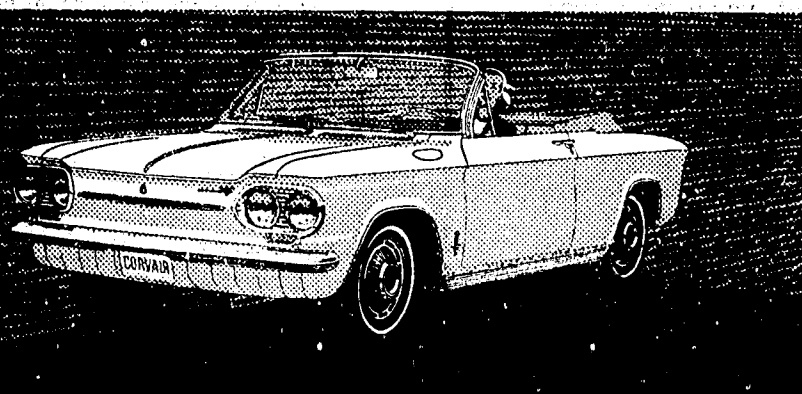
'63 CHEVY II NOVA 400 SPORT COUPE



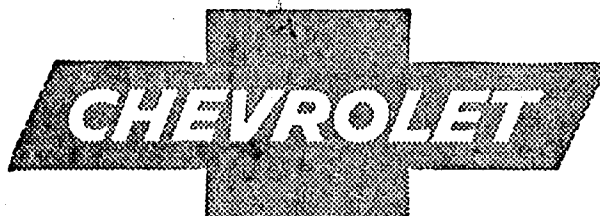
'63 CHEVY II NOVA 400 STATION WAGON



NEW CORVETTE STING RAY SPORT COUPE



'63 CORVAIR MONZA CONVERTIBLE



NOW...GO CHEVROLET FOR ONE-STOP SHOPPING IN '63 IT'S EXCITING!

This is about the best thing that's happened to buying cars since Chevrolet started building them—**four entirely different kinds of cars to choose from at your Chevrolet dealer's One-Stop Shopping Center.** If you're a luxury-lover, you'll probably want to go no further than those 13 plush new Jet-smooth '63 Chevrolets. Want to give your budget an even bigger break? Step over and see what's new with those 10 nifty models of the '63 Chevy II. Or maybe you've been eyeing sports-car caps, in which case have a go at a sporty new '63 Corvair (8 of them, including three snazzy bucket-seat Monzas and those big Greenbrier Sports Wagons). There's even something for the all-out sports-car set—the daring Corvette Sting Ray. Picking a new car has never been easier. (Unless you'd like to own them all!)

It's Chevy Showtime '63!—See four entirely different kinds of cars at your Chevrolet Dealer's Showroom

Slants on Sports

by Marv Chasen

JOIN A TEAM?

Another school term has begun, and with it comes the beginning of the athletic activities at the College. Just like each of the previous years, the coaches are faced with the inevitable problems that, as every coach knows, arise each time a new season begins. How many of my letter-men are returning? How many of my potential hopes will die because of the numerous reasons that seem to pop up again and again? And what kind of a freshman team am I going to get? With all these problems, and many more, the coaches always manage to be ready with a formidable team for the first meet.

In almost every sport, the outstanding athlete has attained his status only through hard work, and a lot of time spent practicing. I am a strong believer in the idea that the time spent at practice is the most vital part of becoming proficient at your sport. If you enjoy what you're doing, you'll be a better athlete than if you attend the minimum number of practice sessions so that you can substitute out of physical education. Too many students turn to this way out, and, in the end, drop the sport anyway. The shame lies in the time spent on you by the coach when he could have devoted more time to those who were really interested in what he has to offer. This brings me to what I feel is the foundation of our athletic structure at the college, the freshman.

More than two thousand students enter the college each year at the freshman level, and there are at least two hundred males who are of the caliber that make for successful freshman teams. It isn't necessary for you to have even had contact with the sport before, as long as you possess a genuine interest in learning the sport, and are willing to spend some time at it. The important thing is to begin when you're a freshman, because then you'll have three more years in which to become a better athlete. Too many good athletes would have been better if they had begun as freshmen instead of waiting a year or more. Many freshmen are concerned with their academic life, and, therefore, eliminate sports altogether. This is not necessary if you consider athletics like you would any other extracurricular activity which most students find time for one way or another. Most educators will agree that your academic life should be shared with some type of non-academic activity, so why not athletics. The coaches will be glad to have you, the team members will be glad to help you, and you'll find that some of your strongest friendships will be made as a member of a team.

Last year I made a similar request for new athletes in the hope that those students who were undecided about participating in a sport would be swayed to try out for one. I want to get to the freshman, for it is he who has the best chance to do something for himself as well as for his school. You won't receive any special privileges as a member of a team such as early registration, or the likes of such, but you'll find that when you receive that freshman numerical you'll know it was worth it, because now you can try for a varsity letter, and perhaps earn a sweater if you receive three varsity letters. Materially, this may not seem like much, but try for one and see what it means to you when you finally receive one of these awards.

There are approximately ten teams which would love to have you if you're willing to give it a try. From basketball to wrestling, you name it, we've got it,

and you'll be surprised at the coaching facilities available to you. Coach Karlin has turned out a number of All-American soccer players, as has Coach Lucia of the Fencing Team, and Professor Sapora had one of his boys go on to win the heavy-weight wrestling title in the Olympic games a number of years after leaving the College.

As a member of the Varsity Wrestling team, I put in a special request for freshmen who have a desire to learn how to wrestle. You don't have to weigh two hundred pounds, and your muscles don't have to have muscles of their own. You'll find it quite different from your conception of what collegiate wrestling is really like. If you're not a freshman, and would like to wrestle, come up and see the coach. He'll be glad to have you.

Rosier Job Outlook Facing Tech Grads

By SAMUEL S. EIFERMAN

The job opportunities for the coming year seem very bright for engineers. In an interview with Mr. Ernest W. Schnaebele, director of the placement office, it was noted that there are more companies coming to the campus to interview January graduates in the engineering school this year than there were last year. There is also an increase in the number of companies interviewing June graduates, about 20% over the number of companies interviewing January graduates.

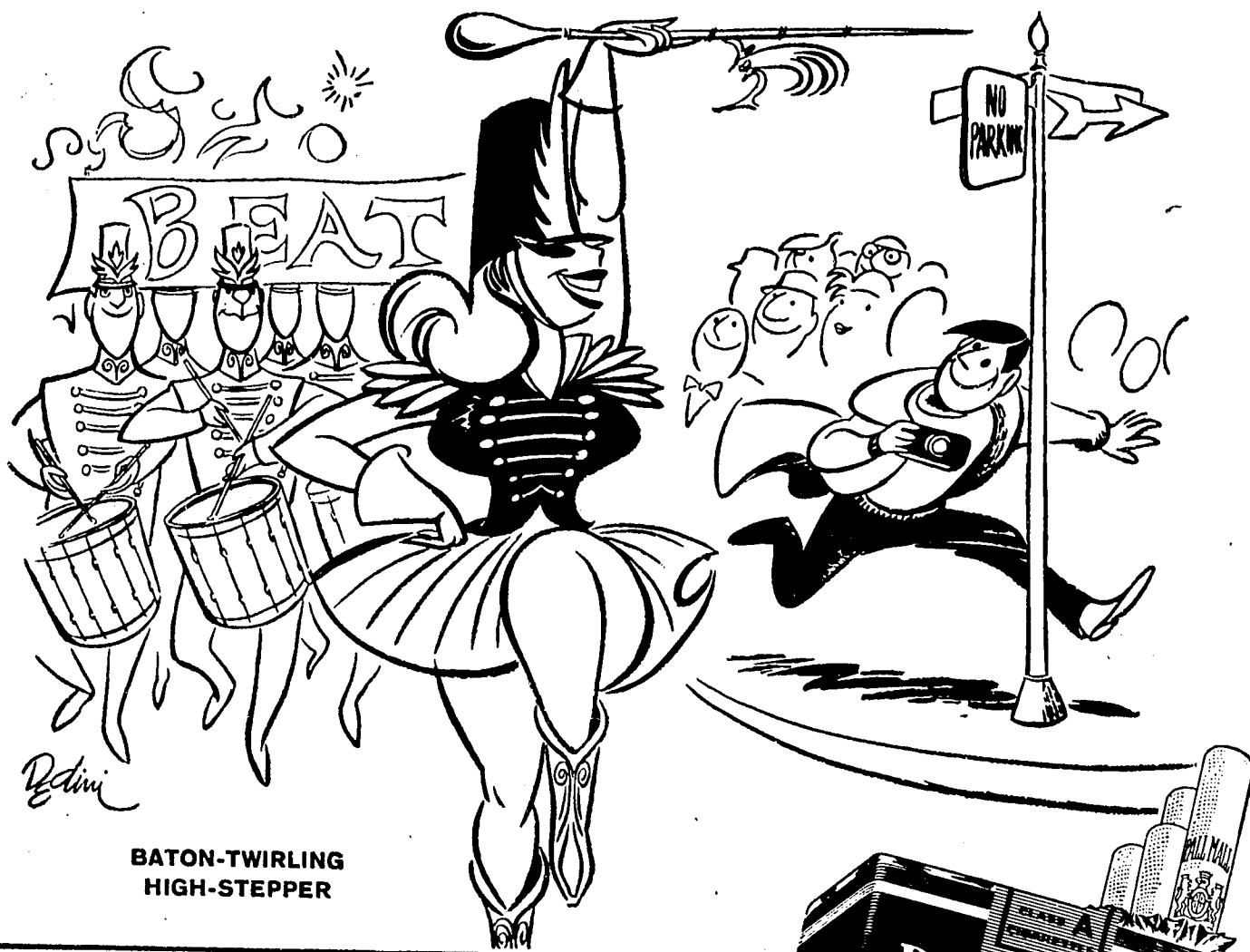
Not only will there be an increase in the number of companies interviewing June graduates over those interviewing January graduates, but the av-

erage salary offered those graduating in June is predicted to be higher than the average salary offered to January graduates.

Last year, from the rough figures compiled by the placement office, the average salary offered engineering graduates were: 527 dollars for civil engineers; \$556 for mechanical engineers; \$563 for chemical engineers; and \$578 for electrical engineers. As you may notice, the highest average salary is paid to the electrical engineering student, but looking back in the old records it was found that this was not always so.

Job survey figures show that
(Continued on Page 3)

Pall Mall Presents~ GIRL WATCHER'S GUIDE



BATON-TWIRLING
HIGH-STEPPER

CAMPUS TYPE I

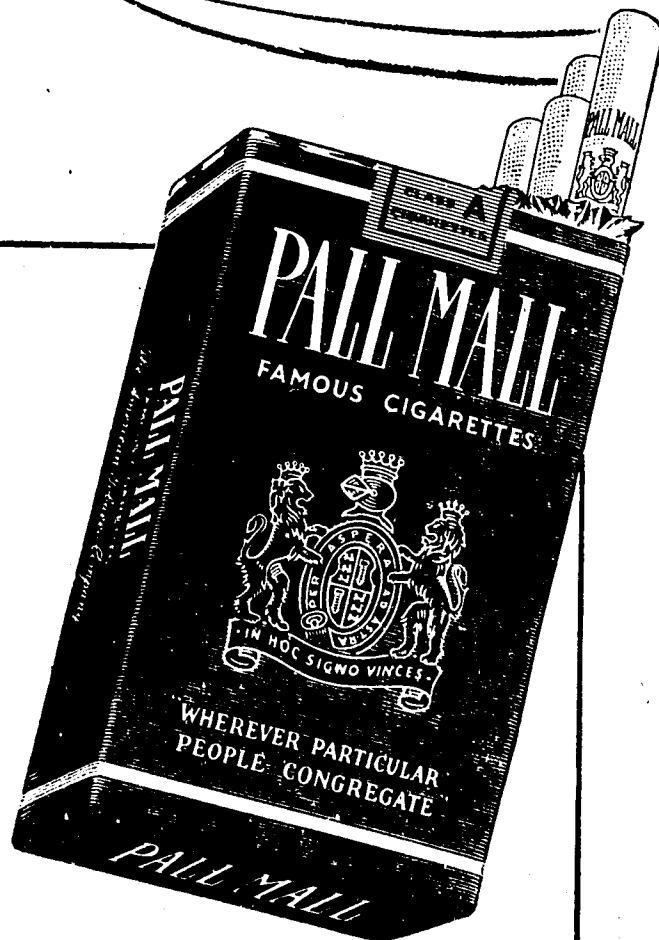
The High-Stepper is an ideal choice for Campus Type #1 for two reasons. First, she is a fairly common species—and second, she is easy to identify.

Just as the bird-watching beginner should concentrate on the Robin, Sparrow and Cardinal before moving on to more exotic species, the girl watching beginner should master the observation and identification of types such as the High-Stepper before progressing to rarer (and usually more difficult to identify) types.

As in all fine arts, the mastery of fundamentals is the key to girl watching success. This mastery of fundamentals is just as important in the art of cigarette making. Taste Pall Mall and see what we mean!

Pall Mall's natural mildness
is so good to your taste!

So smooth, so satisfying,
so downright smokeable!



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