Smaller Courses Offer Good Future

SEE PAGES THREE TO FIVE

The Tech

Vol. LXVII, No. 3 CAMBRIDGE, MASS., FRIDAY, JANUARY 24, 1947 PRICE FIVE CENTS

SOPH PROM FEATURES McINTYRE

Frosh Camp Set For 229

Program On Feb. 10 Includes Dinner, Talks

Two hundred and twenty-nine freshmen entering in February will have an opportunity to be introduced to Technology through the twenty-sixth annual T. C. A. Freshman Camp to be held on the Institute campus on Monday, February 10.

Registration for camp will start at 5.15 P. M., and dinner will be served in Morss Hall (cafeteria style) at 6.00 P. M. Separate tables are to be reserved, with activity leaders seated at each table. After dinner the group will adjourn to Room 6-120 for the evening program.

President Compton will give the welcome address. Director of Admissions, B. Alden Thresher, will then talk on "Getting In and Staying In," after which Dean Everett M. Baker will speak. Professor Charles E. Locke, '96, will deliver the annual History of Technology," address. Professor F. Alexander Magoun is to be the principal speaker of the evening; his topic is "The Transition from High School to M. I. T."

After talks by members of the Faculty and Administration, leaders of undergraduate activities will each give two-minute talks on the organizations they represent. These include the captain or manager of each sport, and the general manager of all non-athletic activities. Jack B. Lehmann, '47, and Virginia H. Ferguson, '47, will be the respective presiding officers for the two parts. Presiding over all of Freshman camp will be Fred C. Bailey, '49, Freshman Camp Director. All activity leaders are asked to meet in Litchfield Lounge at 5.30 P. M. the day of camp for briefing. It is expected that the evening session will be over between 9.30 and 10.00 P. M.

As announced in the material sent out to all freshmen, the total cost of Freshman Camp is $1.25, of which 75 cents will be applied to the dinner, and the rest to overhead expenses and dinners for guests.

Prof. de Santillana Writes Lit. Comment

Professor George de Santillana of the English and History department is one of the 239 scholars and experts who have contributed to the writing of the "Columbia Dictionary of Modern European Literature," it was announced this week by the Columbia University Press, New York City, which will publish the 900-page volume on February 24.

Professor de Santillana wrote five articles in the field of Italian literature. Altogether the "Dictionary" will contain 1,200 articles covering the literary activities of 31 continental European countries from about 1870 to the present. Some little known literature is discussed in English for the first time.

Each of the contributors has read in the original language the works of the authors he has selected to write about. The volume contains material on about 200 French, 150 German, 100 Russian, 100 Italian, 100 Spanish, 50 Polish, and 40 Czechoslovakian authors. It was edited by the late Horatio Smith of Columbia University.

INFORMATION TO AID IN COURSE SELECTION

In his letter of January 6 to members of the Class of 1950, Dr. Compton discussed overcrowding in certain Courses, suggested opportunities in others and asked freshmen to reconsider their current choices.

This issue of THE TECH offers information which may help in such reconsideration. Elsewhere in the issue there are statements about the Course Selection Advisory Committee and as to the opportunities available in six of the least crowded Courses.

The Institute has always followed the thesis that its students were men and that it was the student himself with whom decisions of this sort rest. Accordingly, copies of this issue of THE TECH are being given to every freshman during the examination period. But to assist families who wish to discuss the question, copies have also been sent by mail to the families of freshmen who are minors. These copies have been accompanied by the following message from Dr. Compton:

"The enclosed issue of the undergraduate newspaper, THE TECH, contains an extensive discussion of the selection of a professional Course, which will concern a considerable number of the class of 1950. Since your son may have to make a major decision in this matter, we have given him a copy to assist him, and send you this copy to help in any family discussions which may center on the selection of his Course."

When the second-term freshman returns to the Institute on February 10, and picks up his registration material, he will receive a card which will require him to indicate his first, second, and third choices of Course. This card is to be turned in by February 24. It is strongly recommended that freshmen refrain from making their selection until they have had an opportunity to consider the information which will be placed before them in that period.

Between February 10 and 24, there will be exhibitions in the rotunda and three general convocations for second-term freshmen in Huntington Hall, each with different subject matter, each in a period for which second-term freshmen classes have been excused in order that all may attend. These convocations will be on February 13 at 11:00 A.M., February 14 at 9:00 A. M., and February 18 at 4:00 P.M.

Finally, many departments will hold departmental meetings for the benefit of the group, usually in the late afternoon hours. The time and place of such meetings will be publicized in the weekly Calendar of Events and on the exhibition bulletin board. These departmental meetings will extend the exhibition and the convocations which can do no more than open vistas that are likely to seem more rather than less alluring as they are surveyed in greater detail.

WMIT Programs To Be Aired Daily

New Schedule Includes 'Night Owl', 3 Features

Harold Jacobson, G, program manager of WMIT, announced that his staff is ready to start a seven-day broadcast week next term. Regular programs will be broadcast Monday through Friday, with the "Night Owl" scheduled from 12:00 to 2:00 A.M. Saturday and Sunday mornings. Several new feature programs will be added to those already scheduled.

WMIT's programs will be made available early next term to the Barracks and Graduate House. Lack of a suitable transmission line has kept out that project up to now, but facilities soon will be ready.

All weekdays will have the same hours as at present, 8:00 to 12:00 P.M., with the morning "Night Owl" scheduled on Saturdays and Sundays.

Featured in next term's schedule will be three new programs. A sports feature will cover Institute sports and bring to the microphone the sports leaders at Technology. Some member of the English department is to provide an analysis of the news, plus interviews with guest speakers from time to time. The third new show is a request popular music show which has been made possible by the rapid growth of the record library.

To carry out this ambitious program of expansion, WMIT needs men to work as announcers, script writers, and control room personnel. There is also a need for men in the advertising and business departments of the station. Anyone interested is urged by the directors of the station to come down to the studios.

Instructor Rating Trial Successful

Plan Will Be Extended To Other Departments

Having completed the trial tests of the Instructor Evaluation Program in the Chemical Engineering department, Tau Beta Pi, the honorary engineering society, considers the results have been successful to the extent that it plans within the next two semesters to extend the service to all departments. The tests taken in the Chemical Engineering department were made to determine the feasibility and value of such surveys.

This program has been carried out completely under the supervision of Tau Beta Pi and has no official connection with the Institute functions. In extending this service Tau Beta Pi intends to aid the instructors in evaluating their worth and in finding their weak points to the benefit of both professors and students.

On Wednesday, January 22, elections were held for next term's officers. John P. Dyer, '48, was elected President; George K. Parmelee, '48, Vice-President; William E. Katz, '47, Corrsponding Secretary; Harold L. Abroms, '48, Recording Secretary; Bernard G. Palitz, '47, Treasurer; Henry J. Sandler, '47, Cataloguer. These men will carry out the rest of the survey in the coming two terms.

Station WMIT will conclude its term schedule of broadcasts at 12:00 P.M. tonight, the staff announced yesterday. The programs will be resumed on February 10, immediately after vacation.

PROM BANDLEADER

HAL McINTYRE

A. A. Meeting Raises Question of New Sports

Motion To Establish Investigating Comm. Is Defeated By 10-8

Whether or not the Technology Athletic Association should assume responsibility in helping to institute new sports was the subject of a vigorous debate at the M.I.T.A.A. meeting held Tuesday, January 21, in the Faculty Lounge. Herbert D. Benington, '49, advocated a motion which would empower the A.A. Executive Committee to appoint subcommittees to study the feasability of such proposed sports. After lengthy discussion, the motion was defeated by a vote of 10-8.

Benington's motion called for "an active policy toward new sports" on the part of the A.A., and provided for a program to aid any students who wish to promote new athletic activities. He claimed that lack of A.A. support was defeating attempts on the part of interested persons to do this. Baseball was cited as an example of such a sport.

Opposition to the proposal was spearheaded by Kenneth A. Marshall, '47, who stated that the A.A. should not recognize new activities until plans for such activities are formulated and investigated by sponsors outside of the Association.

Arguments were presented that no suggested sport was conceivable at the present time, to which Benington replied that A.A.-appointed subcommittees could "satisfy everybody by getting difficulties down on paper." He maintained that the major issue was not any specific sport, but rather, the attitude of the A.A. toward encouraging school athletics. In reply, Marshall said that the proposed subcommittees would be unconstitutional, since membership would not be restricted to A.A. members. Marshall also declared that baseball advocates should do their own work.

Following the close vote which defeated the motion, a proposal was made to have a roll-call vote on the same question. This, however, was interrupted by a motion for adjournment.

Other topics which were discussed at the meeting included the problem of insuring a balanced program of home games and those played at other schools. It was pointed out that on a recent Saturday night, Technology varsities were engaged in four games or meets, none of which were played on the campus.

Gala Weekend Begins Mar. 28 At the Bradford

Options to Cost $5.00; Saturday Night Party Is Included in Ticket

Hal McIntyre and his orchestra will be featured at the Sophomore Prom on Friday night, March 28, at the main ballroom of the Hotel Bradford, it was announced this week by Donald L. Botway, '49, chairman of the Prom Committee. This Prom Weekend, the only large-scale formal in the spring that will be open to the whole school, promises to be one of the brighest social events of the term.

Options for the weekend affair will go on sale on Tuesday, February 18. The price of the option was set at $5.00. Because of the heavy demand expected, first-day sales will be restricted to Sophomores, but a bloc of options will be held for second-day sales open to the whole school. The committee announced that admission to the Saturday night hangover party will be included in the Prom tickets. The tickets will cost $7.00, plus tax, or $2.00 plus the option. Information concerning option redemptions will be published in The Tech in the near future.

Hal McIntyre played with the Goodman band and was the first member of the Glenn Miller aggregation when it was formed in the spring of 1938. In 1941 Hal left Miller to form his own band which played its first engagement at Glen Island Casino in Larchmont, New York, known then and today as the "cradle of great bands."

From there it was a short step to the Commodore Hotel in New York and a recording contract with Victor. The records clicked, the films beckoned, and the McIntyres went on to make four feature-length movies at the Columbia studios.

While in Hollywood, he performed at the band mecca, the Palladium. It was one of the pinnacles all

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Alpha Chi Sigma Announces Awards

At a dance held by Alpha Chi Sigma, a Technology chemical professional fraternity, at the City Club of Boston, the fraternity's Junior Awards were made on Friday, January 10. The two men selected to receive the awards were Bernard R. Landau, of Course V, and Carl E. Dengler, Course X, both members of the Class of 2-47. The awards, made by Professor Avery A. Ashdown, consisted of a 75 dollar scholarship, a certificate, and a gold key to each selectee. The two Junior Awards, made annually by Alpha Chi Sigma, are based on scholastic proficiency, professional promise, and all around school activity.

At its regular election meeting, Wednesday, January 15, AXS chose its officers for the coming term. Those elected as chapter officers included Richard R. Hughes, G., as Master Alchemist; John L. Crandall, G., as Vice-Master Alchemist; J. Neil Addoms, G., Treasurer; Steffen F. Dieckmann, '47, Reporter; John T. Sixsmith, '47, Recorder; Schrade F. Radtke, G., Master of Ceremonies; and Francis Browne, Jr., '48, Entertainment chairman.

The Tech

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IS A 35% LIMIT FEASIBLE?

A bill is now under consideration by the Massachusetts State legislature which would deprive of tax exemption those colleges enrolling more than 35% of their students from outside the state. Directly affected would be M.I.T., Harvard, Wellesley and indeed almost all of the older colleges of national reputation located in the Commonwealth.

Before jumping to any hasty conclusions, it might be well to consider all the facts bearing on this suggested piece of legislation. Its purpose, as stated by the authors of the bill, would be to relieve the bottleneck which has kept a large number of Massachusetts students, mainly former G.I.'s, out of the local schools, while an overwhelming number of out-of-state stulents have come here for their education. This state of affairs has undoubtedly caused resentment on the part of the local aspirants for higher education who are being kept out of "their own" schools. They now seem to be bringing pressure to bear on the legislature to correct the situation; and they cannot be blamed for feeling the way they do.

Let us now look how the new bill would effect the colleges at which it is expressly aimed. Taking the case of Technology, it becomes at once apparent that the increased drain of finances would greatly enlarge the deficit under which the Institute is even now operating. For, because of its commitments to veterans and its interest in attracting students (showing the greatest promise) from **all over** the country, Technology could never consider reducing its enrollment of outsile students to 35 per cent. Thus, an increase in tuition would be almost certain, accompanied by a forced reduction of expenditures at a time when most colleges in the position of M.I.T. are expanding to make room for their increased enrollment.

Taking the case of those colleges which could presumably limit their admission of out-of-state students, it appears that Massachusetts itself stands to lose as well as gain by the proposal. The money that has poured into the Commonwealth in the form of trade from incoming students, has annually been many millions in excess of that leaving the state in a like manner. This favorable balance of student trade was supplemented by the millions spent by the colleges themselves in the Commonwealth, much of this money coming from benefactors outside the state to whom the schools represent national institutions. Many industries have furthermore been brought into the Commonwealth by the schools and the state's prestige enhanced by the presence of both.

Can Massachusetts afford to lose a great deal of this trade and certainly much of its prestige by executing this short-sighted maneuver? Will not the other states retaliate and close their borders to outside students as well? Even though the authors of the bill would only have it in effect until 1951, what is to guarantee that higher education will not tend to come down from the national to the state level and more, that an "entering wedge for the ultimate control of government of all private educational institutions will not have been made." Such is the stand taken by virtually all the colleges on this matter.

It seems inconceivable that Massachusetts, with its great record as one of the first thirteen American states, would now be a leader in initiating this un-American plan for dealing with a problem affecting all the states. The tax exemption was provided to encourage higher education and discontinuance would be a step backwards. There must be less drastic solutions to the problem.

PLAY BALL

Last week there appeared in **The Tech,** an editorial advocating a redistribution of power in the system of athletics management at Technology, the need for a graduate manager of athletics being demonstrated. Since the publication of that editorial, we have come into the possession of some additional information which we feel to be of such vital interest to the student body that we are publishing a supplementary editorial, amplifying and expanding the statements put forth in the original.

Last year, Mr. Jope, secretary of the Alumni Advisory Council on Athletics, discussed with the administration of the Institute the advisability of engaging a full-time staff member skilled and experienced in the planning and conduct of athletics. As a result of Mr. Jope's urging, the Executive Committee of the Corporation last July authorized the administration to seek skilled personnel "to assist students in stimulating, organizing, and operating intramural and other athletic activities at the Institute."

We would like to emphasize here that the institution of a graduate manager of athletics does **not** mean that the power over undergraduate athletics would simply be transferred from one individual or group of individuals to another. The function of such a manager would be only to coordinate the activities of the A.A. and the Alumni Council. His job would consist principally of stimulating interest in intramural and intermural sports, and seeing that these sports function easily and efficiently. Such a person would be in a position to tie together all the loose ends which now exist due to the inability of groups devoting only part of their time to such a huge task.

Since the time that a graduate manager was proposed to the administration, the Institute has compiled a list of candidates. Definite action, however, has been deferred in order that the study committee, formed by the Institute Committee to improve the efficiency of athletics management, might reach an independent conclusion. This action on the part of the administration is most commendable, since it demonstrates a genuine desire for democracy in student-administration relationships. The fact that the administration, which is quite decidedly interested in obtaining a graduate manager, is willing to suspend action until the students themselves take a definite stand, is quite significant, and highly gratifying.

There is much to be said for having a graduate manager of athletics here at Technology. Not the least of these arguments is that most other large schools employ them and find that the system thus established works most satisfactorily.

A graduate manager of athletics would seem to be the logical answer to the problem at hand. For the future welfare of athletics at Technology, we can only hope that the Institute Committee's study committee arrives at the same conclusion.

A TIME-WORN TALE

Well, it seems that time and tide actually do bring all things. The latest development shows **Voo Doo** turning away from its usual role as a center of agitation and raucous mouthpiece in favor of merrier brawls to focus its attention on more serious student activities and, for a change, make good use of its editorial power. We welcome the fact that our two publications are finally aligned on the same side of an issue, namely, to solicit more students to come out for the myriads of activities at the Institute.

There is no point in trying to get married students out for activities, if they don't decide to do so on their own hook. Being married is somewhat of an activity in itself in our opinion, and it is surely hard enough to be a successful student here besides tackling the problems of domesticity. There seems no excuse, though, why the many unmarried students still not engaged in extra-curricular work don't give it a try.

In this connection it might be worth-while to mention one important reason why some students might be discouraged from joining activities. A lot of the higher positions on certain committees and publications are being monopolized by a relatively small group of men. It may be wrong to criticize this state of affairs and certainly it is not a new development. But there is undoubtedly a certain amount of resentment on the part of students, perhaps partially unfounded, against the heads of activities who pass on their offices to men already heavily engaged in school activities and appoint new committees from men already long on the extra-curricular scene.

With the activation of the newly-created Public Relations Committee the same sort of situation presents itself. Here is a chance to get some new faces into the picture of school activities. Surely there is a sufficient number of qualified men available for appointment who are not already overloaded with other extra-curricular work and who can devote their full attention toward making this new committee as worth-while as it promises to be.

In The Spotlight

By SANDER RUBIN

This week the spotlight turns to the cultural side of Technology with an interview with Professor Dean M. Fuller of the Department of English and History. Professor Fuller, who has been at the Institute for twenty-seven years, has been responsible for most of the dramatic and much of the musical activities here.

Born in Barre, New York, near Buffalo, Professor Fuller attended Hamilton College in Clinton, New York. This College specializes in oral English. During World War I he served for a year-and-a-half overseas, and upon his discharge in 1920, Professor Fuller joined the staff of the Institute.

In 1927, just twenty years ago, Professor Fuller organized the Drama Shop, the undergraduate dramatics club. Three years later he initiated the Sophomore Drama option course, which he conducted until 1943, and was appointed Director of Dramatics, a post he still holds. From 1933 to 1941 he led the Drama Club, a faculty organization. Professor Fuller estimates that he has directed between eighty and ninety plays during his stay at the Institute; he cannot estimate the number of students he has had beyond saying that it must be several thousand.

Musical and Teaching Accomplishments

Professor Fuller has also been active in musical activities at the Institute. In 1928 he started the music course, which he still conducts. This term there are 140 students attending these classes. He was also instrumental in starting the Walker Memorial record collection in 1930 as an extension of his music course. The debating team also owes its inception to Professor Fuller's efforts.

In his tweny-seven years in the English Department Professor Fuller figures that he has taught every liberal arts subject the Institute gives, and then some, from History of Thought to Industrial Psychology. He has given courses at the General Electric plant in Lynn and for five years lectured in Literature at Katherine Gibbs Secretarial School. He claims that, "When the faculty doesn't know what else to overhaul it overhauls the English Department," a procedure that occurs about every seven years, like locusts (cicadas really).

No Real Improvement In School Life

According to Professor Fuller, since he came to Technology, the Institute has made less progress in improving the social life of the students than in any other direction. Technology sorely needs an auditorium, but none is in sight.

The students' social center is primarily a dining hall. The Institute is under the impression that the students' chief social activity is eating." He has desired "to stimulate a bit of color among test tubes, planetary gears, and God knows what all." Professor Fuller, however, takes a pessimistic view of things, claiming that he doubts whether his efforts have made an impression on anyone.

Professor Fuller further believes that successful teaching is done only by direct contact with the students. He compares large scale lectures and examinations to trying to teach by radio. As one becomes older it becomes more difficult to establish contact because the points of view of the student and teacher become separated by decades. Teachers should be required to retire at fifty (he is fifty-three). Or keep the old people over fifty, who are physically fit, for "useless administrative jobs like Bursars, Registrars, exam supervisers, and so forth, or even janitors."

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Professor Dean M. Fuller recently announced his temporary resignation as director of Dramashop for reasons of ill health. He will resume his position when he recuperates from his ailment.

In the meantime, John L. Bastion, instructor in the Department of English and History, will take over the duties of directing the Dramashop.

Letters to the Editor

Editor,
The Tech
Walker Memorial
Dear Sir:

I have just read your editorial on 'Instructor Rating—An Essay in Education' in the January 17 issue of **The Tech** and am interested to know that this program is actually under way in an encouraging manner. In order that there may be no misunderstanding by the staff of my relationship to this program, I quote from the memorandum which I made immediately after the project was dicussed with me by representatives of Tau Beta Pi.

"I told them that I thought their idea interesting and constructive, and that they had my blessing in going ahead to try to work it out but with the clear understanding that it was their show and not a Faculty or, above all, an Administration enterprise. I said that they would have to be more careful to insure that the results were kept confidential and above all the results must not come to my office.

"The project looks interesting to me, the boys are sincere and they represent the best element in our student body. On the other hand the problem is a touchy one and there may be some flash backs. For this reason I feel that the Administration should have no part in the project other than helping to provide space if this can be done. The possibility and success of the project will depend on the willingness of the staff who are approached by the students to cooperate with them."

Sincerely yours,
KARL T. COMPTON

Reviews & Previews

Normally Henrik Ibsen's plays are difficult for inexperienced actors to perform, but the members of the Suffolk University Dramatic Workshop, did a very commendable job on his **Rosmersholm** last Saturday night.

Playing before a small but appreciative audience, the cast made the most of this dramatic tragedy about the emancipation of both the Danish people and the individuals in the play. The play itself is full of rich dialogue; but too many themes and conflicts are interwoven, with the result that the last act, when all these are brought to a climax, is confusing and pointless.

Acting honors without doubt go to Samuel Cinamon who acted the domineering old-timer, Rector Kroll, with force and vigor. Rebecca West's part was very well-handled by Gail Lee MacHugh except for an over-emphasis on sarcasm in the early acts and a lack of

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Metallurgists Supply Alloys With Required Properties For The Design Engineer

Study Relations Of Metal Structure To Its Properties

Although the average student hears little about metallurgy it covers the second largest industry in the United States. By definition this field includes the production, conversion to useful forms, and study of the properties and service behavior of metals. A metallurgist, then, is a scientist or an engineer who knows metals, not only how they may be produced economically from available ore deposits, but also their chemical properties, physical properties, uses, and ability to meet the combinations of requirements for the multitude of applications in which metals and alloys are the primary structural materials.

Metals are so common in the ordinary life of every individual that we too readily take their supply and their useful properties for granted. The metallurgist neither designs nor builds the modern machines of industry, but rather he works behind the scenes, supplying the necessary metals and alloys with the necessary properties —and studying methods for improving the properties to meet the ever increasing demands of the design engineer.

All metallurgists must be familiar with the basic principles of science and engineering, and with the whole range of processes used in the production and fabrication of metals. However, the field is so broad and overlaps with so many other branches of science and engineering that there is always an opportunity to specialize. In general no specialization is necessary before the senior year and most students do not specialize to any extent until they enter industry or go on for graduate work.

Metallurgy Ties Up With Chemistry

The fields which are very closely related to metallurgy are physics, mechanical engineering, chemical engineering and chemistry. Since more than three-quarters of the known elements are metallic, it is obvious that the science of metals must overlap the science of chemistry. Both the extraction and the refining of metals are based upon the fundamental laws of general chemistry, physical chemistry, and electrochemistry. Furthermore, the problems of corrosion, which enter into the service behavior of so many metals, are primarily chemical in nature.

The production metallurgist is concerned with the processes by which metals are extracted from their ores. These are all chemical engineering processes applied to the economic recovery of metals. Production metallurgists are therefore chemical engineers who confine their attention to metals. Since the variety of processes involved is so large, this does not represent specialization. However, in later life one may become a specialist either in specific recovery processes or in all phases of the metallurgy of a particular metal or group of metals. For example, one may specialize in the production of iron and steel, aluminum, copper or lead; or in the electro-refining processes which are used for producing high purity metals of all kinds.

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Meteorology Offers Challenge To Its Students

Theory Must Replace Statistics To Produce Exact Weather Forecast

Few persons outside the field of meteorology have much idea of what lies behind the weather forecast. The atmosphere is a fluid which is set in motion by the unequal heating of the earth by the sun. This motion is complicated by variations in the location and magnitude of the heat sources and by the rotation of the earth, frictional effects, condensation and evaporation, etc. Even though all of the phenomena obey the laws of physics, it has not yet been possible to solve the problem as a whole so that weather forecasting is not an exact science and, therefore, it is necessary to supplement the theoretical background with empirical and statistical methods. As our understanding of the physical processes of the atmosphere increases, the reliance on empirical methods will decrease. It appears to be practically impossible to devise small-scale laboratory experiments which will duplicate the conditions found in the atmosphere. Thus the atmosphere itself must be the meteorologist's laboratory.

The meteorology curriculum at the Institute is designed to give first the necessary background in physics, mathematics, thermodynamics, mechanics, fluid mechanics and statistics. These subjects are applied to the atmosphere in such subjects as Thermodynamics of the Atmosphere and Dynamic Meteorology. The theory is combined with the necessary empirical and statistical methods in such subjects as Descriptive Meteorology and Synoptic Meteorology. In the Synoptic Laboratory all of the material is brought to a focus on the actual day-to-day weather changes as shown on the weather map; here the students learn to make their own weather forecasts. Other subjects in the curriculum are designed to give the student a broad knowledge of weather instruments, the climate of the world, the relationship of the oceans to weather, etc. It should be noted that this curriculum gives broad training in applied physics and mathematics and many students have found that it serves as a good background for other applied sciences.

Jobs With Weather Bureau

Because of its responsibility to provide all types of weather information for the public, the United States Weather Bureau employs a large number of meteorologists. Although many of these meteorologists are concerned with short range forecasts (usually 36 to 48 hours in advance) there are many other positions available in the

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Combination of Human Relations, Engineering Offered For First Time

Advisory Committee On Course Selection

The Course Selection Advisory Committee has been established for the benefit of the student and to administer the machinery by which final course selections are made and approved.

The Committee has headquarters in room 2-355. It will maintain specified hours for interviewing which will be kept posted at the headquarters and on all the blackboards of the freshman drawing rooms. One or more members of the Faculty will be present for consultation during all scheduled hours. They will be glad to review with individuals their particular problems and to advise them on the best course of action. They will be able to supply all the available information concerning the various courses and to direct individuals to the proper staff members for more specialized information bearing on particular courses.

The choice of a course is a major decision in life. It is certainly wise to obtain all the information possible about all the courses at the Institute. Many of them have possibilities which cannot be realized unless the investigation is made.

The Committee cordially invites all freshmen to consult with it, and when desired, have parents consult with it as well. Every effort will be made to obtain the best solution for each individual's problem.

Training Helpful For Engineering And Executive Jobs

The chances are less than 50-50 that an Institute graduate will be working on a purely technical job after say ten years. It is probable that his job at that time will require the ability to deal effectively with people and to direct the activities of subordinates. Purely technical training is no longer enough for such jobs.

A program of study in human relations and engineering is being offered now for the first time at the Institute as a separate undergraduate course. This program has been added to the curriculum after consultation with a considerable number of business leaders who were unanimous in their belief that this type of instruction was greatly needed and that they would be very much interested in hiring good students from such a course.

Ten years ago we established an Industrial Relations Section in our department of Economics with the generous financial backing of a large group of industrial concerns. This support has enabled us to build up a sizable research and teaching staff of professors in Economics and Phychology who are concerned with various phases of human relations.

What is Course XIV?

Course XIV is built around the basic engineering subjects (electrical, mechanical, chemical) and in the first two years the student takes essentially the same subjects as do students in the purely engineering courses. In the third and fourth years the program is broadened to include subjects both in engineering and in the social sciences. The social science subjects offered are designed (1) to impart some knowledge of human behavior, (2) to show how industry is organized and operated, (3) to give some conception of the broader aspects of economic, political and social problems.

Our objective is not to weaken the professional skill of the engineer in his chosen specialty but to add to this skill an understanding of the human problems of industry which he is certain to encounter in actual practice.

Students in Course XIV have the choice of two options—"Human Relations" and "Industrial Economics." Because of limitations of space the balance of the discussion in this article will be confined to the Human Relations option.

Both Theory and Practice

Some of the subjects in this option deal with basic theory, others with practieal applications. One is a "workshop" in which the attempt is made to train the students in some of the skills of managing people.

Most of these subjects are taught by men who divide their time between actual work in industry and teaching at Technology. They are practical men who are thoroughly aware of the problems one will face when he goes to work after graduation; men who are helping industrial managers to find and apply solutions to those problems every day. They are interested in a theoretical understanding of human relations because sound theory underlies all successful practice, but they are not armchair philosophers, or impractical dreamers.

Engineers are Handicapped

The technical school graduate who goes into industry today with nothing but his technical engineering training frequently finds himself at a disadvantage until he acquires skill in dealing with people. This is true on almost any job in

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Mathematics B.S. Offers Opportunity In Advance Study In Related Fields

Course Also Prepares Student For Teaching Or Statistics Position

Since the time of the Ancient Greeks, mathematics has been one of man's fundamental intellectual activities. The geometry contained in Euclid's "Elements" is still, as it was in 300 B.C., an essential part of the training of every engineer, and indeed of every cultured person.

Mathematics has steadily developed over the centuries. It is just now on the verge of another great step forward, in the utilization of enormously rapid computing machines. These robot calculators will require the full range of present mathematical knowledge, and will in turn lead to new mathematical discoveries.

The Nature of Mathematics

Mathematics is a challenging, beautiful, and useful subject. There are questions in mathematics so easy to state that they can be explained to a boy of twelve, and yet so difficult to decide that 2,000 years of investigation by some of the world's greatest minds have not yet yielded the answer! Problems in mathematics are usually not so formidable, of course, but among people who choose mathematics as their field of specialization, it is probably true that the most important reasons for their selection are the basic and universal character of mathematics and the challenge of solving difficult problems.

The poet Edna St. Vincent Millay has said that "Euclid alone has looked on beauty bare," and the meaning of this statement is apparent upon consideration of the logical precision, clarity, and economy of plane geometry. But mathematics is also a useful subject, and its vitality through the ages has been based upon its intimate connection with the physical world. The continual interflow of ideas between mathematics and the sciences has been one of the fundamental reasons for the flourishing of both. Special stress on this point is one of the characteristics of mathematics teaching at Technology.

The nature of mathematics as an instrument for use in other technical fields is well known; as these scientific and technical fields become steadily more mathematical. Fourier series, matrices, and potential theory are used in electrical engineering, especially in high frequency work, complex variables are used in aerodynamics, differential equations in elasticity and supersonic flow, group theory in quantum mechanics. A member of the mathematics staff who worked in the M.I.T. Radiation Laboratory knew several engineers there who told him that the difficulties they found with the newer concepts of wave guides, transient response, and so on, were never those concerning tangible physical entities but were rather those of the requisite mathematical techniques.

Some types of theoretical physics and advanced engineering make use of just about every sort of mathematics given at the Institute. It would not at all be unwise for a student to major in mathematics as an undergraduate, thereby getting a very strong mathematics background, and then do his graduate work in a field of natural science or engineering; such a student should, of course, select his undergraduate electives from the field of his special interest. It must be understood that a program of this sort is suggested only for students certain to go on into graduate work.

2. The Mathematics Curriculum

The Institute curriculum in mathematics is divided into two options. Option 1 is arranged for those interested in pure or applied mathematics, and Option 2 is in statistics.

In Option 1 the student's choice between the pure mathematics and applied mathematics subdivisions is based upon whether his interest lies in developing mathematics for its own sake or for its applications. The pure mathematician's main concern is with mathematical theorems per se, although even he is greatly helped by some knowledge of the physical motivation underlying many of the results. Practically the only type of employment open to students of this type is college and university teaching; in general to obtain employment in the better institutions a Ph.D. degree is necessary. The undergraduate curriculum in pure mathematics is therefore arranged to stress the basic mathematical foundation needed for subsequent advanced work in mathematics.

In the applied mathematics subdivision of Option 1 there is emphasis upon the fields of mathematics known to be of practical value in treating engineering and physical problems. Some graduates of this program obtain positions with a bachelor's degree only, particularly those who have given special attention to mechanics and elasticity, but for the better industrial positions and for college or university teaching positions, it is usually necessary to go on to a Ph.D. degree.

Option 2 provides training in the mathematical theories of probability and statistics, often combined with courses in engineering or scientific fields according to the desires and needs of the individual student. This training gives the student, upon completion of his bachelor's degree, an opportunity to obtain employment in various government agencies or industrial concerns. Because of the wide variety of situations to which statistics are applied, flexibility of mind and general adaptability are important considerations for successful work in industrial statistics, over and beyond technical competence.

3. Job Opportunities

The job opportunities for mathematics majors can be rather clearly described. Statisticians are employed in government agencies, various large firms, and as university teachers. Pure mathematicians teach in universities. Applied mathematicians work in certain advanced engineering firms, such as the airplane companies or the Bell Telephone Laboratories, or teach in universities. About two-thirds of the professional mathematicians in this

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Geologist Must Discover New Veins Of Metals

Scientific Techniques Using Math., Physics Already Being Applied

Raw materials from the earth are the foundation of modern industry. Without metals, new machines cannot be built; without fuels, machines cannot run; and without minerals, most products cannot be made. At present rates the world will consume in the next ten years as much crude oil as was produced from the first discovery of oil in 1857 to 1936.. The aluminum and magnesium industries have expanded remarkably in the last decade. World production of iron and copper, pushed to the limit during World War II, will continue at high levels. A shortage of lead now faces the world. New discoveries of mines and oil fields are needed, and the geologist must lead the search.

In addition to the increased consumption of the common minerals and metals, many of the less well-known materials are in ever widening demand; for example: tantalum, titanium, the rare earths and uranium. The search is now on throughout the entire world for these new materials and for new sources of old minerals. This search will be the most widespread the world has ever seen.

Discovery everywhere has become more difficult and requires new and advanced methods as the effort intensifies to develop undeveloped regions and further to exploit mature areas. Prospecting and exploration are now scientific procedures. A brand new gold field was found recently in Africa by straight scientific methods. Geiger counters search out uranium ore by electronically detecting the invisible gamma rays released by its radioactivity. The petroleum industry relies almost exclusively on geophysical methods for bringing in new reserves. The instruments used,—magnetometer, gravimeter and seismograph—employ physical principles. Interpretation of the recorded data requires expert geological skill. Geology like most sciences has been revolutionized by modern scientific techniques.

Several Branches Open

In consequence the student of geology must have a firm foundation in fundamental science—mathematics, chemistry and physics. He must also have an inquiring and logical mind. After adequate preparations in basic geology, the undergraduate can direct his attention by means of elective courses to several principal lines of specialization including:

1. Geology of Mineral Deposits; 2. Mineral Valuation and Mineral Economics; 3. Petroleum Geology; 4. Engineering Geology.

Geologists are employed by industry for exploration work, for examination of mineral and oil properties, and for production control; by States or the Federal Government and other institutions for both general and detailed work of public interest; and by colleges for academic work. Governmental agencies or industrial companies engaged in the building of dams and reservoirs, bridges, tunnels, highways and landing fields employ geologists. They also are employed to solve problems of underground water and water supply, stream control, and shoreline engineering. Many geologists engage in consulting work. Geological research is a growing field.

Geologists As Executives

Geologists have assumed administrative posts in many industries, governmental agencies and academic institutions. In several of the largest oil and mining companies, they have attained the highest executive positions.

The demand for geologists trained in the undergraduate course now exceeds the supply. Not only has the recent war caused an unusual lack of new graduates, but in earlier years the supply of geologists lagged behind the growth of the mineral industry. The extensive and long-range exploratory programs now being started by many of our largest industries will accentuate this shortage. Salaries paid to recent graduates have been increased in keeping with the growing demand, and a substantial bonus is now usually paid for foreign work. Mining and petroleum companies have repeatedly called upon the Institute for geologists to staff exploration both at home and abroad.

Geology In Physical Sciences

The curricula in geology at Technology are designed to train the student in the application of physical sciences to geological problems. The fundamental training is given in four years, and many of the successful alumni of the department have been trained in this time. As in most other sciences, the advantage of a year or more of graduate studies is generally recognized. Many graduates return for advanced study after an interval of practical work in industry. Specialization in the Graduate School may be along any of the lines enumerated above for undergraduate work or in those usually requiring a doctorate, such as Geophysics, Petrology, Mineralogy and Crystallography.

Scientific Geological Technique

Research now being done in the department laboratories utilizes many modern scientific techniques. X-ray diffraction studies are being

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Biology Graduates Enter Jobs in Food, Plastic, Drug Industries And Medicine

Course VII Combines Interest In Math., Chem., Physics and Biology

Advances in physics and chemistry have so affected biology that in many specialized fields the boundaries between biology, and these sciences have largely disappeared. This is especially true for the biochemist who is concerned with the structure of organic molecules like the proteins, carbohydrates and other naturally occurring substances; the colloid chemist who attempts to understand the colloidal properties of protoplasm; the biophysicist and chemical physicist who investigate the structure of biological materials; and the modern physiologist, who uses electronic devices in almost every experimental technique. In all cases the attempt has been made to apply quantitative methods to biological problems.

One result of the change in emphasis from descriptive biology to chemical, physical and engineering biology has been revision of the training which now equips the student with enough mathematics, physics and chemistry so that he can take an active part in developing the fertile new fields. Of the two curricula-developed in the department of Biology at the Institute, that in Physical Biology is the more comprehensive, comprising five years of study leading to the S.B. and S.M. degrees which are conferred simultaneously. Included are five years of biological studies, five years of chemistry, four years of physics and two of mathematics. These courses are supplemented by studies in the humanities and by an original investigation during the fifth year. A number of elective courses in the fourth and fifth years permit a moderate amount of specialization. The four-year course in Quantitative Biology follows similar lines, emphasizing the more fundamental sciences and giving the student a firm foundation for research, medicine, or applied biology.

Foundation for Quantitative Biology

The courses of study have been integrated so as to give simultaneous training in the four sciences as it is believed that this simultaneous presentation of basic science and biology is required to equip the student to pioneer in **modern quantitative biology.**

Perhaps as good a way as any to illustrate the scope of Quantitative Biology and the fields it opens to graduates of the department is to

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BIOLOGY

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mention some of the fields of study and interest in our own laboratories at the Institute; spectroscopy (ultraviolet to infra-red), X-ray diffraction, polarized light microscopy, electron microscopy, surface film techniques, colloid phenomena, cathode ray oscillography in the study of bioelectric phenomena, short wave techniques, radioactivity, ultrasonics, and instrumentation. To these can be added numerous special techniques in biochemistry, bacteriology, general physiology, nutrition and enzymology.

Biology's Role In Industry

The biological industries, such as those concerned with foodstuffs, fermentations, including those concerned with the preparation of solvents and penicillin, plant products for non-edible purposes such as used in the rubber, starch, oils and plastics industries; leather and tanning, glue and gelatin; development of drugs, pharmaceuticals, vitamins and hormones; the development of new therapeutic, surgical and diagnostic devices, including ultraviolet light, X-rays and diathermy, have approached the point where, as in the electrical and chemical industries, extensive and widespread research programs of a developmental nature have been initiated. To develop these fields many men well trained in the newer biology will be needed; at the present time the demand far exceeds the supply of qualified men.

Openings In Medicine

Medicine can perhaps be considered one of the most promising fields for the biology graduate. Its practitioners and researchers are constantly "trouble shooting." The strides that this field of human engineering has taken result from its ready acceptance of the modern quantitative method applied by the physiologist, chemist, physicist and bacteriologist. Medicine demands not only skill in the art of healing, but also a training well grounded in the basic sciences. It is not only the potential medical researcher but the general practitioner who must have this essential basic foundation, just as the biologist in other applied fields must supplement skill in the art with knowledge of the underlying sciences. Graduates of the department have established notable records as practitioners, researchers and teachers in most of the large medical centers in this country. The curriculum is so arranged that any graduate of the department automatically completes all of the academic prerequisites for medical school admission.

GEOLOGY

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made of the atomic structure of mineral crystals as well as of organic and inorganic crystalline substances. The interpretation of the results of these studies involves working with the complex Fourier series. This mathematical analysis is aided by the department's Crystal Pattern Synthesizer. In the study of silicate-water systems, pressures of several thousand atmospheres and temperatures up to 1,000 degrees C. are being used to reproduce conditions found deep within the earth's crust. The chemical effects of alpha particles and of deuterons in the cyclotron on organic substances are being studied in connection with the origin of petroleum. Microchemical methods or organic analysis are applied to the products obtained in this research. In order to determine the radiation available in the earth to cause such effects, measurements of the radioactivity of sedimentary rocks in oil fields are being made in the laboratory of phiysical sedimentation. Research is also in progress on measurement of the age of geological formations by means of the accummulation of helium from uranium, thorium and their decay products in minerals. Apparatus for differential thermal analysis is applied to identification of many substances containing water and carbon dioxide and is indispensable where other methods fail. For precise microscopic work, a universal stage laboratory is available. Geophysical research is being conducted on the electrical and mechanical properties of rocks and on the design and construction of equipment for field measurements. The Cabot Spectrographic Laboratory is equipped for a wide range of geological investigations on minor elements.

Geology Essential To Nation

This kind of research is the quantitative approach to geological problems. The geologist thus has the incentive of an advancing science with the competition and spirit of a professional group of high standing.

Geology is the science that deals with the earth. It is vital to our economy and will continue to be so. The department believes that field work should be closely correlated with research in the laboratory. The geologist's problems are world wide, and since they will not come to him, he must travel to them. Geology is perhaps the most travelled science. Geology is for the most part out-of-doors, and the geologist must do much of his work close to nature, often under primitive conditions, far from a clean and polished research laboratory. Even in this day of such tools for exploration as the airplane, the helicopter and the jeep, geologists still travel at times by pack train or afoot, and the seasoned veteran knows the feel of a saddle and the load of a pack.

METALLURGY

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Knowledge of Atomic Structure

Physical metallurgy is concerned with the properties of metals and alloys, based principally upon a study of the relations between these properties and the internal structure. Here many of the principles of physics are involved and physical metallurgy becomes primarily a branch of applied physics. The physical metallurgist must know what goes on inside of a metal both from the standpoint of crystal structure and atomic structure, since these are the things that affect such properties as strength, plasticity, ductility, impact resistance, wear resistance, weldability, machinability and many others. The atomic structures and crystal structures are changed by the mixing of metals in different proportions and it becomes the job of the physical metallurgist to determine the compositions which best meet a specific set of property requirements. Furthermore, such properties as the ability of metals to be deformed without rupture and the improvement in properties resulting from heat treatment depend upon the way in which the atoms arrange themselves in the solid state. All of these problems and many others are closely related to the science of physics.

New Alloys for Industry

The service requirements of metals are becoming increasingly severe and new alloys must be developed to meet specific needs. For example, the mechanical engineer wants to run his turbines at higher temperatures and his engines at higher speeds. Therefore, the physical metallurgist strives to produce new alloys with higher heat resistance and higher wear resistance. Thus there have been developed heat resistant alloys that make possible the operation of jet engines at 1500° F, stainless steels to resist severe corrosion, high speed steels to permit tool operations at tremendous cutting speeds, and duralumin to provide an alloy with the lightness of aluminum and the strength of steel for aircraft construction. When the physicists demanded special metals such as uranium and plutonium for the atom bomb it was the metallurgists who supplied these metals and worked out the proper alloys and fabrication methods. The department of Metallurgy at the Institute played a most important role in this developement.

Another important phase of the work of a metallurgist lies in the control of the quality of metallic materials. When we drive across a bridge, ride in a car or fly in an airplane, our very lives depend upon the proper functioning of metals and alloys. It is known that these materials are inherently strong, but insidious defects—not visible to the naked eye—may undermine their strength and result in disastrous failures. The fact that such accidents rarely occur stands as an impressive tribute to the metallurgist whose scientific methods for probing the metallic state have become practical inspection tools for checking the quality of metals and alloys.

MATHEMATICS

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country teach in colleges or universities.

4. Mathematical Aptitude

There is a special feature of mathematics that must be considered very carefully by any student thinking of going into mathematics; namely, the extraordinary importance of having a high degree of mathematical aptitude. There is probably no technical subject in which success depends so little on diligence alone. This is not to say that a student having a flair for mathematics will not have to work hard: he will soon find out that his competition consists of men who also have a flair for mathematics, and are working hard in addition. Experience shows, however, that a student who is indifferently adapted to mathematics will not do well, no matter how hard he tries. The conclusion is that no student should select mathematics unless past experience in the subject shows that he has a real aptitude for it.

Math., Physics, Chem. Needed

A large part of the undergraduate curriculum for the training of metallurgists consists of basic courses in mathematics, physics, chemistry and mechanical engineering. Of the 400 units in the average four year curriculum, approximately 100 units are made up of courses in metallurgy, all confined to the junior and senior years. These latter courses can be looked upon as essentially consisting of: the chemical engineering of metal production processes, the applied chemistry and applied physics of metals, and the mechanical metallurgical processes involved in the conversion of metals to useful forms such as forging, rolling, welding, casting and drawing.

Job opportunities in metallurgy have always been excellent but are now better than ever before. This is primarily because all industries who use metals to any great extent —and very few do not—now recognize the importance of having men on their staff who know the science and engineering of metals, and whose training makes them particularly fitted for getting the utmost from metals as structural materials. The supply of metallurgists is far less than the demand, partly because it is a field that has not been popularized. The result is that well trained metallurgists can command correspondingly higher salaries. During the depression salaries of metallurgists were in nearly every case higher than those for any other engineering profession as shown by the Bureau of Labor Statistics.

Metallurgists are employed in every section of the country both by industries which produce metals and industries which consume them, the latter including such industries as the automobile, aircraft, electrical machinery, petroleum, chemical and a multitude of others. Jobs may be primarily in research, production or sales engineering. The profession also offers many opportunities for travel and the production metallurgist in particular has job opportunities all over the world.

ECONOMICS

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almost any division of a business concern. In order to get ahead, he must convince his superiors not only of his competence as an engineer but of his ability to get along with his associates, and of the fact that he possesses the personal qualities, the knowledge, and the skill necessary to become a successful leader of subordinates.

This knowledge and this skill can be acquired, of course, by trial and error provided the man possesses the necessary personal qualities and the basic intellectual capacity. To a certain extent practical experience is absolutely necessary to their acquisition. However, pure trial and error learning is a slow and expensive process in any field of endeavor.

The man who has acquired in school a thorough understanding of the fundamental principles of human behavior in organizations and of the process of managing people, and who has in addition acquired at least some skill in applying those principles, is in a position to short-cut the slow, costly process of trial and error. He won't know all the answers, certainly. In fact, among his important assets will be a keen awareness of the tremendous complexity of human relations, a realistic knowledge of human prejudices and their effects, and a healthy suspicion of the too easy answer or the panacea.

Skills that Industry Values

But his training will by no means be all negative. He will know how to go about analyzing human relations problems, how to get the facts, how to test a tentative solution. And he will know something of the methods which can be used to prevent the development of problems and conflicts in human relations.

These skills, and the knowledge underlying them, are not easy to acquire. The high value placed on them by industry testifies to their scarcity. Only the student whose intellectual capacity is of a high order, and whose personal qualifications and emotional adjustment are well above average, can hope to get from Course XIV a degree of knowledge and skill which will materially affect his career. But the student who has the capacity can, through this combination of engineering and human relations, prepare himself more adequately than if he were to concentrate on either one alone to deal with industry's problems of tomorrow.

A final word of caution: Course XIV does not provide professional training in Personnel Administration or Industrial Relations. That specialized training can only be acquired through graduate work. However, for the man interested in Personnel Administration, Course XIV provides an adequate foundation. Its objective is to train the engineer to deal more effectively with people. The personnel executive requires that fundamental training, too, but he requires in addition professional training at the graduate level.

Spotlight

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Travel Broadens The Mind

Professor Fuller usually spends his summers traveling in Europe, or on his farm in New Hampshire. He has visited all the European countries except Russia and Scandanavia. Next summer he doesn't know what he'll do, since his New Hampshire house burned down last year.

Sports Flashes

SWIMMING

Two varsity records and two freshman marks were broken last weekend as the Technology swimming team suffered defeats by Bowdoin and Springfield Colleges at Alumni Pool. The Tech frosh defeated Brookline High School, 37-29, in a meet Saturday afternoon.

Jim Leonard, captain of the M.I.T. tankmen, ploughed through two lengths of the pool to set a new record in the 50-yard freestyle against Springfield on Friday night, January 17. Leonard's time was 24.0 seconds, one-tenth of a second below the former mark he himself had established at the Amherst meet of December 13. Against Bowdoin Saturady afternoon, Leonard tied the 24.0 record he had established less than 24 hours before, to capture a first place in the 50 free.

A new pool record was also set on Saturday when Merrow, of Bowdoin, won the 150-yard backstroke in 1:40.5 minutes. The previous record of 1:42.6 had been established by Geolitz, of Amherst, in the Intercollegiates of March, 1941, held the first year the pool was opened.

TRACK

Two varsity relay teams and one freshmen team will represent Technology in the Knights of Columbus games at the Boston Garden tomorrow afternoon.

Running for the Engineers on the one-mile relay team will be Ingraham, Vitagliano, Prigoff and Baldwin. Both Vitagliano and Ingraham ran on the relay last year. The mile relayers will race against Boston College and Tufts.

A two-mile varsity contingent composed of Henze, Speare, Cleworth, and a fourth runner will be paced with Northeastern, Holy Cross, Tufts and Boston College over the Garden track. The fourth man will be selected from among Noss, Lewi, Jablonski and Kirchner after a trial run.

A frosh mile relay team of McMartin, Lobo, Simpson and Hunt hope to find competition in the K. of C. meet, although no definite freshmen entries from other schools has been made as this issue went to press.

LACROSSE

A pre-season smoker for the Lacrosse Team will be held on Monday, February 17, at 3 P. M. in Litchfield Lounge at Walker Memorial. The first practice session for the squad is scheduled for the week following.

Coach Ben Martin, former All-American, along with Captain Joe Riley and Manager Phil Macht are planning for another successful season. This year's schedule calls for games with Rutgers, R.P.I., Harvard, Drexel, Stevens, Tufts and New Hampshire. All those interested in the sport, whether experienced or not, are requested to attend the smoker at which the future plans for the team will be discussed.

SQUASH

The M.I.T. squash team, victorious in its match last week with Amherst, will fly up to McGill University at Montreal, Canada, on February 1 in an attempt to prolong its winning streak. Those who will make the trip are Sumner Scherer, Stew Brauns, Joe Tabor, Don Kornreich, and Tom Cummings.

METEOROLOGY

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Weather Bureau. These include administration, long range forecasting, flood and river stage forecasting, instrument development, climatological work and research. The opportunities are much the same as in other government scientific bureaus.

The airlines rank first among the private employers of meteorologists. Airline forecasters work closely with flight dispatchers and pilots and have a major responsibility for the safety of the flights. An airline meteorologist is in an excellent position to learn the operational phases of aviation and to work up into an administrative position.

Employment In Industry

Business and industry are now beginning to realize the importance of the weather factor and some meteorologists are now employed by such concerns. This is a new field with vast possibilities for there can be little doubt that the intelligent application of weather to business and industry will result in substantial savings. A parallel development is the recent establishment of meteorological consultant organizations to assist private concerns which do not require their own meteorologists.

Indicative of the growing interest in meteorology is the trend towards the establishment of meteorology courses in many colleges and universities. There is consequently a demand for capable teachers. There are also opportunities for research positions in colleges which maintain complete meteorology departments. As in other fields, graduate training is usually a prerequisite for a career in teaching or research.

New Problems Arise Constantly

At present there is a good demand for meteorologists. Since there is every evidence that it is an expanding field the future possibilities are good. Salaries are much the same as in other scientific or engineering fields.

In addition to a sound physical and mathematical background a meteorologist must possess an active imagination and scientific intuition of a high order. For a meteorologist, nothing else can take the place of the continual challenge of the daily weather changes. The work cannot become routine because each day presents new and interesting problems. He is nearly always working in the present or in the future and hence partakes of the thrill of exploration. The present uncertainty and inexactness of the science is an added incentive to most, although there are a few individuals who would find this disturbing.

Meteorology New Science

Perhaps the most interesting thing about meteorology is its youth as a science. We know so little about the atmosphere that even the inexperienced man comes in almost daily contact with the horizon of our knowledge. Whereas in many of the older sciences years of study and experience are required to reach the frontier, in meteorology the opportunity for creative work comes very quickly and is not confined to the research worker.

There is a close and growing contact between meteorology and other branches of science and engineering. The contact with aviation is obvious not only in the operational phases but also in the design of aircraft and air fields. Since meteorology is applied physics there will always be close liaison here not only in classical physics but also in more specialized fields of modern physics. Atomic physics is important in the study of the high atmosphere, radio methods are used to explore the ionosphere and spectroscopy is applied in the study of the absorption of solar and terrestrial radiation. Meteorologists have drawn much from the fields of electrical engineering and electronics in the development of measuring techniques. One of the newest of these applications is the use of radar to track and study storms. Other new developments, such as high altitude missiles, pose many problems which can be solved only by the combined efforts of engineers, physicists and meteorologists.

Those who work in meteorology find it an interesting and challenging career. In addition to the interest of the work there is the satisfaction of knowing that any improvements will be of direct benefit to man and his activities. Weather completely ignores national boundaries and thus makes world-wide cooperation essential.

Reviews & Previews

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graceful movement on-stage. John Rosmer, the weak hero of the play, was unfortunately not well-acted by Richard Carson. Mr. Carson carried the weak characterization to the extent of an almost total lack of movement and a hurried delivery of lines which very often reached its climax at the wrong points.

The Beaver Barks

by Dave Israel

The latest in the series of events concerning sports here at Tech occured last Tuesday afternoon at a meeting of the M.I.T.A.A. At this meeting of the Athletic Association, attended by the managers and captains of the various teams, a motion was introduced by Herb Benington, manager of the hockey squad, to the effect that some positive action be taken by the A.A. on the matter of the establishment of several new sports.

Benington suggested that a subcommittee of the Athletic Association be appointed by the Executive Committee of the A.A. to make a thorough investigation of the feasibility of the institution of a sport upon the receipt by the latter of a petition from students to that effect. This report, when completed would be submitted by the subcommittee to the A.A. itself.

Ken Marshall, a "lame-duck member" of the A.A. by virtue of his short term as Field Day manager, raised various objections to Benington's motion. Because of Marshall's objections along with several less significant protests raised by Bill Martin, equipment manager of the A.A., the motion was defeated by a vote of 10-8.

Marshall's protests were based on his idea of a "hands-off" policy for the A.A. in regard to new sports. Under his plan, anyone interested in the establishment of a new sport, would draw up a report upon his own initiative and then the future of the report would have to depend upon what support the Executive Committee of the A. A. would give it. Martin's objections were based on his statement that he had no room in which to store the equipment of any new sport. Martin also beleived that the proposed committee would be unconstitutional.

A committee to investigate new additions to the sports program should be formed from and be backed by the A.A. in its position as the symbol of student leadership in athletics. One would suppose that the A.A. would want the complete and unbiased facts, not shaded by the views of the people who formed the investigating committee due to their own interest. Mr. Marshall doesn't.

Or is it that the A.A. would rather not be pinned down to a definite opinion in regard to these sports? Let's cut this 'beating around the bush." The A. A. has, as a responsibility to the student body, the job of investigating the possibilities of starting new sports here at Tech, such as boxing, baseball, or football. Too much has been said, and too little done. Who'll start the ball rolling?

Prof. Majors Is ASME Chairman

Professor Harry Majors became Honorary Chairman of the A.S.M.E. last Friday when Professor William M. Murray resigned that position after two years of service. In addition, the following were elected as officers: Chairman, Soli D. Dubash, '47; Vice-Chairman, Harold R. Harsch, '47; and Secretary-Treasurer, Edward C. Kistner, '47. After the election, movies were shown.

Soph Prom

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bands strive for, and he has since appeared at others—the Sherman in Chicago, the Paramount and Strand Theatres on Broadway, Frank Dailey's Meadowbrook, the Casa Manana in Culver City, and many others. They were starred on a network commercial sponsored by Eversharp. After a few years he switched recording affiliations to Cosmo, and became that label's top band.