

TECH NEWS



ENGINEERS EASILY SWAMPED BY RHODE ISLAND STATE 39-0

Tech Will Play Rensselaer at Troy—W. P. I. Hopes for Win—Putnam May Play

Next Saturday the football team will get its last chance of the season to win, when it visits Rensselaer Polytechnic Institute at Troy. In this game the team should be in good shape and make a better showing than it has in the last game or two, especially since the backfield will be strengthened by the return of "Don" Putnam, who has been out of the last few games because of injuries, but who has recovered sufficiently to enter this game, and should give a good account of himself, if his last year's record is any indication of his ability.

It is a question as to which of the two teams, W. P. I. or R. P. I., will be the better in this final game. Both have suffered several defeats, and although the home team was defeated by larger scores, this may be more than evened up by the return of Putnam
(Continued on Page 7 Col. 1)

TECH NEWS ASSOCIATION ACTS ON AMENDMENT

New Men Are Voted Membership

At a meeting of the TECH NEWS Association last Wednesday, a number of men were voted into the Association. O. M. Petroman, W. H. Hinchliffe and L. R. Peters were accepted as business assistants, while the application of E. D. Jones for a reportership was also accepted. L. H. Bull was voted his pin, having fulfilled the requirements.

The amendment introduced some time ago changing the required number of hours for a business assistant from twenty-five to eighteen was tabled until more could be found out about the work done.

It was voted to have a telephone put in for the convenience of the managing editor, this telephone to be an extension from one of the offices above.

The election of a new Athletic Editor was deferred until next meeting and an amendment was introduced providing for a change in part c of Article 6. The article now reads: "In the event of a vacancy in the position of News Editor, Athletic Editor or Secretary, the TECH NEWS Association shall elect by a majority vote one of the ex-Junior Editors or one of the ex-reporters in the Senior class to fill the position." The amendment would read: "In the event of a vacancy in the position of News Editor, Athletic Editor or Secretary, the TECH NEWS Association shall either choose by a three-fourths vote one of the ex-Junior editors for that position, or, in the event that such a qualification can not be fulfilled, holding of an election of the man to fill the position shall be decided by the Senior staff.

ENGINEERS AND CLARK WAGE TIE SOCCER GAME

W. P. I. Should Win Over Northeastern

Tech and Clark battled to a 1 to 1 tie in their annual soccer tilt at Clark Field on Saturday. Even though Coach Higginbottom was at a disadvantage through the loss of three varsity booters, he showed remarkable skill in placing his substitutes. The Tech men scored a goal in the first period and from then on Clark soccerites took a very stern offense. However, their efforts only brought about one goal. G. Higginbottom of Clark scored their point and Nelson of Tech tallied for a tie-up. The fact that the Main-South men were heavy favorites to win this tilt indicates good playing for the engineers. The title of victor must wait until next year when the traditional rivals will meet again.

On Saturday, November 16th, the engineer booters will close their schedule by engaging Northeastern. Looking at previous scores, it will be noted that Clark downed Northeastern by a 2 to 1 score, and Tech tied Clark to a 1 to 1 score. The game should be an exciting one.
(Continued on Page 5, Col. 5)

PEDDLER STAFF MAKES PLANS FOR YEAR BOOK

Progress of Work is Encouraging

At the meeting of the Peddler staff Monday night, November 4, the editors and business staff discussed plans for financing successfully the Peddler of 1930. Every effort is being made to abolish the plan whereby every Senior must buy three copies of the year-book. This is being done in accord with the plan to make it a true college annual and not only a class book. The Junior Editors were acquainted with the work already completed and that which was to be done before publication.

Cover designs for the Peddler have been submitted for approval of the Editors. Among these, two of the best have been selected and sent to manufacturers for bids.

At the editorial meeting Thursday, November 7, editorial and business assignments were made to the Sophomore competitors. Also it was found that the Freshman candidates have collected about ninety per cent of the pledged orders. This is quite successful, because the drive began only a short time ago.

Several class page designs have been made; also snapshots of students, rope-pull and activities have been gathered.

However, any good snapshot of the rope-pull or the coming conflict in football between the Freshman and Sophomore classes will be greeted by the Peddler editors.

HYDRAULIC LABS. HAVE ADDITIONS

Changes Are Being Made By The Stone & Webster Co.

Since the latter part of last May there have been many changes made on a section of the properties of the Alden Hydraulic Laboratory and to the north of the laboratory buildings. These changes have been in the form of reproducing to a greatly reduced scale a section of the river bed of the Columbia River in the Northwest. The development is known as the "Rock Island" project and is being constructed by the Stone & Webster Company, under the direction of Mr. W. K. Johnson of that company.

The Stone & Webster Co. have had the laboratory corps of its own hydraulic engineers run many tests upon models at the Alden Laboratory. It has been the experience of that company that experimental changes made upon models are much less expensive than changes upon a project costing several million dollars. Not only this, but it is known that if the models are accurate reproductions of the original the results obtained from tests made upon these models will be found to hold true for the actual structure. The experimental changes may be such as to result in a large saving in money resulting from an increase in the life of the dam, the power capabilities of the dam, the aesthetic and commercial values of the river, and other things.

The model at Chaffins is scaled down one hundred times, and its approximately sixty feet represents over a mile of the river bed of the Columbia. This distance is measured from the board ap-
(Continued on Page 4, Col. 1)

WALTER CLARK GIVES SECOND LECTURE IN THE FULLER SERIES

Extensive Red Cross Drive Is Launched By Presidents of Four Classes in Addresses Before Assembly

SPEAKERTALKS ONRELATIONOF ART TO ENGINEERING—GIVES EARLIER EXPERIENCES

The second of the Fuller assemblies was held last Tuesday in the gymnasium with Daniel F. O'Grady, '30, chairman. After the opening song, the chairman introduced M. L. Price, Ralph Hodgkinson, Donald Smith, and Leighton Jackson, the presidents of the four classes who urged students to subscribe to the Red Cross in the coming drive. Two selections, "John Peel" and the "Hymn of the Engineers," by the Glee Club followed. Before introducing the speaker, Mr. Walter L. Clark, President Earle urged the students to consider among themselves the latest college song and to decide its worth.

Mr. Clark is vice-president and general sales manager of Niles, Bement, Pond, Pratt & Whitney Company. During the war he had charge of the Westinghouse Company plant at Chicopee Falls, Mass., which was engaged in producing rifles. He is one of the founders and leaders of the India House in New York City. It is he who is largely responsible for the artistic atmosphere for which that institution is noted.

Mr. Clark opened his address with his early experiences as an engineer. "At eighteen I worked in a shop because I had to earn a living," he said, "I worked there for three years." Some friends of mine were building a factory in the Allegheny Mountains and it was suggested that I take a job in it." He went on to explain the various problems connected with this job with which he had to combat, having as his only experience a three year apprenticeship.
(Continued on Page 5, Col. 3)

GLEE CLUB MAKES FIRST APPEARANCE AT ASSEMBLY

Concert To Be Given Nov. 24th

Last week the Glee Club again held tryouts under the direction of Mr. D. W. Hanscom, this time among the men already chosen in the first selection. About five men were dropped. Each quartet was required to sing two verses of "Alma Mater" without music. There are now about forty-five men in the club and Mr. Hanscom, the director, believes that he now has the best group he has ever had at Tech.

The first appearance of the club before the student body was at the Fuller assembly Tuesday when it sang "The Hymn to the Engineers." The first public appearance of the club will be a concert at the Odd Fellows' Hall in Worcester on November 26th.

The Banjo-Mandolin Club held its first tryouts under the leadership of Warren R. Purcell last Friday and he states that the club has prospects of a very successful year.

TECH BEATS R. I. STATE IN CROSS COUNTRY MEET

Phil Pierce Is Again Leader

The Tech cross country team, led by diminutive Phil Pierce, decisively defeated the Rhode Island State long distance runners over the hard Worcester course by a 19-39 score. This victory is all the more remarkable in view of the fact that the R. I. State runners defeated the Brown harriers more decisively than did Tech. R. I. State's failure to live up to the name they had made previously this season is probably due to the fact that their own course is practically level and not being accustomed to hilly country. Bancroft and Newton Hills required all their reserve strength. The Bancroft course is considered the toughest cross country course in New England.

Phil Pierce led the runners over the entire course in the fast time of 27 minutes 42 seconds, which is only 10 seconds short of the course record. A short distance behind Pierce trotted Bill Burr who has returned to his usual consistent form now that his foot has healed. Mace made it the first three for Tech when he crossed the line behind Burr. Beane was the first R. I. state runner to cross the line finishing
(Continued on Page 5, Col. 1)

PHI SIGMA KAPPA WINS INTRA-MURAL TENNIS

Play-off Needed To Break Tie

INTERFRATERNITY TENNIS

The Interfraternity Tennis schedule, which has dragged so much this year because of the weather, is now at an end. Following is the standing of the teams:

	Won	Lost
A. T. O.	6	1
L. X. A.	6	1
P. S. K.	6	1
P. G. D.	3	4
T. U. O.	3	4
S. A. E.	2	5
S. O. P.	2	5
T. X.	0	7

This left A. T. O., L. X. A. and P. S. K. in a triple tie for first place. In lining up the three to play off the tie, L. X. A. drew the "bye" so P. S. K. played A. T. O. P. S. K. won over its opponent, and then started the final play-off with L. C. A. P. S. K. was victorious in the first set and then with the score of the second set 5-5, it became necessary to stop playing because of lack of light. This set was finally won by L. C. A., but in the deciding match last Thursday P. S. K. triumphed with a score of 6-2.

CALENDAR

THURSDAY, NOVEMBER 14:
 9:50 A. M.—Chapel Service, Rev. P. B. Covell.
 4:30 P. M.—Glee Club rehearsal in gym.

FRIDAY, NOVEMBER 15:
 9:50 A. M.—Chapel Service, Rev. P. B. Covell.
 7:30 P. M.—Meeting of the Knights of the Road, M. E. building.

SATURDAY, NOVEMBER 16:
 2:00 P. M.—Varsity Football game, W. P. I. vs. R. P. I. at Troy, N. Y.
 2:00 P. M.—Varsity Cross Country, W. P. I. vs. R. P. I. at Troy, N. Y.
 2 P. M.—Varsity Soccer game, Northeastern vs. W. P. I. at Alumni Field.

MONDAY, NOVEMBER 18:
 9:50 A. M.—Chapel Service, M. L. Price.
 4:00 P. M.—Tech News assignments, B-19.
 4:30 P. M.—Glee Club rehearsal, in gym.

JOIN THE RED CROSS

TECH NEWS

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THE RED CROSS

In minor disasters, which leave small communities prostrate, the Red Cross makes no appeal for funds, although it may on occasion use local contributions. At such times it furnishes workers and supplies out of its own reserves. This gives force to special appeals, when the entire nation is moved to pity by some outstanding calamity. So the annual membership campaign may be considered as the public's part in the smaller relief tasks.

Every student should form the habit of joining the Red Cross annually and now is as good an opportunity as ever to start the habit. Every student is going to be approached several times and if each man gives the Red Cross a little thought none will refuse his division collector. Pay your dollar and wear your Red Cross pin in a prominent place.

Once more the students at Worcester

Tech are being given a chance to contribute to a noble cause—the Red Cross. At home as well as in foreign countries the Red Cross has given its services. Every student should feel obliged to give his bit to maintain such a splendid organization. We often hear people who claim that we should attend to our own suffering before helping the needy of other countries. They use this excuse as a means of eluding the Red Cross drive. They forget the relief that was given the Mississippi flood sufferers. There are countless other cases in our country where Red Cross aid has been called upon. At times, there are as many as ten relief operations going on at once in different parts of the country. Workers have been sent into tornado districts of the northern mid-west, while others were winding up relief for flood sufferers and hurricane disasters.

TECH AS A MARKET

The college campus has long been recognized as a large field for increasing the sales of dealers in many lines of enterprise, particularly local merchants dealing in such things as haberdashery, personal services, entertainment, etc. However, with the late greatly increased trend in large-scale advertising, not only the local business house, but the national corporation has turned more and more to the college as a fertile field for its product. It is perhaps noticeable in the case of several of these large companies whose business is entirely engineering, that their advertisements, as may be seen from several in this issue of the NEWS itself are not presented to the engineering college student primarily as a prospective buyer, but as a prospective employee. For some students this

may be rather a novel viewpoint, but it has long been realized by the large company that "it pays to advertise" not only the product but also the name, ability and accomplishments of the firm in order to attract the undergraduates who, when the time comes, will consciously or unconsciously tend to accept his position in the business world with the establishment whose name has made the most appealing impression upon him.

This issue of the TECH NEWS is a recognition of this fact, and has been made possible by our advertisers. Read them carefully, not only this week, but every week; note their makeup, find the "jist" of their message and respond to their appeal—that is what they ask of you.

EMPLOYING STUDENTS IS SUBJECT OF EDITORIAL

A Number of Reprints Are Made

The editorial, "Mr. Employer," which was written by Prof. H. F. Taylor, has won much favor in the editorial world. It has been reprinted a number of times and quoted at other times.

Certain young engineers are about to enter your organization. They are men of more than average intelligence and ambition, of more than ordinary promise. Your eagerness to employ them is an evidence that you recognize their potential worth. It is not within

the province of the college to dictate the treatment that these recruits shall receive. The college has more than a passive interest in their welfare, however, and feels justified in making suggestions that may be mutually helpful.

These men—they are no longer boys—are serious-minded for the most part but they have a well-balanced sense of humor. Their training has made them alert, industrious and self-confident. They possess no over-weening idea that they "know it all," which is contrary to some conceptions of the young graduate.

Engineering education is a skillfully designed structure. Students progress from a substantial foundation of sci-

ences and mathematics, along a framework of engineering fundamentals, to a superstructure of interesting and intricate problems. It frequently happens that graduation into industry means a plunge into a dull routine that offers few opportunities to exhibit highly trained analytical abilities. If this routine is a necessary step in their progress, as it frequently is, a careful explanation of the fact will create a healthier attitude.

Colleges cannot teach judgment; that comes from experience. These men have a fair amount of common sense, and their judgment will develop in direct ratio to the amount of responsibility that is given them. It is well for them to make some mistakes if the penalties inflicted are not too severe. Make the penalty a heavier responsibility and see how they rise to it.

Young graduates need not be considered a dead loss during the period of finding themselves. Your business is all new to them, and they are eager to learn it. Idle drifting around the plant is not their idea of learning, however. They have been trained to work

C. E. NOTES

Several faculty members of the Civil Engineering department attended the meeting of the New England branch of the Society for the Promotion of Engineering Education last Saturday at Harvard University.

The regular monthly meeting of the Worcester branch of the American Society of Civil Engineers will not be held this month in order that the joint meeting of the several branches of the Worcester Engineering Society may be better attended.

hard, and not having enough to do is their greatest source of discontent.

You have chosen men from the small group that has survived a long and arduous process of elimination. They are your investment for the future. Handle them intelligently, pay them all they are worth, give them a word of praise when it is merited, or of encouragement when it is needed. Some day they will step up and take your job, which is what you had in mind when you hired them.

ECONOMIC PARLIAMENT MEETS IN BOSTON

An invitation to attend the fifth annual New England conference has been received by the editor of TECH NEWS. This conference is sponsored by the New England Council which consists of the Governors of the six states and many prominent business men. The conference is commonly referred to as the "economic parliament" of the six New England states and meets to discuss the various business and industrial problems of this section of the country. The central theme of this meeting is expressed as "What the New England communities can do to accelerate their own industrial growth," a question on which many prominent men will speak, giving helpful suggestions as to its solution. The list of speakers is headed by J. E. Aldred of Aldred & Company, New York, partner in business with ex-Governor Fuller.

The conference date has been announced as November 21 and 22 and it will be held in Boston this year.



No compass to guide him

Trying to pilot a plane without compass or other instruments is as unsatisfactory as trying to pilot your course through life without a plan.

You find many a man after college switching from job to job—"I think I'll try fiction writing for a while," or "Selling bonds is what appeals to me." Aimless! Real

progress does not come in that way.

Fortunately most men have a natural aptitude for one type of work rather than another—for things mechanical or artistic, factual or imaginative. The solution of the problem is to be found in self analysis, making a decision and then following through.



Western Electric

SINCE 1882 MANUFACTURERS FOR THE BELL SYSTEM

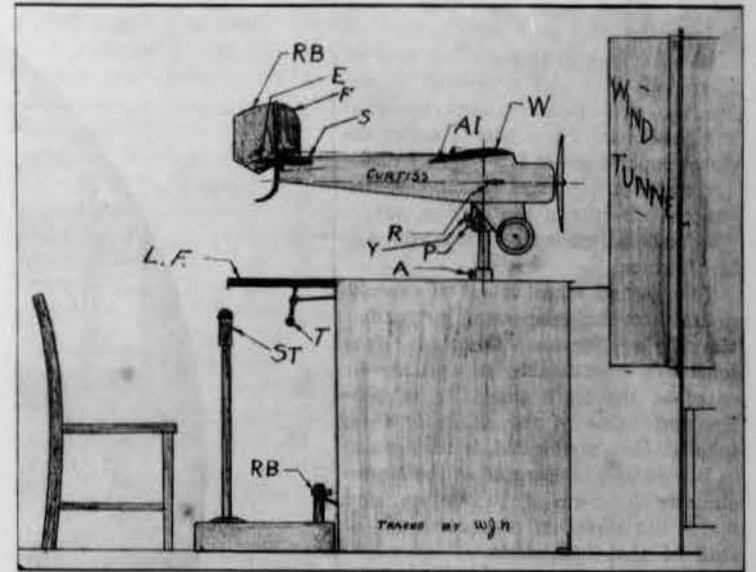
PIERCE STARS IN EVERY RACE - W.L. CLARK ADDRESSES FULLER LECTURE

TECH OVERCOME BY RHODE ISLAND IN HARD GAME

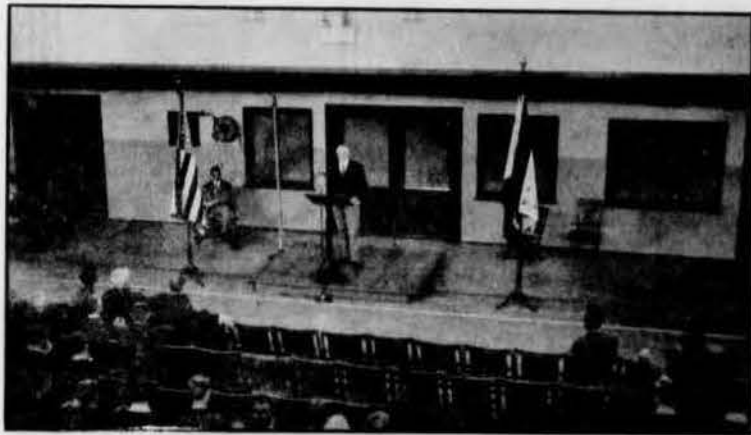


(Left) PIERCE CROSS COUNTRY STAR

(Right) WIND TUNNEL FOR INSTRUCTION IN CONTROL AND STABILITY, USING MODEL OF AIRPLANE.



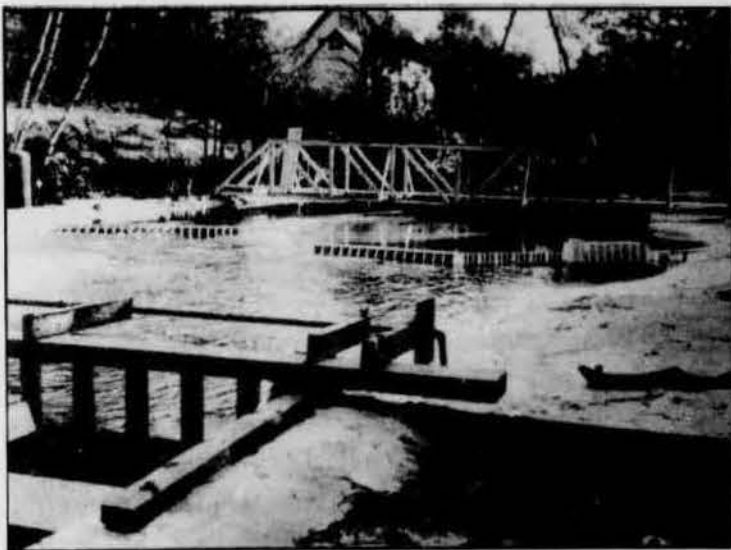
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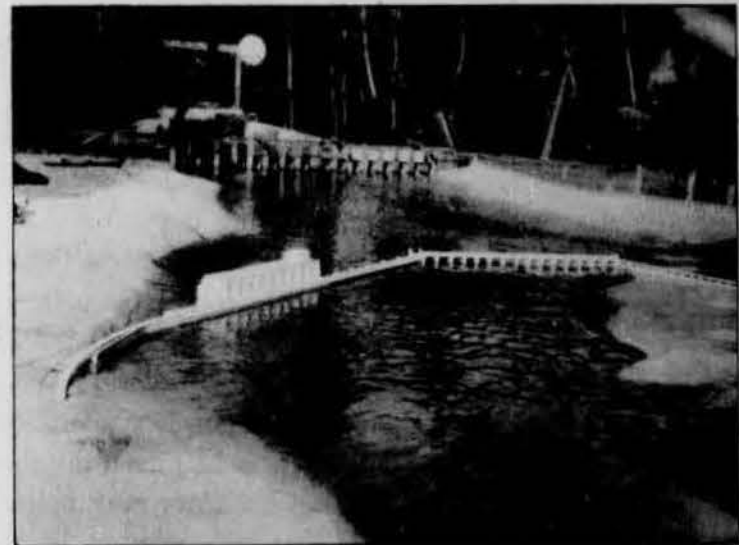
TECH STUDENTS HEAR OF "ART IN ENGINEERING"



MR. CLARK, ASSEMBLY SPEAKER, AND PRESIDENT EARLE



ROCK ISLAND PROJECT AT CHAFFINS



ANOTHER VIEW OF STONE & WEBSTER MODEL

(See Page 1, Col. 3 and Page 4, Col. 15)



VIEWS AS RHODE ISLAND OVERCOMES TECH



GROUND SCHOOLS ARE HELD BY CURTISS CO.

Sixty Schools Are Run by Curtiss

There is being held at the college four nights a week one of the Curtiss Flying Service Ground Schools. This school opened about September 1, and is being handled by Professor Merriam of the Aeronautic Department, and by Messrs. Staples and Whenman of the Mechanical Engineering Department at the Institute. The school is under the direct supervision of Mr. Lindsey of the Worcester Airport and Mr. Mayer, educational director of the Curtiss system. The business manager of the school is Mr. Turner.

This ground school is one of approximately sixty being operated by the Curtiss Flying Service. Of these sixty schools a considerable portion are located in the East, especially in New England. One of the oldest of these schools, over a year old, is maintained in Boston and is operated at the Massachusetts Institute of Technology, and under the direction of several of the staff of that institution.

The period of the course is about three months, with meetings of two hour duration being held twice a week in the evening. The tuition for the course is fifty dollars. The school at the Institute was originally planned to be made up of one class of approximately fifty students. The interest of the men of Worcester and the neighboring towns was so great that it was necessary for two classes to be formed; the first having about sixty students, and the second class about thirty.

The subjects covered in the ground school are: the airplane, airplane engines, propellers, airplane instruments, meteorology, navigation, and air commerce regulations.

The Curtiss Company furnishes such facilities as it has at the airport in Grafton. These facilities include the use of the airport library of aeronautic works, the airport, such airplanes as the company owns that are at the airport, miscellaneous parts used for engine instruction, and the wind tunnel for instruction in control and stability.

The Institute contributes the use of the airplane design room and one or two other rooms, the aeronautic library, periodicals having to do with airplanes, the MO-1 plane for instruction in structure, the Wright Whirlwind engine sectioned to show interior construction, the college's general collection of engines including the Liberty engine, a Curtiss OX 12, and a Hispano-Suiza, and the nearly complete wind tunnel.

PHYSICS DEPARTMENT NOTES

At the meeting of the Physics Colloquium held Tuesday, November 5, Mr. R. J. Stephenson was the principal speaker. He chose for his subject "A New Method of Determining the Charge of the Electron." Last Tuesday the second meeting of the month was held at which Mr. M. F. Manning was the speaker.

HYDRAULIC LABS

(Continued from Page 1, Col. 3)

appearing in the foreground of picture "A" to a farther boundary which is partially hidden by the bridge provided for inspection.

The other picture is taken from the upstream side of the dam. The power house, the dam, spillway, and fish ladder are shown in this view. There are two branches of the river, and the left hand section is shown in this view. The right hand section is provided with flood gates. These gates are used to control and regulate the head. A certain maximum head is fixed, and if the head increases above this value, such as would be the case if there were

a larger flood than was experienced during the period of preliminary study, there are additional flood gates provided in the section of the project adjacent to the power house.

The building of fish ladders is the result of agitation on the part of both the federal government and the state government, and many civilian organizations such as the Izaak Walton League, and other fish and game societies. These ladders are similar to canal locks, one above the other. The fish, for which the river is widely known, swim from one chamber, or lock, into the next higher one through a valve in going up the river, and vice-

versa, if the fish are headed downstream. At the water level there are gates provided to allow the fish to get from the ladder into the main stream. It is said, in speaking of the fish ladders being constructed on the project, that the mortality of fish on the downstream voyage is considerable as a large portion of the fish are drawn into the turbines. The blades of the turbines cut the fish to pieces.

The great accuracy required in making this model is evident when it is considered that one inch represents slightly over eight feet. In order to secure the accuracy necessary for the test model great care and precision

must be employed in determining the contour of the river. From this contour map the model is made, and the contour lines are marked out on the model itself so that a means of getting a ready estimate of the height of the river is provided.

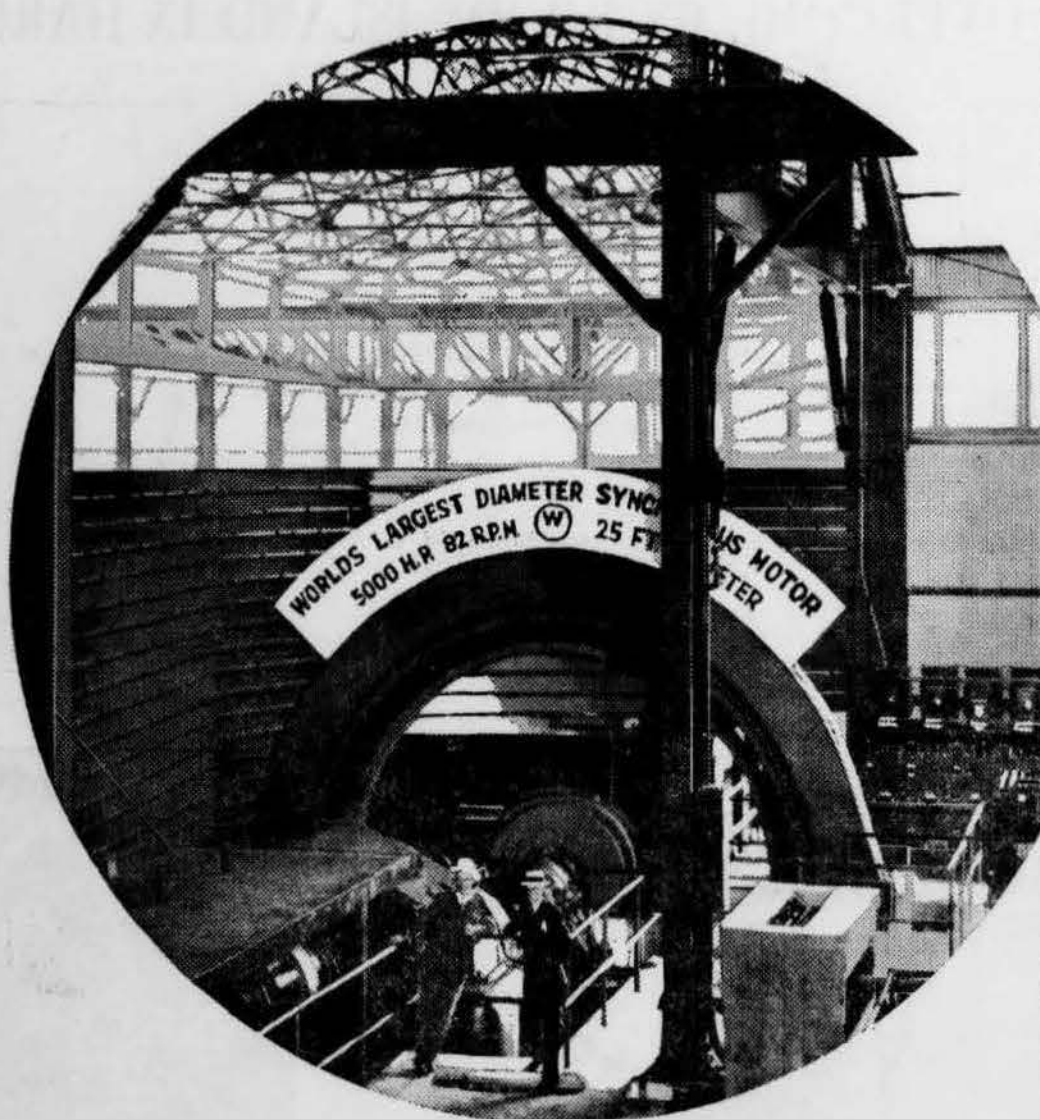
In addition to this it is quite essential to have accurate knowledge regarding the behavior of the river under conditions of extreme high water and extreme low water. To secure this information automatic height recording gauges are placed at many points along the river.

The Rock Island Project is one of the largest of its type ever tested by

the construction of models. Previously several smaller developments were modeled and the models tested; among these was the Fifteen Mile Falls development of the New England Power Co. The test run last week on the Columbia River project would seem to indicate to the engineers in charge that this model will eclipse all such former projects in the value of the results obtained as well as in its greater size of developed horsepower.

This is one of a series of special articles written for the NEWS dealing with customs, incidents and sketches of the Institute.

WHAT YOUNGER COLLEGE MEN ARE DOING WITH WESTINGHOUSE



This 5,000 h. p. motor in the Columbia Steel Company's plant, with its frame of arc-welded steel, is physically the largest synchronous motor ever built.

Ninety days to go— teamwork wins

While you Seniors were shuffling worries about machine stresses and saturation curves with those of football last fall, a group of your predecessors, not so many years ahead of you, were playing the game with grim realities.

The Columbia Steel Company of Pittsburg, California, completed plans on September 12th to build a new tinsplate plant. On the 13th they gave an order to Westinghouse for two 5,000 horsepower synchronous motors to drive the rolls, to be physically the largest synchronous motors ever built. Delivery of the first was wanted in ninety days.

Ninety days in which to design, manufacture, assem-



Westinghouse

ble, test and ship any large unit, let alone a new achievement in size and type of construction, affords no time for idle speculation. Westinghouse men went at the job as only an experienced and thoroughly equipped organization could do. And on the scheduled date, four flat cars and a box car rolled out of the Westinghouse plant, carrying the completed and tested motor.

It was an industrial victory, as satisfying as any athletic gain. Teamwork and individual skill had won. Westinghouse had once more made good and upheld the reputation that earns the big electrical jobs for Westinghouse men.



H. R. HILLMAN
Contract Administration
Carnegie Institute of
Technology, '22



W. B. SHIRK
General Engineer
Lehigh University, '20



B. I. HAVFORD
Switchboard Engineer
Syracuse University, '22



H. C. MEVERS
Machine Design
University of Nebraska, '27



H. G. DILLON
Production Supervisor
Oklahoma A & M College, '23

In Memoriam

1914	1918
Frank Christopher Brough	Inst.
David Mijamin Gaskill	'18
Arthur Greenwood	'09
Robert Horner Hogg	'10
Earl Hamilton Karcher	'17
Almon Kemp Lincoln	'20
Thomas Michael Lynch	'07
John Edward Malone	'08
Raymond Bardwell Penniman	'15
Albert Randolph Prouty	'14
Winfield Mills Putnam	'17
Bruce Errington Stephens	'22
Louis Dominic Tomasi	'18
Anson Moulthrop Vibbert	'13
Leon Hubert Webber	'13

CHEMISTRY DEPT. NOTES

The Skeptical Chemists held their second meeting of the year Tuesday evening, November 5. There were three speakers. Edwin Haskell chose for his subject "Rays—the Clue to Evolution", while Gustav Mangsen spoke on "Bakelite." William Yates' subject was "The Production of Amyl Alcohol from Pentares." The usual discussion was led Dr. W. L. Jennings.

On Friday, October 25, Dr. W. L. Jennings and Dr. F. R. Butler of the chemistry department, attended the opening of the Moore Laboratory of Chemistry at Amherst College.

RIFLE CLUB

On November 23 the Rifle Club will hold a match with the Worcester Pistol and Rifle Club at their range. Several varsity candidates will be given places on the rifle squad at this match.

At a meeting of the Freshman Rifle team last Wednesday, Manvel was elected captain.

TECH WINS X COUNTRY

(Continued from Page 1, Col. 4)

fourth followed by his team mate Miner, who took fifth position. Buell, a freshman, kept up his good running finishing sixth and Al Hall completed the five man team by taking seventh. This gave Tech five men out of the first seven.

The order at the finish was as follows: 1 Pierce, O. P., W.; 2 Burr, W.; 3 Mace, W.; 4 Bean, R. I. S.; 5 Miner, R. I. S.; 6 Buell, W.; 7 Hall, W.; 8 Word, R. I. S.; 9 Pratt, R. I. S.; 10 Hersey, R. I. S.; 11 Didden, W.; 12 Ostlund, R. I. S.; 13 Pierce, G. E., W.; 14 Goodwin, R. I. Time 27 min. 42 sec. First five runners from each team count in the score.

Next week the Tech runners will journey to Troy, N. Y. to oppose the strong R. P. I. long distance runners and if their running of the last few weeks is any indication of what is to be expected next Saturday, they should return to Worcester with another victory. This meet with R. P. I. will end the Tech season which has been one of the most successful ever had here at the Institute.

ALUMNI SECRETARY ILL

Prof. H. F. Taylor, secretary of the Alumni Association, has been absent from his office for the past week due to illness.

TECH STATIONERY

New Seal 75c box

Special discount to Tech Students on Stationery

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A. S. M. E. WILL MEET IN N. Y. DECEMBER 2nd

C. Wright Will Represent W. P. I.

The annual meeting of the American Society of Mechanical Engineers is to be in New York City this year, December second to fifth. The afternoon of the first day, Monday, there will be a get together smoker to which the representatives from the student branches are especially invited. The president elect, Charles Piez, will hold a reception Tuesday and several short technical sessions will fill out the program of the first two days. Wednesday is students' day, starting with a supervised plant inspection in the morning followed by the usual luncheon with the council members. After luncheon the president elect will address the assembled undergraduates and his address will be followed by short talks from three prominent members of the national society. The remainder of the afternoon will be given over to a special program, planned to arouse the interest and to better acquaint the undergraduates with the engineers present. A new plan has been devised and will be tried this year for this purpose, which is to have, as far as possible, a prominent engineer present for each student there.

Charles Wright, '30, chairman of the student branch A. S. M. E. here, will be Tech's representative at this worth while meeting.

HARVARD UNIVERSITY ENTERTAINS ENGINEERS

The 1929-1930 meeting of the New England Section of the Society for the Promotion of Engineering Education was held last Saturday at Harvard University.

In the morning, there was held a complete tour of the university, including the Medical School, the School of Public Health, and the Graduate School of Business Administration.

In the afternoon session, held in Pierce Hall, E. S. Doherty, consulting engineer of the General Electric Co., and E. S. Mansfield, Head of the Educational Bureau of the Edison Electric Illuminating Co. of Boston, spoke on "Orientation of Students to Industry." George A. Stetson, Associate Editor of the "American Society of Mechanical Engineers," C. E. Davis, acting Secretary of the same magazine, and P. W. Swain, Associate Editor of "Power," spoke on the "Summer Session for Teachers of Mechanical Engineering at Purdue University." Later a detailed examination of the work and facilities of the Harvard Engineering School was held.

Dinner was served in the Harvard Union. H. J. Hughes, Dean of the Harvard Engineering School, held a general discussion on engineering problems.

Several members of the faculty of the Institute attended this meeting.

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As to remuneration, reports of college graduates who have entered business indicate that Life Insurance is at the very top as a source of income. Now is the time for you to consider what you are going to do after graduation. If you are ambitious and willing to work hard, and are interested to know more about Life Insurance, address Agency Manager, 317 Chamber of Commerce Building, Worcester, Mass.

ASSEMBLY

(Continued from Page 1, Col. 5)

ticeship. "The pumps and machinery were bought in Paris, and were built and designed long before my time," he said. "The drawings had instructions in French and the measurements were in the metric system. I had to learn French to know these drawings. I asked for tools and they showed me a crowbar and a hatchet." All these experiences came to him when he was twenty-two years of age.

One of his friends helped him get a position in a tool company to see that the machinery which it sold was in running condition. At this point in his lecture he interrupted to state that "friendship is one thing really important in college, getting in contact with a large number of people is one of the great benefits of going to college. Know your friends and get those able to guide you and to give you the foundation you need. Do not undervalue yourself, but on the other hand do not overdo it. People are very apt to take young men at their own valuation. Just tackle a job and get away with it

somehow or other. It takes nerve on big jobs, and do not doubt whether you can do it or not—try it anyway." Coming to the main part of his address, "Art in Engineering," he gave as a single definition, "Beauty made by man."

"What is art? Where does it come from? It comes from the mind or the soul of man and is a desire to express beauty in the human mind. And where does the intense desire come from? To my mind it comes from exactly the same place, the source that everything else does—some power over and beyond the whole world and universe we see about us. It is a small thing in a way, but it is the heart and soul of modern civilization—that desire to express something that is finer than the material things about us. We engineers have been engaged in material things and they are very important—they house us, clothe us, get us transported, feed us, and so on—all engineering problems come back to that, but art is something that has to go with it. And if we had no art we would still be going around in skins and living in huts and caves.

The span of a bridge is a beautiful

thing, a stream of water is a beautiful curve, and we all know the reason for that. In a commercial art, design that is beautiful has much to do with it. If a machine has fine lines, it will be popular, attract attention and be successful. People who do not think they care about art and beauty find they do, just from picking out a machine because of its lines. Beauty has great commercial value. The commercial design catches the eye immediately and is very important." He closed his address stating that beauty should not be confused with prettiness.

TECH-CLARK SOCCER

(Continued from Page 1, Col. 2)

citing one and a victory well earned. The team showed their mettle Saturday at the Clark game and should tally up a victory from Northeastern and the predictions of the Tech followers point to that end.

The lineup for the game will probably be as follows: goal, Nelson; backs, Herrate, Tillan; halfbacks, Hurley, Rice, Duchacek; forwards, Bayon, Hammer, Larson, Erickson, Skuropat.

Aerated Cement flows through Pipes, at this modern mill

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Two 1872-cu. ft. Balanced Angle Compound Compressors, direct connected to synchronous motors, in the plant of the Lawrence Portland Cement Company, Thomaston, Maine. They supply air for transporting cement, agitating clay and quarry drilling. View of the plant showing the 150,000-barrel silos; and the Fuller-Kinyon pumps.

Every industry is finding more profits in compressed air—which now costs so little with Balanced Angle Compressors.

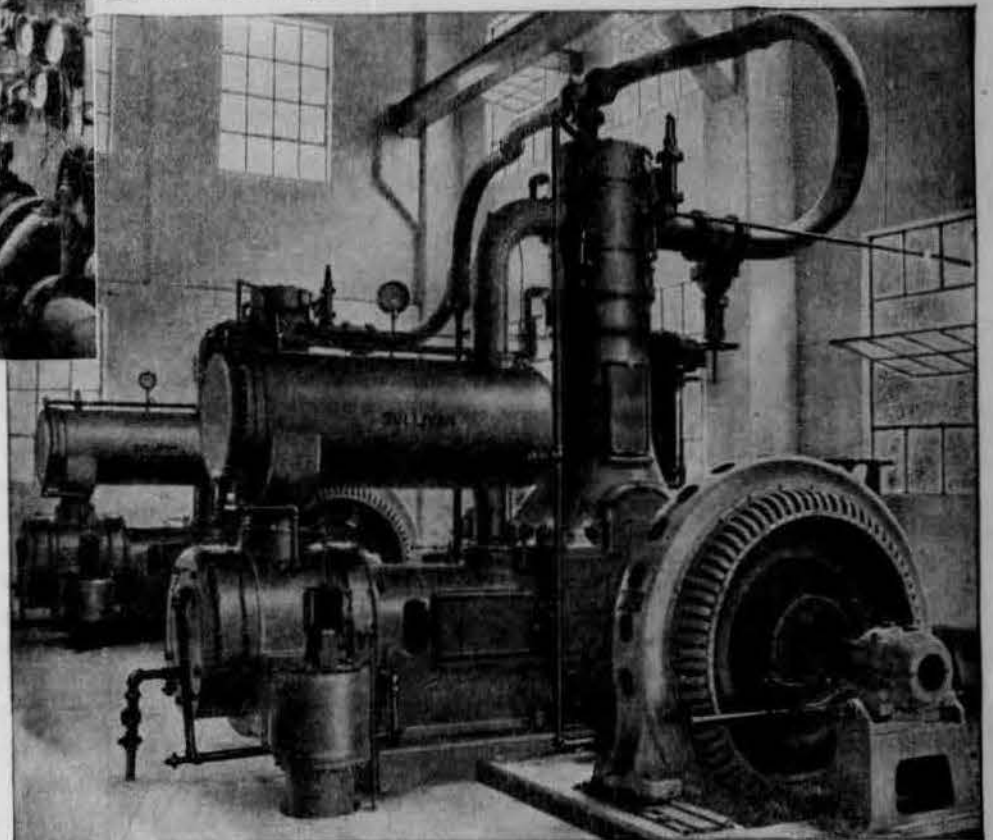
In the new Lawrence Portland Cement Plant—cement is mixed with air and pumped to the storage silos.

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S U L L I V A N

SCORES OF W. P. I. AND R. P. I. ARE COMPARED

Both Teams Have Had Poor Season

With one win and five losses chalked up against its record, the Engineers from Worcester Tech will stake their all in this, the last game of the season, against R. P. I. The engineers from R. P. I. have won but two games and lost five. Tech has been held scoreless but once while the boys from R. P. I. have failed to score in three games.

Capt. Finney, O'Grady, Topelian, Carlson, Anderson, Delano and Pagnoni will wear the Crimson and Gray on the gridiron for Worcester Tech for the last time.

W. P. I.

8—Arnold	0
6—Trinity	7
6—Boston University	39
12—M. A. C.	19
6—Norwich	20
0—R. I. State	39
38	124

TRINITY

0—Williams	44
7—Worcester Tech	6
0—Haverford	19
0—Hamilton	38
13—Wesleyan	19
20	126

BOSTON U.

0—Army	26
6—New Hampshire	24
27—Vermont	6
39—Worcester Poly.	6
6—Springfield	34
0—Tufts	14
13—Holy Cross	44
91	154

MASS. AGGIES

7—Bates	6
6—Bowdoin	18
12—Middlebury	14
12—Norwich	6
19—Worcester Tech	12
0—Amherst	13
0—Springfield	13
56	82

NORWICH

0—Dartmouth	67
7—Coast Guard	0
7—Colby	20
6—Mass. Aggies	12
20—Vermont	0
20—Worcester Tech	6
0—Middlebury	7
60	112

RHODE ISLAND STATE

19—Arnold	0
0—Maine	7
5—Brown	14
6—Bates	6
26—Lowell Textile	7
28—Coast Guard	0
39—Worcester Poly.	0
25	34

R. P. I.

13—L. I. U.	0
28—Cooper Union	0
0—Clarkson	7
0—Rochester	13
2—Union	7
7—C. C. N. Y.	38
0—Vermont	12
50	77

L. I. U.

0—R. P. I.	13
0—Rider	19
0—Coast Guard	25
37—Wagner	0
0—Upsala	14

E. E. NOTES

The electrical department of the Institute has received two very substantial collections of equipment for communications work, one from the American Telephone and Telegraph Company and another from the Western Electric Company. This equipment will be added to the communications division under Professor Newell.

A picture of Joseph Henry, famous scientist of the electrical field, has been presented to the Institute by W. J. Hammar. This picture is an enlargement of an original, autographed photo, given to Mr. Hammar by Joseph Henry. The picture will be a companion to that of Michael J. Faraday, the English physicist.

Professor Smith will leave tomorrow for New York to attend a meeting of the Edison Medal Committee for the purpose of choosing a man to receive the Edison Medal.

0—Buffalo	13
13—N. Y. Aggies	6
50	90

CLARKSON

6—Alfred	0
0—Cornell	60
7—Hamilton	14
7—R. P. I.	0
9—Buffalo	12
25—Hobart	0
0—Niagara	53
0—St. Lawrence	31
54	170

ROCHESTER

13—Wesleyan	6
27—Alfred	0
0—Hamilton	6
13—R. P. I.	0
20—Buffalo	0
7—Springfield	7
0—Union	7
80	26

UNION

53—Wagner	0
0—Columbia	31
28—Hobart	13
7—Vermont	13
7—R. P. I.	2
7—Williams	7
7—Rochester	0
109	66

C. C. N. Y.

6—Rider	6
0—Lowell Tex.	0
0—St. Lawrence	22
4—Drexel	12
45—Geo. Washington	0
38—R. P. I.	7
0—St. John's	25
93	72

VERMONT

0—N. Y. U.	77
0—Yale	89
6—Boston U.	27
13—Union	7
0—Norwich	20
0—Conn. Aggies	34
12—Rennselaer	0
31	254

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Annual Meeting To Be Held In Dormitory

The annual fall meeting of the Worcester Engineering Society will be held in Sanford Riley hall on November 20th this year. The meeting is called for 6.30 p. m. and dinner will be served at seven. The committee has secured Mr. V. R. Jacobs, assistant manager of the Aeronautics Department of the Goodyear Tire & Rubber company of Akron, Ohio, to address the society after dinner. He has played an important part in his company's program in lighter-than-air craft construction. He is very well prepared to speak on the subject, "Dirigible Aircraft" since he has been active in the development of this phase of the field, and can give a discussion in non-technical terms covering the many difficulties in passenger transportation and describing some of the newest facilities for this type of work.

CURTISS FLYING SERVICE LOANS TECH APPARATUS

Wind Tunnel Is New Equipment

As a part of the Curtiss Ground School which is being conducted at the Institute by Prof. K. G. Merriam and Messrs. Staples and Whenman, the Curtiss Flying Service has loaned the college a wind tunnel for instruction in control and stability.

On the third page of this issue will be found a sketch of this tunnel. The letters on the sketch are explained as follows:

Control surfaces—RU=rudder, E=elevator, F=fin, S=stabilizer, W=wing, AI=aileron.

Control locks for demonstrations only—R=rolling lock pin, Y=yawing lock thumb screw, P=pitching lock pin, A=altitude lock thumb screw.

Controls—T=throttle, pushing forward speeds engine and vice versa, ST=stick, operates ailerons to produce or check rolling to pilot's right or left. Moving stick to right lowers right wing and vice-versa. Also operates eleva-

ALUMNI NOTES

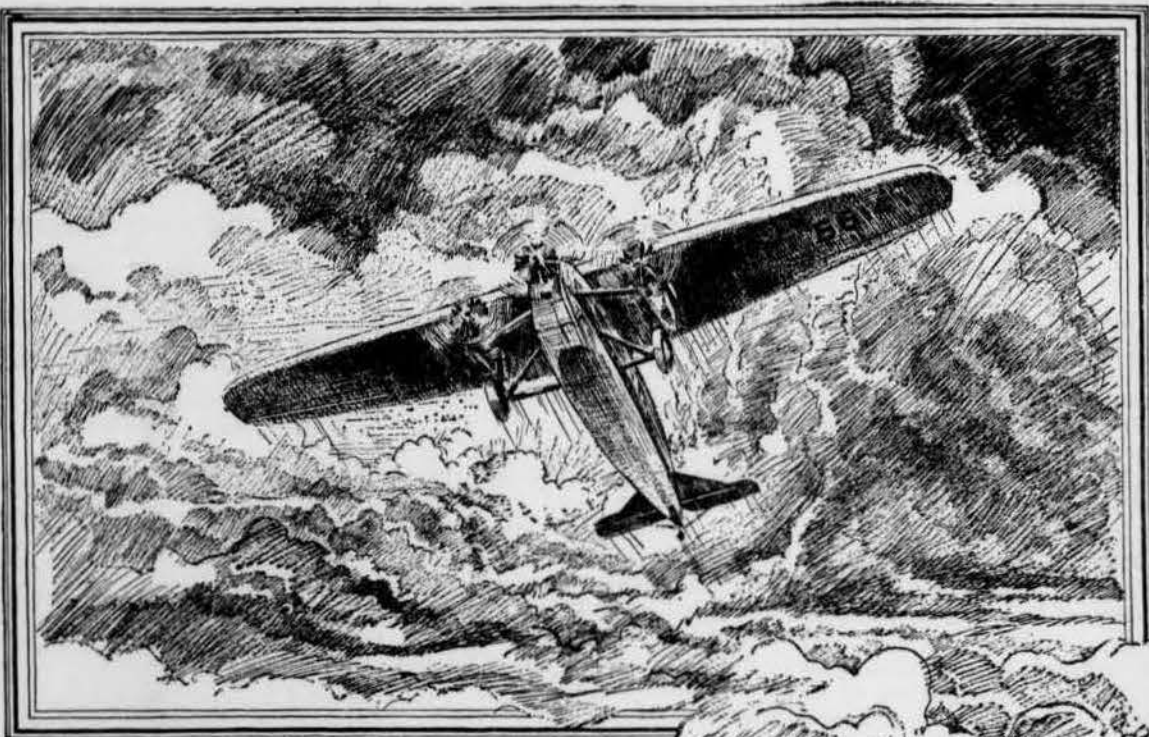
Several changes have taken place this past fall in the personnel of the Alumni office. Miss DeVoe, Wheaton, '29, took the place last August of Mrs. Adams who had served in this department for the past seven years.

On November 1st Miss Andrews, also well known in the Alumni office, resigned her position.

M. C. Cowden, a graduate of W. P. I., class of '20, and formerly an instructor in German here, was a visitor at the Institute over a recent week end. Mr. Cowden is now teaching German at Dartmouth.

tor to produce or check diving or climbing. Moving stick forward dives ship and vice-versa; RU=rudder bar, operates rudder to produce turning about the vertical axis in level flight. Pushing the right foot turns ship to the right and vice versa; L. F.=landing field.

An airplane type propeller mounted to a variable speed one horse-power electric motor furnishes the wind for the wind tunnel.



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PHYSICS DEPARTMENT ENGAGES IN RESEARCH

Several members of the staff of the Physics Department have already started the research work upon which they plan to spend their spare time. Dr. A. W. Ewell is continuing the work on ozonizers on which he is a recognized expert. Dr. M. Masius and Mr. W. E. Lawton are collaborating in a study of high precision methods in spectro-metric work. Dr. S. J. Plimpton is at work on a method for testing the fundamental law of electric attractions and repulsions with greater accuracy than has hitherto been reached. Mr. R. B. Dow has constructed apparatus for studying the Thomson thermoelectric effect in pure carbon and other substances. Mr. R. Stephenson will be engaged on an extended study of Wehnelt cathodes and allied phenomena. Other members of the department will probably be heard from later. Work of this kind progresses somewhat slowly in an engineering college because the time available is limited.

R. I. STATE 39; TECH 0

(Continued from Page 1, Col. 1) and the added experience gained by Swipp and Kane.

A somewhat one-sided game with Rhode Island State Saturday left Tech on the small end of a 39-0 score. At the very first it could be seen that the backfields of the two teams would play a very important part in deciding which won, since the lines were quite evenly matched. However, toward the last of the game, a weakness in the "Hill" team's line continually let players through to upset backfield plays before they were started.

The great advantage which "Little Rhody" had, lay in the speed of its backfield, especially Goff, who accounted for four of the six touchdowns scored by the invaders, and Howes, who tallied the two remaining. In our own backfield, Kane was forced out of the game early in the first period. Throughout the entire game the visitors used passes continuously and although many of them were not successful, several were only too successful, paving the way for touchdowns. The home team played a defensive game throughout, attempting only a few short passes, and relying on line plunges for its gains. Both sides punted a great deal, especially during the first half, when the ball merely shuttled from one side of the field to the other under the impetus of kicks.

The Blue and White started hostilities immediately in the first quarter, taking the ball over the line for a touchdown after a few plays near the center of the field, and then a steady march down the field. In the last of the period Tech made some real gains with Captain Finney and Edgeworth carrying the ball, but in the second quarter, Rhode Island again assumed the offensive with a series of long passes and end runs and a few line plunges mixed in. Early in this quarter Tech came the nearest to scoring of any time during the game when it had the ball on the enemy's 10-yard line, but the last down did not quite make the required distance and the opportunity was lost. In the second quarter "Rhody" tallied another touchdown when Goff ran wide around the

PROFESSOR MERRIAM TO GO TO BILOXI, MISS.

Will Visit Southern Airports

Professor K. G. Merriam will go to Biloxi, Miss., to give a paper before the annual convention of the American Institute of Steel Construction on November 13, 1929. The title of the paper is "Design of Rolled Steel Slabs for Column Bases." This problem was suggested to Professor Merriam by Mr. West of the Eastern Bridge Company of Worcester. During the past two years, the problem has been investigated by Professor Merriam and Mr. D. G. Downing, both of the Mechanical Engineering Department.

On this trip to Mississippi Professor Merriam will, if opportunity allows, visit a few progressive airports and airplane factories. During the past summer he visited airports and factories located along the Atlantic Coast from Langley Field at Norfolk, Va., north to Lowell and Boston. During this trip Professor Merriam was able to observe and study many new features of airplane design, airport management, airport construction, engine design and care, and other sundry subjects relating to aviation. It is in this way that the college course in Aeronautical Engineering is kept up to the minute in a field where new developments are being made every day, and in which new problems are ever arising in the pursuit of "Man's conquest of the air."

end for a score, after he and Howes had brought the ball from their 35-yard line in a series of first downs. A beautiful straight place-kick directly between the goal posts accounted for an extra point after both of these two touchdowns.

In both the third and fourth quarters, Tech becoming weaker and the visitors stronger, the latter scored two touchdowns. The two in the third period came as a result of quick, shifty playing on the part of the ball carriers which carried them far down into our territory. In the fourth quarter, Kane was put in again and gained some yardage but was usually stopped by members of the opposing line, before he got started. A long bullet-like pass, by the visitors, resulted in another score and finally in the last part of the period the ball was carried down the field again for a score by a long surprisingly speedy end run.

Heroic service was done by men in the line, such as Carlson, who continually broke through to smear plays in the making; Maggiocomo, who, as usual, kept the team on its toes with his abandonment and accuracy in spotting the ball and stopping its carrier. Bob Taylor, who again made some spectacular and efficient tackles. In the backfield Captain Finney and Edgeworth played a steady, powerful game.

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RADIO TOWERS ARE TAKEN FROM E. E. BUILDING

The picturesque radio towers which have so long adorned the roof of the E. E. building are destined to come down according to the report of Assistant Professor A. J. Knight, Superintendent of Buildings and Grounds. The removal has been made necessary because of leaks in the roof supposedly caused by the weight of the masts. Taking advantage of the opportunity the Club decided at their meeting last Wednesday to move the entire station to a new location in the north-west wing of the building. The transmitter, which has heretofore been inaccessibly located in the "dog house" on the roof, will be rebuilt and more conveniently located in the new operating room. The new antenna will probably be vertical. A committee consisting of C. T. Smith, chairman; R. J. Libbey, and E. P. Holter, has been appointed to study the thesis submitted by Lincoln H. Peterson, '29, on "The Construction of a Radio Station," with a view of recommending its adoption to the club. The rebuilding of the station will occasion a great deal of work during the next season.

WIND TUNNEL IS GIVEN A TRYOUT

Models To Be Tested Are To Be Constructed

The wind tunnel, which several of the staff of the college and of the Washburn Shops having been working on for the past few months, was given a trial test on last Friday morning. The labor remaining to be done has to do with the construction of the aero-dynamic balance for the measurement of air forces. Then, too, the models to be tested in the tunnel must be constructed. All this work on the wind tunnel, and the work to be done on the balance and on the models is in charge of Professor K. G. Merriam, the Elmer P. Howe Professor of Aeronautical Engineering.



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SIGMA XI WILL HOLD ITS OPENING MEETING

Dr. Sherwood of Tech Will Speak

The W. P. I. chapter of Sigma Xi will hold its opening meeting of the year on Wednesday, November 13, at 8 p. m. in the lounge room of Sanford Riley Hall. The executive committee has completed arrangements for the meeting at which Dr. Thomas Kilgrove Sherwood of the Chemistry Department will be the principal speaker. Dr. Sherwood has chosen for his subject, "The Mechanism of the Drying of Solids." His lecture will be illustrated.

Following the meeting refreshments will be served.

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T. S. Roy's subject

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Look for the light in the tower

A. S. M. E. ENJOYS FIRST MEETING

Film, "The Story of Steel" Is Very Interesting

The local student branch of the A. S. M. E. opened activities for the coming year with an interesting and well-attended meeting last Tuesday evening in the Electrical Engineering lecture room. About seventy-five members and guests were present. Twenty-five new membership cards were signed at the close of the meeting.

President Wright opened the meeting with the announcement of the A. S. M. E. membership drive and introduced Prof. H. P. Fairfield who gave an interesting talk. Prof. Fairfield welcomed newcomers to the Society and explained the organization, purpose and benefits derived from participating in the A. S. M. E. In the course of the talk Prof. Fairfield pointed out the prominent part played by Tech men in the Society.

The treat of the evening came in the showing of the film, "The Story of Steel." This film was of great interest and was well worth the time taken to view it. It began with mining the ore and carried one through the processes of smelting, casting, refining and making of different kinds of steel. The parts of the film showing the treatment of steel for particular uses, involving the enormous rolling mills and other gigantic machinery, were of signal interest to mechanical engineers. The Society is indebted for the loan of the film to the American Steel & Wire Co., whose representatives, Mr. Sawyer and Mr. Mumford, were present.

It was announced that at the next meeting of the A. S. M. E., to be held on December 1, there would be several student speakers and that plans for another successful meeting were well under way. Cider and doughnuts were served in the E. E. Laboratory at the close of the meeting.

The A. S. M. E. is at present conducting an extensive drive for members. The success of its first meeting proved it an organization worth being a member of and should give it im-

PROF. HOWE GIVES AN INTERESTING LECTURE

Cosmopolitan Club Meets In Dorm.

The second meeting the Cosmopolitan Club was held in the Y. M. C. A. rooms of Sanford Riley Hall, Wednesday, November 6, at which Prof. J. W. Howe of the Civil Engineering department gave a very interesting lecture entitled "Chateau en France."

Prof. Howe, who immediately after the war spent some time in France on government work, has a first-hand knowledge of the splendid monuments of early France and their historical significance. In a capable manner he depicted the influence of the stratified society of the Middle Ages upon French architecture and the change brought about by the Renaissance. With the aid of lantern slides Prof. J. W. Howe illustrated this transition of architecture which occurred along parallel lines with the social and political changes. Along with descriptions of the fine specimens of Gothic and Renaissance architecture, their historical significance and the influence of such famous persons as Catherine de Medici and Francis I was explained.

Especially notable among the group of illustrations was the famous Chateau de Blois, a fine illustration of the transition from Gothic to Classic, Chateau de Chambord, elegant hunting-lodge of Francis I, and Ste. Chapelle, that supreme expression of the pure Gothic spirit.

Although a good percentage of the club members were present, a talk of such a fine order as given by Prof. J. W. Howe deserves a much greater attendance. Those who were present felt well repaid for attending as was evidenced by the comments at the end of the program.

petus in its campaign. Membership in the Society is open to all students taking the M. E. course. For particulars see either W. J. Pearson or C. G. Nordmark.

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TECH CALLS OUT MEN FOR SWIMMING

Tech has informally opened its swimming season by calling out the Varsity members who are not at present competing on other teams. Practically all of last year's squad is at hand and the material looks to be of the first water. A new coach has been secured for this year and, judging by Mr. Grant's ability as a swimming coach, the team has a decided advantage over previous seasons. Among those who have answered this first call are Holcombe, Rogers and Jones in the dashes; Osipowich and Tinker in the distances; Larson and Emerson in the breast-stroke; Driscoll in the backstroke and Tawter in diving. These men are very confident of clipping seconds off previous records. This year a new ruling went into effect that no Freshmen could be on the varsity squad.

This year Manager "Bill" Newbold has secured a fine schedule, including three home meets. He is hoping to book up McGill and Cornell, but as yet these are tentative. After the football season has finished, Coach Frank Grant will issue the formal call and expects a large squad to report for duty. He has prepared varied workouts for the swimmers and through these he is sure of very pleasing results in the coming season's schedule.

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TECH STUDENTS GIVE US A TRY

TECH MEN ARE ASKED TO ATTEND MEETING

Rev. T. S. Roy Speaks About Atheists

The Worcester daily papers have recently been running an advertisement admonishing the public to "Look for the light in the tower." The man responsible for this advertising campaign is the Rev. Thomas S. Roy of the First Baptist Church, an ex-officio member of the Corporation of the Worcester Polytechnic Institute. The advertisements were used to introduce a new series of addresses by Mr. Roy. Next Sunday evening, November 17, one of these services will be held at the church, which is located on Main street near Chandler.

The service will begin with an organ recital at 6.45 p. m. The address by Rev. T. S. Roy will be on "What I Like About Atheists." There will be a great song service of old hymns, and in addition there will be special music furnished by the Unity Male Quartet, which is generally regarded as one of Boston's finest male quartets. An invitation has been extended to all Tech students who might desire to attend; in fact the students at this college are urged to attend.

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INTERFRATERNITY COUNCIL HOLDS MEETING

The W. P. I. Interfraternity Council met last Tuesday evening and the matter of the Interfraternity Dance was taken up. There was not any decided opinion as to when the dance should be held but it was stated that there would be no Freshmen at the dance if it were held before rushing.

Chairman Richey called for an election for chairman of the dance committee and Charles H. Cole was elected. He will choose a committee which will decide on the date of the dance and make all other arrangements.

It was also voted that after the rush week in February there should be a short hands off period until March 3, 1930, when there shall be no restrictions on rushing for the rest of the college year.

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