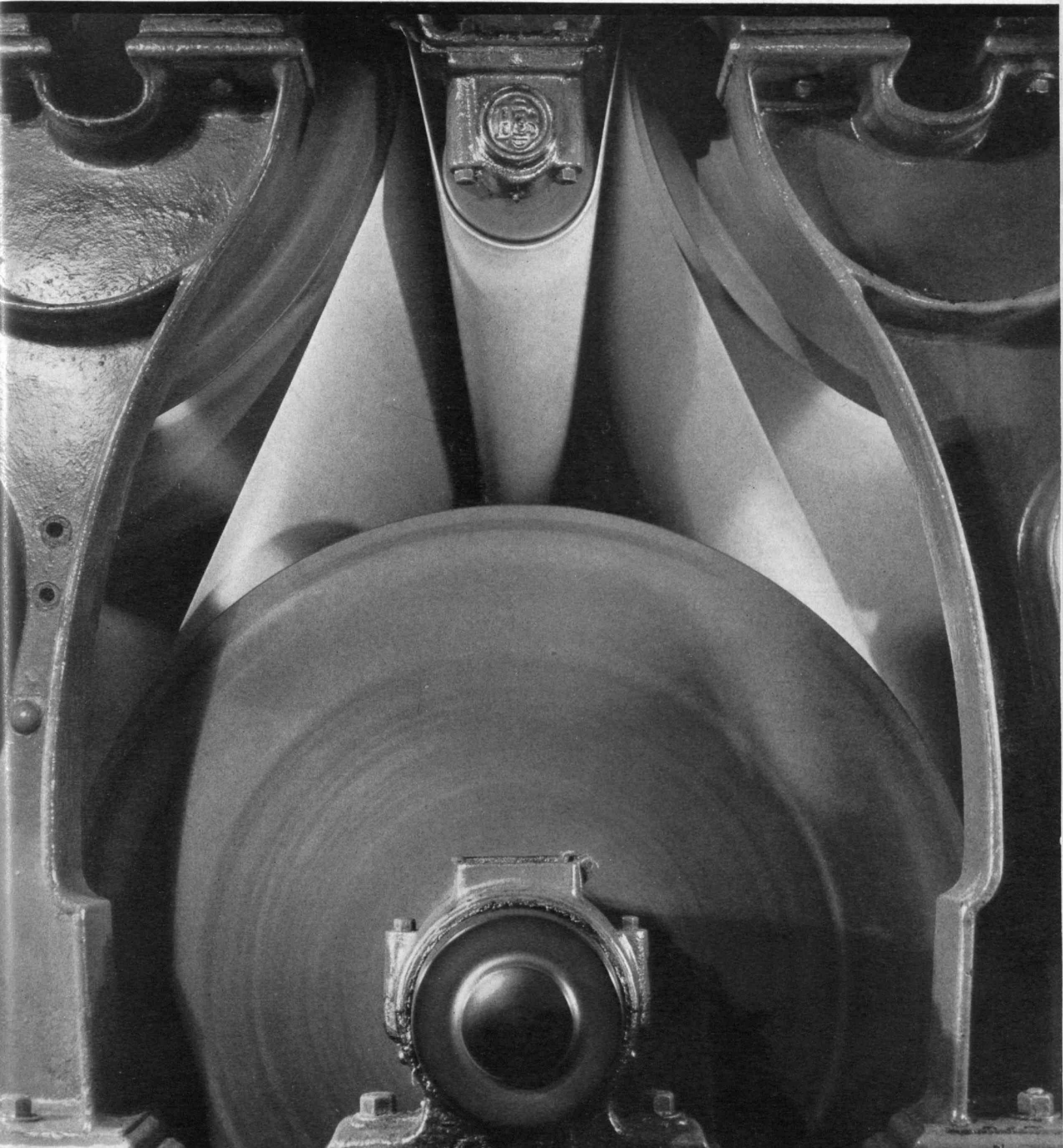


July 1935

TECHNOLOGY REVIEW

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THE TABULAR VIEW

THIS issue brings to a close Volume 37 of The Review, and the first issue of Volume 38, that dated October, will be published on September 27. ¶ Within the experience of the Editors, no volume of The Review has been so pleasant to edit as the one now closing. The satisfactions which have accompanied its publication have arisen largely from the growing responsiveness of our readers. This has been demonstrated in a variety of ways — by letters of comment (many of which have been published) and by wide quotation throughout the country. During the next volume the Editors desire and solicit still more comment from our readers. We wish particularly to widen the scope of our Mail Returns department, not only by way of helping the Editors to determine reader reaction, but by way of effecting a stimulating exchange of ideas among the readers themselves. ¶ A. W. K. BILLINGS, JR., '26, who contributed the article on the new profession of industrial design (page 367), is a consultant in industrial design associated with Arthur D. Little, Inc., as well as a practicing architect. ¶ President KARL T. COMPTON, whose address to the graduating class at M. I. T. is presented on page 370, made headlines at Brown University last month by a commencement address in which he criticized the pending Public Utility Bill as unscientific.

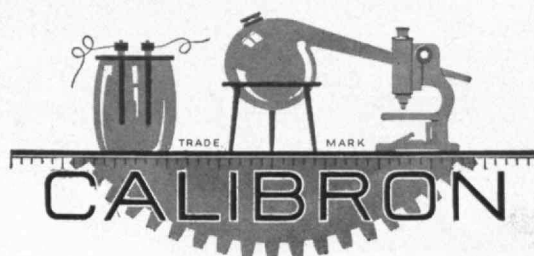
THE reading list on page 371 is presented coöperatively by the M. I. T. Library and The Review as an experiment. Do our readers wish compilations of books in various fields to which they may refer in planning their own reading? If so, the Editors, with the help of the Library, will publish such lists at frequent intervals.

MAIL RETURNS

DEAR REVIEW:

The report of the Visiting Committee of the Department of English and History discusses some matters which appeal to my interest in nontechnical subjects. However, my observation leads me to believe that the majority of engineering students regard most of these subjects as simply annoying interruptions to the business at hand. Even so, much might be done to increase the student's interest. For example, suppose that in my day we had made use of the "History of English Literature" by Taine, in place of Pancoast's prosy manual. In too many cases both textbooks and reading selections seem to have been chosen for their soporific qualities.

It might pay to call the attention of technical students to the fact that two of the greatest English scientists, Tyndall and Huxley, were masters in the use of clear, smooth, and forceful English and that one of them was qualified to write a classic monograph on the life and doctrines of the philosopher Hume. The student might even go so far as to read a few of the lectures and essays by these two men. Of course, it is not given to every man to be able to compose a sentence such as found in the last paragraph but one on page 348 of The Review, but we can at least try.



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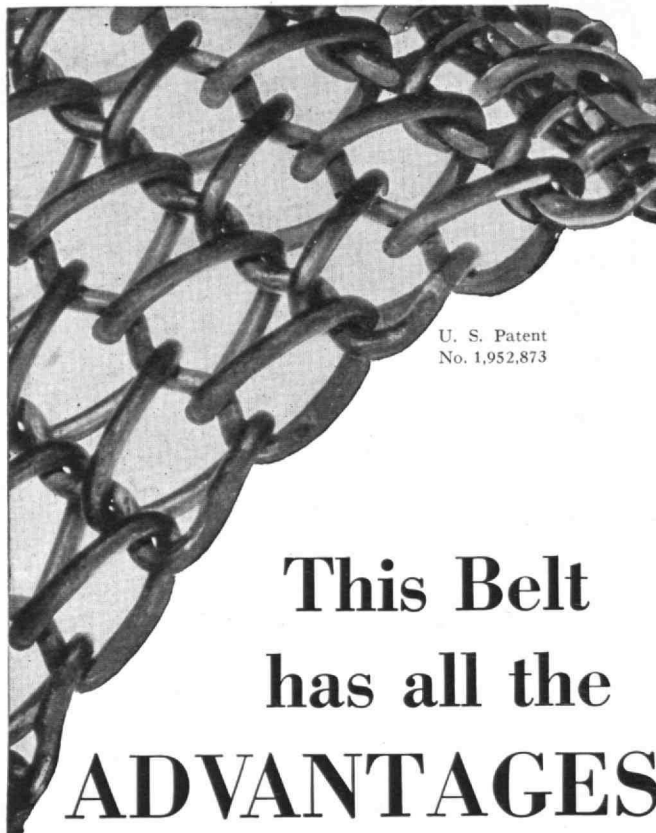
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It would be of interest to consider why certain general subjects are made compulsory. How many students wish to, or can, make any use of their smattering of foreign languages? Does not history, as often taught, deserve in considerable measure Henry Ford's comment? Some cynics may even question the benefit of training in the dismal science when they look over the brain trust or when they note that one of the best publicized professors of its mysteries owes most of his notoriety to his advocacy of prohibition and of the rubber dollar.

Many nontechnical subjects are most interesting and stimulating when dealing, as they frequently must, with controversial matters. This presents several obvious problems. You can probably name off-hand at least one organization with intercollegiate affiliations, whose chief purpose is to protect its adherents from the possible effects of any exposure to liberalizing influences.

However, there is much of promise in the Committee's efforts and I know that many besides myself will follow their activities with interest.

HAROLD D. REED, '07

109 Brook Street,
Wellesley, Mass.

DEAR REVIEW:

In the recent controversy, in your columns, over the relative importance of the social and the natural sciences, there was evident a certain provincialism of mind, that mind which assumes that its world is the whole world, or, at least, that its portion is the most significant.

Each side has looked upon the problem from its own somewhat limited point of view, and forgets that there exist other worlds than its own. The academic mind is all too prone to think that it includes all intelligence and knowledge within its province, to assume that only those things which can be taught in the classroom are of value or even exist, and more particularly that only those who do such teaching are competent to judge. This seems to be highly improbable, even in those fields of thought which it rightly claims for its own.

In the case in point, the development of the social sciences, man has already in his history devoted far more attention and consideration to these studies than he has to the natural sciences. We live in a day whose religion is Science, whose high priests are Einstein, Planck, Edison, and Thomson, but we should not forget that "in other days it was not so," that man had other gods whom he worshiped just as faithfully, that the Romans, in government and law, and the Middle Ages, in religion, faced and met just such problems as we do now. For thousands of years far more of the best minds were devoted to social problems than to scientific.

I am perfectly aware that this same academic mind looks down upon the efforts of our governments, especially upon the deliberations of its legislative branch (forgetting that these same bodies look upon us with an equally skeptical and derisive eye). But at any rate, these men are now working on the problems of our society; so are the business men; so are the leaders of labor. It seems hardly possible, then, to assert that we are now expending less effort in numbers and in time on these problems.

The real issue seems to be — are we devoting the right kind of men and effort to the situation? Here, again, we naively assume that our own standards are the only ones, in brief and in essence, advanced degrees. See how it crops out: the *ne plus ultra* of our own world must, of course, be the standard of all others; the ordination into our priesthood is unquestionably the only true ordination! The methods of the physical sciences are the true faith. Believe, ye sinners, and we will send you missionaries to preach the gospel. But may it not be that we ourselves are the "White Man's Burden"? Brahma has many sides and many faces; he has revealed one to us. May he not have revealed another to these others?

Is it not significant that even the minor orders of our faith, the economists, the historians, the sociologists, at first, like all converts, fanatic in their faith, now lean toward heresy and begin to talk of other gods or even of a return to the religion of their fathers?

It does not seem certain that the methods of the natural sciences are the proper ones to apply to the social sciences. Without doubt they are if the social sciences are to be taught in the classroom, if we are to give a Ph.D. degree for their study. Clearly the method of science works in the solution of those problems whose data are fixed, even though as yet undiscovered, and toward which the investigator has no emotional reactions. But is it, therefore, the method to be applied where those data are dynamic, highly emotional, and only with extreme difficulty susceptible of the simplification and abstraction on which the natural sciences depend? (Concluded on page 366)



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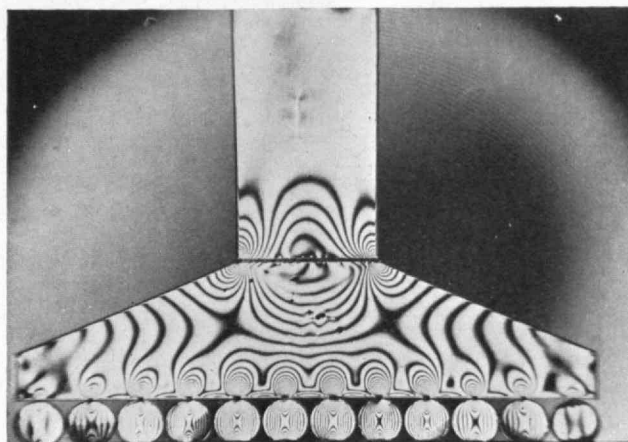
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GOOD YEAR

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the vertical pressure dis-
tribution of a model wall
footing resting on rollers
(to represent soil pressure)
which in turn rests on soil
—the first time soil pres-
sure has been so analyzed

THE TECHNOLOGY REVIEW

Title Reg. U. S. Pat. Office

EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

VOL. 37, NO. 9

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THE TECHNOLOGY REVIEW

Vol. 37, No. 9



July, 1935

The Trend of Affairs

At Random Round the World

GLACIERS of western United States, remnants of the ice age, may disappear in another quarter of a century if they continue to melt at the rate observed during the past year. François E. Matthes, '95, of the United States Geological Survey, reporting at the annual meeting of the American Geophysical Union, finds that the Great Nisqually and the Emmons Glaciers on Mount Rainier receded 125 and 132 feet, respectively, during 1934. For the past 15 years, the Nisqually Glacier had retreated an average of only 67 feet a year, while in 1932 the Emmons river of ice moved back only three feet. The Alaskan glaciers, apparently, are holding their own, and many new ones have been discovered in the past year.

FLUCTUATIONS in the ionosphere, the radio roof of the world, may be due to the combined influence of the ultraviolet rays and the visible rays of sunlight, studies by Dr. E. O. Hurlburt of the Naval Research Laboratory at Washington indicate. The ionosphere lies far above the stratosphere, and is believed to consist of two layers, which, for lack of a better designation, are called *E* and *F*. The former lies some 60 miles overhead, while the *F* layer fluctuates in its position,

varying from approximately 150 miles high at night to 200 miles at midday. In winter, this distance is somewhat less, and during the summer it may be higher.

Air molecules and other particles in the ionosphere, Dr. Hurlburt believes, are charged with electricity and expand under the intense ultraviolet rays as the electrified particles fly apart. The warmth of the sun also causes expansion, and the combined effect is believed to be responsible for the enormous bulge in the radio roof directly under the sun.

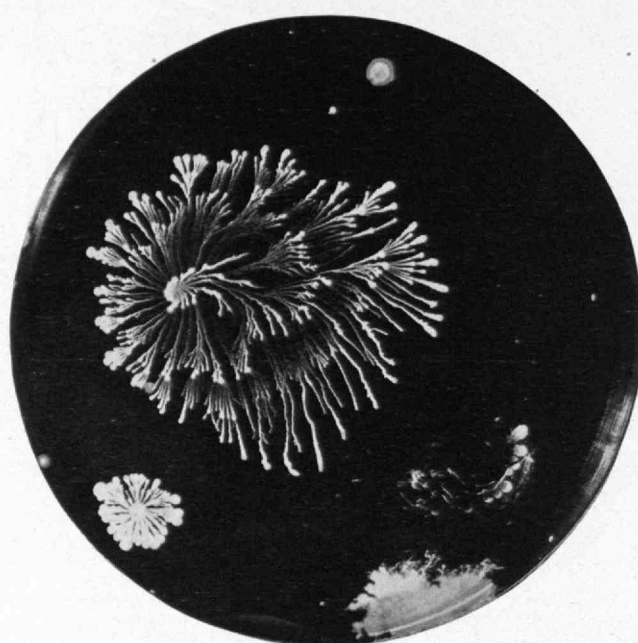
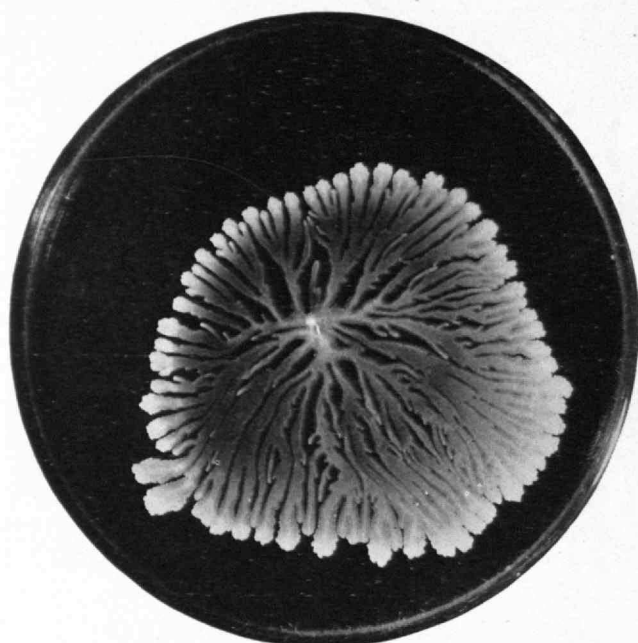
BAEDEKER

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THE LARGEST all-welded ship in the world is being built by Swan, Hunter and Wigham Richardson, Ltd., at Wallsend, England. Its overall length will be 259 feet, its beam 43 feet, and its depth 22 feet. Fitted with a double bottom as protection against contact with lock walls, it will have a paper-cargo capacity of 2,400 tons, and a grain-carrying capacity of 115,000 bushels on a 14-foot draught. The ship will operate on the Great Lakes.

THE NEW coal-hydrogenation units installed by Imperial Chemical Industries, Ltd., at Billingham-on-Tees, England, are ready for production. The work is expected eventually to give employment to 1,000 operatives and 2,000 Durham miners. About 500 tons of bituminous coal will be treated daily. At present, the vapor-phase units are



Above and on the opposite page: Some of the striking and lovely patterns formed by giant colonies of bacteria grown on agar in Petri dishes, three-and-a-half inches in diameter. The pattern assumed by each colony is fairly constant and characteristic for a given species, and is the result of movements of the cells after reproduction (post-fission movements)

manufacturing gasoline from creosote oil. The plant cost nearly \$23,000,000, and is regarded as the greatest industrial development on the Tees since the discovery of iron ore in the Cleveland hills.

A PLAN to park cars underground by making room for thousands of them along the route of the projected Sixth Avenue subway in New York City has been submitted to the mayor by Dr. G. Van Antwerp Clarke, formerly chief engineer of one of the units of Rockefeller Center. Lifts would be provided at one- or two-block intervals along the route of the subway. These would receive the autos at surface level and carry them down to the storage level. All the driver would need to do would be to drive on a lift and deposit a quarter or other fee in a slot in a control standard there provided. The rest would be automatic. For, on reaching the proper underground level, the car would be picked up by a transverse conveyor and stored in a vacant cell, from which it would be returned to the driver when he deposited the individually punched check he received from the slot on making his payment.

A UNIQUE type of antenna system, especially well suited for all-wave receiving sets, was recently introduced as a result of discoveries by General Electric engineers in designing aeriels for short-wave stations W2XAD and W2XAF in Schenectady. It provides more uniform sensitivity in the short-wave bands than does the conventional antenna, and it also enables an automatic change from short waves to standard broadcasts without the aid of a switch. It minimizes local man-made interference, such as that radiated by house wiring systems or the ignition systems of passing automobiles.

The new type antenna has been called the "V-doublet" system. It lends itself to various methods of suspension and is simple to install. As the name implies, it consists of a doublet-type antenna, the center part

of which is shaped like a V. Signals intercepted by the doublet are fed from the V portion through a lead-in composed of a balanced pair of twisted wires, known as the transmission line, to a specially constructed receiver-matching transformer located at the set.

MAGNET wire has been put to a new use by one of the large oil companies in Texas. The company uses very high explosives in its field work, and the men on this work must keep in constant communication with their bases. Stringing regular overhead telephone wire would be too costly. Each man, therefore, as he leaves his base, straps a five-pound spool of Number 24 gauge, single, cotton, enameled, bonded magnet wire on his back so that it unwinds as he walks. On reaching his destination, he cuts the wire, fastens it to his hand telephone, and is connected with the field headquarters. When a job is finished the wire is discarded.

STAINLESS-STEEL pianos, if experimental work now in progress gives the hoped-for results, are to be a joint creation of Steinway and Sons, piano manufacturers, the American Steel and Wire Company of Cleveland, and L. C. Smith and Corona Typewriters, Inc. Present information indicates that the new-type piano will weigh considerably less than a wooden one and will have an all-metal case and sounding board. The frame will be welded and will be reinforced by a new brace-beam.

AS PART of the Government's flood-control plan for the Mississippi area, and in connection with the dam at Canton, Mo., the General Electric Company is supplying giant electric heating units which will help to prevent freezing and facilitate the movement of ice.

These heating units will be placed at the ends of the dam, where the huge drums of which the dam is constructed rest in sills cut in concrete piers. Some of the