# THE TECHNOLOGY REVIEW



## DECEMBER 1 9 2 5

**RELATING TO THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY** 



Among the largest one-man shovels in the world is this tremendous one, used on the Mesabi Range in Minnesota. It picks up 16 tons of ore at a bite, which it deposits in a car—all in less than a minute.

## A day's work at every gulp



Surgeons use a tiny G-E MAZDA lamp when they examine an ear. Miners use G-E motored hoists to remove tons of ore from a mine. Wherever there is difficult work to be done you will find that the General Electric Company makes something electrical that will help. A hand shovelful of ore weighs 21 pounds, and a man can handle 200 shovelfuls in an hour. But here is a giant that picks up, in one gulp, more than a man can shovel in a day!

And the G-E motors that animate the giant never get tired.

GENERAL ELECTRIC

# Power Construction on a Continental Scale

F

....

FROM Atlantic to Pacific coasts is spread the power construction work of Stone & Webster. The Atlantic, Gulf and Middle Western States, almost without exception, contain important Stone & Webster power installations. On the Pacific coast every important city receives power from one or more stations designed and built by Stone & Webster. The low cost of operation in Stone & Webster plants is one reason for the high percentage of work that is repeat business. Plants now under construction vary from small industrial stations to several central stations of the largest size.



## Inspection -Inspection -Inspection!

#### -makes good soldiers and good telephones

At West Point and Western Electric, the order of the day is the same—inspection, inspection, inspection.

A vast army of small parts must pass muster before they can assemble in telephone formation. And any part found unfit for duty is rejected.

One part must measure up to standards within a thousandth of an inch. Another must be ready to obey the command of a tiny electrical current.

Constant watchfulness is kept over all the apparatus which Western Electric makes. It starts with the careful selection of raw material. It goes through every step of the manufacture. It gives you, finally, a telephone that, like a good soldier, can serve on any front. Telephones lined up for inspection.



Roll Call. Checking up on tone quality.



SINCE 1869 MAKERS OF ELECTRICAL EQUIPMENT

THE   THE   TECHNOLOGY   DELECTION OF THE MASSACHUSETTS   NUBLISHED MONTHLY, FROM NOVEMBER   TO MAY INCLUSIVE, AND IN JULY   AT CONCORD, N. H.   EDITORIAL OFFICE, ROOM 3-205, MASSACHUSETTS   INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.   Vol. XXVIII
Contents for December, 1925 cover design by samuel chamberlain, '18
The Past Month
Editorial Comment
"Have Pride in Your Profession"
Timberline Trails83By Henry H. Saylor, '02
The Architectural Bulletin 89
Departments
Undergraduate Affairs93Bibliography97News from the Alumni Clubs99News from the Classes100
H. E. LOBDELL, '17
R. E. ROGERS J. J. ROWLANDS } Contributing Editors
PUBLISHED AT THE RUMFORD PRESS, 10 FERRY ST.,
CONCORD, N. H., FOR THE ALUMNI ASSOCIATION CHARLES HAYDEN, '90, President CHARLES W. AIKEN, '91 Vice-Presidents SAMUEL C. PRESCOTT, '94 Vice-Presidents ORVILLE B. DENISON, '11, Secretary-Treasurer Entered as Second Class Mail Matter at the Post Office at Concord, New Hampshire
Copyright, 1925, by The Technology Review TERMS:—\$3.50 a year, in advance; a single copy, 50 cents. To under- graduates of the Massachusetts Institute of Technology \$2.50 per year, in advance; a single copy, 35 cents. Canadian and Foreign postage, 50 cents each. Three weeks must be allowed to effect changes of address. Both old and new addresses should be given.



#### SIMPLEX WIRES AND CABLES

SIMCORE - National Electrical Code Standard. Every length is subjected to searching electrical tests to insure a first quality pro-duct. Ask for specifications.

CAOUTCHOUC - "B. C." A rubber covered, braided wire insu-lated with a 30% Para compound. Send for specifications. LEAD COVERED CABLES AND WIRES - For underground dis-

STEEL TAPED CABLE - Used where a conduit system is not available. If carries its own conduit. Descriptive booklet upon request.

CONDEX PARK CABLE - Adequately insulated and protected by an overlapping, interlocking flexible steel conduit. For series lighting circuits.

OVERHEAD SERVICE CABLE - Designed for use between pole and house where service is not carried underground.

FIBREX OVERHEAD SERVICE CABLE - For aerial service connection from pole to house when service must pass through trees. FIBREX TREE WIRE - For installation among trees or where chafing may occur. It is non-inductive. Send for circular.

FIBREX FIRE ALARM CABLE - Consists of a multiple conductor cable protected with the abrasion resisting fiber tape which protects FIBREX Tree Wire and FIBREX Overhead Service Cable.

SUBMARINE CABLES - For power transmission or for telephone or telegraph service. Our engineering department is always or telegraph service. C available for consultation.

SIGNAL CABLE - Dependable insulated cable for railway signals and police or fire alarm service.

IGNITION WIRES - Used extensively, and with satisfaction throughout the automotive field.

TIREX PORTABLE CORD - For electrical tools and appliances. Rubber-armored. Flexible. It cannot kink, — and has the wear-ing qualities of an automobile tire.

TIREX SJ CORD - A rubber armored cord for drop lights or table lamps; made in colors. Send for folder.

TIREX MINING MACHINE CABLES - Heavily insulated, rubber-armored, portable cables with the wearing qualities of a cord tire. POLE FIXTURE CABLE - For wiring from the base of ornamental lighting standards to the lamp fixture at the top or from line to lamp on goose neck fixtures.

ARC CABLE - For connecting swinging arc lamps with transmission lines.

AUTOMOBILE - Wires and cables for lighting and ignition

RUBBER INSULATED CABLES - For any commercial voltage. Special descriptive bulletin on request. CAMBRIC INSULATED CABLES - For power transmission service, submarine, underground or aerial. Special bulletin on request.

PAPER INSULATED CABLES - For high voltage power trans-mission. Descriptive bulletin upon request.

SPECIAL INSULATED WIRES AND CABLES - To meet any conditions of service. On specification drawn by our engineers or to conform to customers' specifications.

Technically trained experts who know how to impart the qualities which insure satisfactory service supervise the manufacture of all the Simplex Wires and Cables.





68

### The TECHNOLOGY REVIEW S & S [ RELATING TO THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY ] S & S VOLUME XXVIII \*\*\* DECEMBER, 1925 \*\*\* Number 2

### The Past Month

WELCOME news comes that the great dining hall of the new Boston Chamber of Commerce will be the scene of the next annual banquet of the Alumni Association.

The dinner comes on the evening of January 9, 1926, and arrangements have been completed for the use of the various reception rooms where every one will have an opportunity to span the years with talk of other days.

The toastmaster will be Colonel Charles Hayden, '90, President of the Alumni Association, who promises he will have speakers of national prominence for the evening. President Stratton, of course, will speak, and it is

planned to show the Zizz film of the 1925 All-Technology Reunion during the evening. Instead of the conventional band or orchestra program, an innovation in the form of an organ recital will be given. Other divertissements are still to be announced.

This year's committee on assemblies, in charge of the banquet, consists of Wallace C. Brackett, '95, chairman; George B. Glidden, '93; Frank A. Bourne, '95; Edward L. Moreland, '07; and Orville B. Denison, '11.

LEUTENANT James H. Doolittle, S.M. '24, United States Army racing pilot, won the Jacques Schneider trophy for seaplanes when he drove a little black Curtiss biplane at a speed of 232.593 milesper-hour in the recent races at Baltimore.

The skill of the pilot in rounding the pylons marking the 350 kilometre triangular course had much to do in the setting up of claims for new world's seaplane records of 234.772 miles-per-hour for 100 kilometres, 234.352 miles-per-hour for 200 kilometres, and a maximum speed of 235.036 miles-per-hour, which the flyer made on the last lap of the race. The wings of the little racing plane were almost vertical when Lieutenant Doolittle banked sharply to round the pylons. And it darted away like a big dragon fly when he leveled out for the straight-away flight to the next marker. Not once during the seven laps of the race did the steady roar of his engine falter.

The records which Lieutenant Doolittle broke were made by Lieutenant Ralph A. Ofstie, the Navy pilot, who last year flew 100 kilometres at a speed of 178.25



Prom a woodcui by Kennen Keia, 15 PROFESSOR SAMUEL C. PRESCOTT, '94 Head of the Department of Biology and Public Health, who as Vice-President of the Alumni Association, presided at the 115th meeting of the Alumni Council miles-per-hour, and 200 kilometres at the same speed. He also bettered the speed of Captain Henry C. Biard who flew England's Napier seaplane on a trial flight in England at a speed of 226.752 miles-per-hour. The same machine was entered for this year's Schneider race, but was wrecked in a trial flight. The British, however, won second place when Captain Hubert Broad, driving a Gloster-Napier III biplane, attained a speed of 199.169 after Lieutenants Ralph A. Ofstie and George T. Cuddihy, Navy pilots who had led him, were forced down by engine trouble.

The day after the Schneider race Lieutenant Doolittle catapulted his little black racer 1300 feet out of the sky and leveling out darted over a three kilometre course at a speed of 245.713 miles-per-hour, a new world's record for the distance.

Lieutenant Doolittle was graduated from the University of California in 1922 and came to the Institute in October of the following year. He was awarded the degree of Master of Science in June, 1924, and in November of the same year was appointed a Fellow in Aëronautical Engineering. Last June he received the degree of Doctor of Science in Aëronautical Engineering, the fourth to be given by the Institute.

HEMISTRY'S influence in modern civilization will be one of the leading topics for discussion in the conference of the Institute of Politics at Williamstown, Mass., next year, Dr. James F. Norris, President of the American Chemical Society, and Professor of Organic Chemistry at the Institute, announced recently.

"The Rôle of Chemistry in the Future Affairs of the World" has been chosen by the board of advisors of the Institute of Politics as the central theme for the discussions, which will be organized by the American Chemical Society.

"While the Institute of Politics has discussed topics closely allied to chemistry," Dr. Norris said, "they have appeared under other headings. In 1923 considerable attention was given to natural resources, rubber and nitrates obtaining special mention. Last year mineral resources proved of interest, but there was no concerted effort to have the chemists of this and other countries present to participate in the deliberations.

"In 1926 it is proposed to discuss such important topics as future food supplies, energy — present and future sources and their utilization — chemistry in conservation stressing wastes in industry and increased efficiency in production, synthetic versus natural products, chemical developments in their relation to labor, chemistry in world domination through commerce and in national defense and the relation of chemistry to world health.

"The conference at the Institute of Politics will have to do with chemistry as a dominating factor in these various fields rather than with that type of discussion which would characterize a meeting of the American Chemical Society. We have insisted that there is a side



"WE POINT WITH PRIDE" - "WE VIEW WITH ALARM"

A selection from the press clippings inspired by the innocent action of the undergraduate Institute Committee in allowing women guests attending student dances to smoke in the lounges of Walker Memorial. Some applaud, others condemn, many misconstrue. One syndicate story blames it on the Executive Committee of the Corporation. The London Times attributes the ruling to the President's office. Not since the "Back Bay Vice" crusade a year ago has such a newspaper stir about collegiate babits come to pass. In the present instance publicity was not the desideratum



#### WINS SCHNEIDER CUP RACE AND ESTABLISHES NEW WORLD'S SEAPLANE RECORD

Lt. James H. Doolittle, S.M. '24, in the upper photograph (at the left in knickers), with the Army seaplane in which he won for the United States a second leg on the Jacques Schneider trophy. At the right he is shown after the race. (See the story on page 69)

to our work which will appeal to those in political as well as economic authority and this is our opportunity to make good that assertion.

"The conference will attract authorities on many subjects from various parts of the world. It is a place frankly to lay upon the table for open discussion in the friendliest spirit some problems that might elsewhere be handled with silk gloves. For example, chemical warfare can be discussed at Williamstown in such a way as to put the facts and truth before the public and allow them to reach a decision on the evidence presented."

UNIORS and Seniors in the Institute's Course in Mechanical Engineering are now working under a new time study system which it is believed will eliminate overloads and bring about a more equable distribution of studies throughout the year.

There has been a tendency in the past toward periodic overloads at the end of each term, partially due to poor planning in assignment work and the very human student failing of putting things off until the last moment.

The matter was laid before Professor Edward F. Miller, '86, Head of the Department, and a committee consisting of two members of the Faculty and three seniors was appointed to seek a remedy. Acting upon their recommendations, Professor Miller recently issued suggestions to instructors in third and fourth year subjects. These already are bearing fruit.

He suggested first that time assignments for prob-



lems be sufficient to allow the majority of the class to complete work of good passing grade within the prescribed limit. Problem statements are more carefully propounded and where outside research and library reference is necessary more time is allowed for completion of the work.

A chart is being kept in headquarters of the Department and members of the staff are required to plot their estimates of the time required for problems against the time actually taken. By this graph it is hoped to gain more knowledge of the amount of time necessary for various assignments.

SENSIBLE to the sad and often-voiced truth that Technology men tend to display few graces or abilities in public speech, however informal, the Department of English and History, with the beginning of this academic year, extended to every section of the freshman and sophomore class a procedure hitherto confined to a few special courses. The inauguration of a series of "Discussion Groups" will, it is hoped, serve to take off some of the rough edge that so often tends to manifest itself when an engineer finds himself forced ro rise and report his findings, discuss a paper or (even) move an adjournment.

The device of instruction is semi-tutorial. Regular recitation sections of some thirty men are divided, on one of three recitation days, into three sub-groups of ten men each, who meet at different hours of the same day. During the course of the hour, every man of the ten must deliver, in language supposed to be accurate, perspicuous, persuasive and appropriate, a three minute discourse (subject, mood, method, differ with the instructor) to his fellows. He must have prepared his topic, be ready to defend his thesis, have some scheme for projecting his personality, voice and idea beyond the front row of his theatre. Thus go thirty minutes. In the remaining ones of the hour, every man having, in rotation, had his say, his fellows are encouraged to seize upon his offering and dismember it if they can. No frailty is to pass notice, no error go uncorrected,

if nine eyes and ears can seek it out.

Last spring, the Corporation, highly interested in the proposal of Professor H. G. Pearson, Head of the Department, authorized the increase of the teaching staff to permit the innovation. This fall, the Department, augmented by six new instructors, is putting 1200 students through the strenuous process outlined. Happily, there is in the new departure, nothing of the elder day technique of courses in "Public Speaking." There is no drill in Pecksniffian oratory. Students are permitted neither to thunder nor to coo. The sober purpose is to train the student to meet the emergency of public speech with a poise worthy of an engineer in a crisis.

**P**ROFESSOR Robert E. Rogers of The Review Staff presided at the largest gathering of the Faculty Club in its entire history when 173 members and their guests dined at the University Club on October 22. There were two principal speakers: Dr. Harry W. Tyler, '84, President of the Faculty Club, who gave an account of his summer motoring adventures in France and Switzerland, and Professor James F. Norris, the substance of whose remarks appeared in the November number of The Review under the title of "Chemistry and Royalty."

At luncheon on the Monday after this meeting, October 26, C. E. Seashore, Dean of the Graduate School of the University of Iowa was entertained. Three days later Dr. P. W. Kuo, President of the National Southeastern University and Chairman of the Foreign Relations Committee of the National Association for Advancement of Education in China, spoke of his country's problems. He advocated tariff autonomy for China (collection and regulation of her customs were handed over to the British seventy-odd years ago), and was hopeful of good results from the Nine-Power Customs Conference now assembled at Peking as provided for by the Washington Conference of 1921. Evidently his wishes will come to pass for under date of November 3 the Associated Press reported that all the powers represented in the tariff Conference on that day accepted the autonomy principle and the United States



#### THREE ACES HONORED

Godfrey L. Cabot, '81, President of the National Aëronautic Association, presents cups to the ranking flyers of three nations at New York on October 10. Left to right: Mr. Cabot; Captain Rickenbacker of the United States; Carl F. Schory, Secretary of the contest committee of the N. A. A.; Porter H. Adams, '14, chairman of the executive committee of the N. A. A.; Colonel William A. Bishop of Great Britain; Captain René Fonck of France. (See the story on page 75) delegation submitted a detailed plan for putting it into effect not later than January 1, 1929. On November 12 Dr. Kuo repeated his remarks on "The Acid Test of 1925" at a dinner of *The Nation*, the chairman being its Editor, Oswald Garrison Villard.

NOMMANDER John Rodgers, pioneer of the Navy's unsuccessful attempt to fly from San Francisco to Hawaii, came to the Institute on November 3, to tell the story of the flight of the great seaplane, PN-9 No. 1, in which he and his crew drifted before the trade winds of the Pacific for nine days after their fuel supply was exhausted.

Every inch a man of the sea, bronzed, blue-eyed, straight