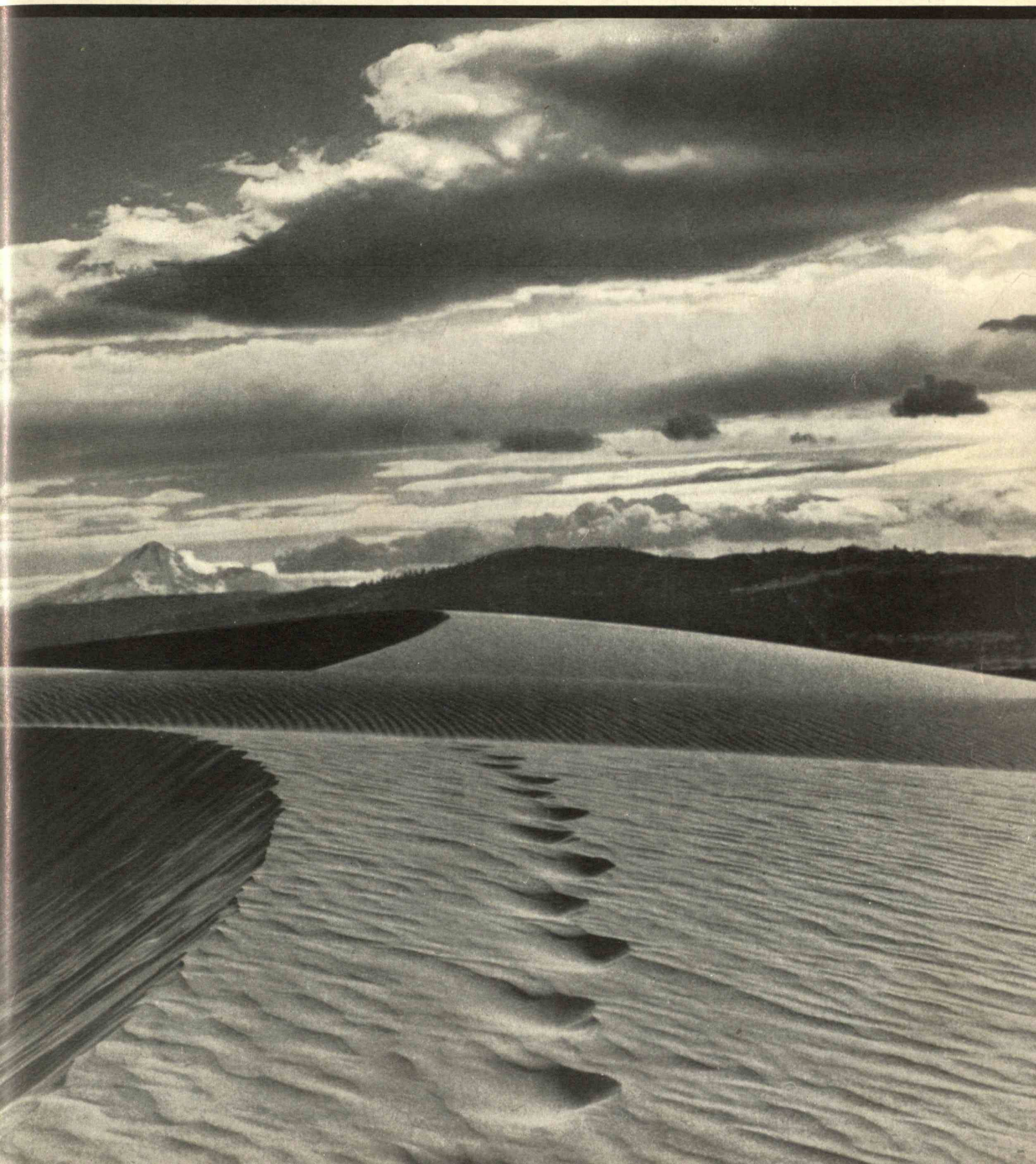


February 1955

TECHNOLOGY REVIEW

Title Reg. in U. S. Pat. Office



Land Sakes!

I do believe I'll try one



..for one thing

Chesterfield is the cigarette that's Milder

..for another thing

Chesterfield is the cigarette that Tastes Better

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THE TECHNOLOGY REVIEW, February, 1935. Vol. XXXVII, No. 5. Published monthly from October to May inclusive and in July at 10 Ferry Street, Concord, N. H. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription \$3.50; Canadian and Foreign subscription \$4.00. Entered as second-class matter at the Post Office at Concord, N. H., under the Act of March 3, 1879.

MAIL RETURNS

"Tonsorial Engineering"

DEAR REVIEW:

In the issue of January 1935 I find an article by H. E. Lobdell entitled "Philatelic Engineering."

I wish to suggest that in some succeeding issue you entertain us with an article on "Tonsorial Engineering."

It seems to me that the word "engineering" is becoming quite as vague as to its meaning as is the word "value" in what its professors call the "science" of economics. . . .

BASSETT JONES, '99

101 Park Avenue
New York, N. Y.

The Review regrets that the title "Philatelic Engineering" was subject to the interpretation which several readers gave it. The title was intended to describe the topic of the article — engineering achievements as recorded on postage stamps — and taken in that sense it was appropriate. On various occasions The Review has expressed its aversion to the misuse of the word engineering, and it is a fixed policy of editorial style that the word not be applied loosely to activities of a non-engineering nature. — THE EDITOR.

That Game Nim

DEAR REVIEW:

I have run across this game [Nim] in widely separated parts of the world, but never before knew the name. I first learned of it from Richard F. Lyon, '20, who was studying graduate chemical engineering at the Institute some 15 years ago. Lyon was a brilliant chess player and mathematician. For some time he refused to divulge the mathematical basis of reckoning the moves or plays. Several of us struggled in vain with it, and finally prevailed upon Lyon to disclose the secret. I proceeded to forget all about it until some years later, when the matter occurred to mind, but the secret was again lost. I took it to one of the leading mathematicians in the Coast and Geodetic Survey office in Washington, who studied it over a few moments, asked a question or two, showing that it was new to him, then laconically remarked, "It looks like something that would be handled by addition in binary numbers." This impressed me tremendously, and I have never since forgotten the trick, although I am convinced that nobody but a lightning calculator could utilize the correct method in play. A superficial knowledge of a few simple combinations will win against anybody but an expert in the game.

ELLIOTT B. ROBERTS, '21

U. S. Coast and Geodetic Survey
Washington, D. C.

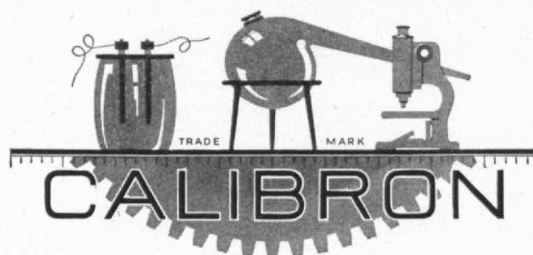
Fresh from the Textbook

DEAR REVIEW:

Mr. Sherman's letter in a recent Review presented an interesting problem, viewed by a Technology graduate of some years back. In still more recent commentaries we are given viewpoints within the school itself. However, as yet no late graduate of the Institute has presented his criticisms, criticisms which should be heard in fairness to the broadness of the question. As a member of the class of 1932, a mere neophyte in what as undergraduates we called "the outside," I modestly take it upon myself to speak.

As a premise it must be agreed that neither the industrial nor the professional world beckons to "prepared scientists fresh from the textbook." Specialization, enter the bromide, has so definitely drawn its lines among and between the fundamental sciences that within a single field of their application we find opportunities for a thousand and one professions. Without further elaboration it becomes obvious that no school, especially one stressing these sciences, can, within its necessarily limited curriculum, qualify to equip a man to enter directly a position of responsibility within his chosen field.

It becomes, then, the primary responsibility of the Institute to drill into a student the fundamentals of his (Concluded on page 186)



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THE TABULAR VIEW

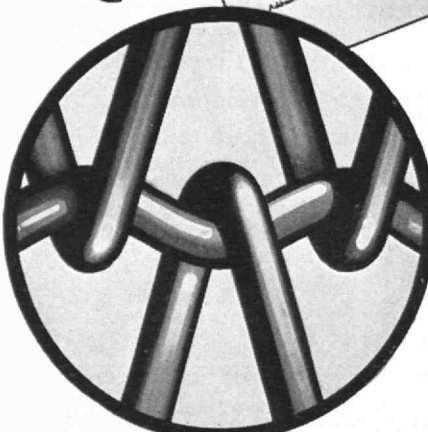
BEFORE coming to Technology to teach English, **FREDERICK G. FASSETT, JR.** won his laurels as a newspaper man in the purlieus of Maine and later in Boston. He has successfully developed and conducted a journalism option in first year English for members of the news and editorial staffs of *The Tech* and *The Tech Engineering News*. **HOWARD R. BARTLETT** has taken graduate work in History at Harvard University and he is now engaged in teaching in the Institute's Department of English and History. **P. J. RULON** has always been interested in the kind of problems he presents in this issue for Review readers (p. 178); in fact, for the last three or four years he has been editing a problem column in one of Boston's daily papers. In 1932 he went so far as to publish, under the pen name of Julian Longstreet, a collection of such problems, which he called "Brain Teasers." He will tell you, when pressed, that he would have been born in 1900 alongside the Keokuk Dam across the Mississippi, except that the dam was not there in 1900. In 1914 he took part in a great westward movement to California. Although history chronicles no such great movement, he took part in it, and he knows it was great. In the course of events he graduated from public high school, and began an oscillation between Stanford and the San Jose State Teachers College, which was accompanied by a cyclical oscillation of interests from engineering to education and back again, until in 1926 he received an A.B. degree from Stanford in education. At this point he shifted his study to psychology and in 1928 took a master's degree in that field, still at Stanford. His next move was to the University of Minnesota where he received a Ph.D. degree in educational psychology with a minor in mathematics. Since 1930 he has been at the Harvard Graduate School of Education, where he is now an Assistant Professor, his field of instruction including statistics, test construction, and educational experimentation.

PAGES 187-194 of this issue are given over to a symposium on business in 1935. The three papers printed are drawn from a group of six prepared for the annual New Year's conference of the Department of Business and Engineering Administration. It was planned and presided over by the Head of the Department, Professor Erwin H. Schell '12. **WYMAN P. FISKE** holds the degrees of A.B.A. and M.B.A. from Harvard University and the degree of LL.D. from the Suffolk Law School. He is Associate Professor of Accounting at the Institute. **ROBERT F. ELDER** is a graduate of Harvard University. In 1928 he won the Alvin T. Simmons prize for a paper on "Reducing the Cost of Distribution," and he has made valuable studies on radio advertising. **FLOYD E. ARMSTRONG** holds two degrees from the University of Michigan. He is Professor of Economics and Finance in the Department of Economics at the Institute where he has taught since 1916. Those who are interested will find it profitable to compare these papers with a similar group published in the February, 1934 issue of *The Review*.

The

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To restore the service quickly was beyond the power of the local telephone companies. Had they been forced to tackle the job alone it would have taken months and imposed a heavy financial burden.

Instead, the full resources of the Bell System were thrown into the breach. From the Southwest, from New York, Pennsylvania, Ohio and the Northwest, the repair trucks started rolling into the stricken area.

Even while men were on their way, the warehouses of the Western Electric Company started shipments of tools, wire, poles, cross-arms and other needed equipment. It was only because of standardized material and standardized methods that the emergency was met and service quickly restored.

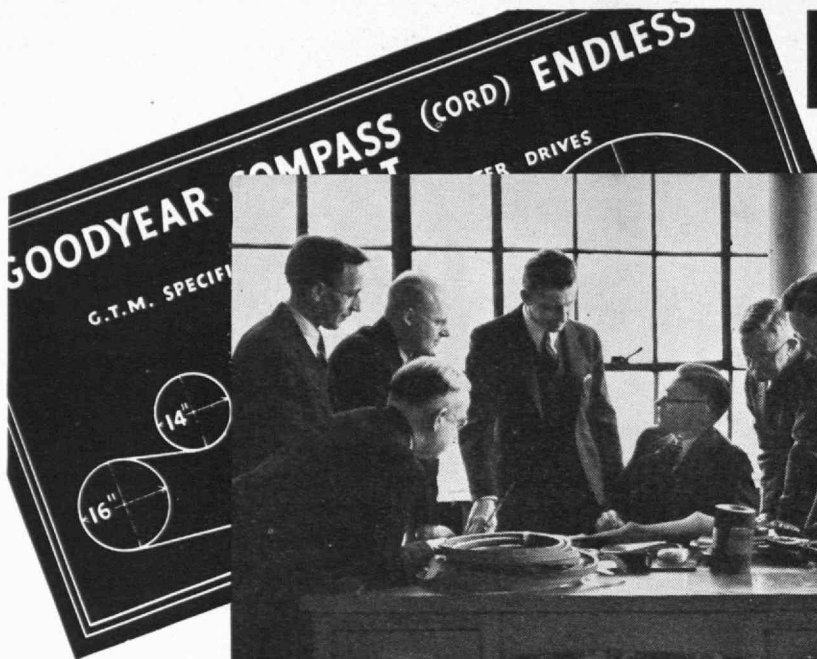
Telephone service as you know it today would be impossible without the unified Bell System.

The Western Electric Company is the manufacturing, distributing and purchasing organization for the Bell System. Centralized activity of this kind means better quality at lower cost.



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Goodyear accepted the challenge. Orders went out to the development engineers: "Find out what's happening. Build the meanest drive imaginable—then build a belt that can take it!"

The "Belt Killer"

So the engineers built the great grandfather of all mean drives—around, over and under a series of small pulleys that weren't any more than shafts—a back-breaking drive that packed months of wear into hours. They called it the "Belt Killer."

We tested all makes of belts—our own and competitors'—at high speeds. Five—ten minutes—they whirled around those vicious little pulleys—then pf-t-t-t! Not a belt made could stand it over *fifteen minutes!* The constant flexing simply tore them apart!

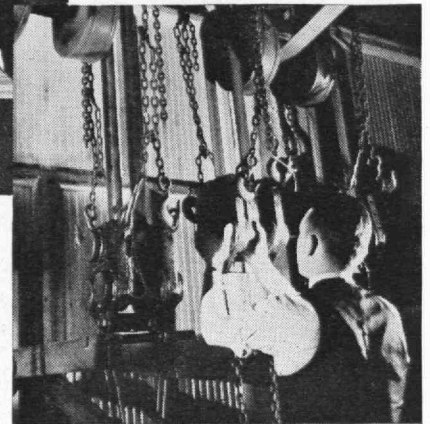
Then we went to work in earnest. Built scores of new belts. Tried new compounds, different ply arrangements. That didn't help!

We began all over. Built a belt of endless cords, laid side by side, enclosed in a stout cover, and impregnated through and through with Goodyear Rubber. On the "Belt Killer" it went. Ten minutes—fifteen minutes—an hour—all day—without a sign of breaking.

That was something like it! We built more belts, better belts, the same way. Put them back on the "Killer"—sped up the r. p. m. 100—200—300 hours those belts took that brutal punishment—*1200% longer than any previous belt!* Goodyear had found the answer!

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The "Belt Killer" . . . COMPASS ran over 300 hours

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THE TECHNOLOGY REVIEW

Title Reg. U. S. Pat. Office

EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

VOL. 37, NO. 5

CONTENTS

FEBRUARY, 1935

THE COVER

Mt. Hood, 50 miles distant, as seen from the Columbia River Sand Dunes

PLEASONTON'S PANACEA

By FREDERICK G. FASSETT, JR. AND HOWARD R. BARTLETT 175

The Blue-Glass Mania of the 1870's

A CANAPÉ OF CONUNDRUMS By P. J. RULON 178

Mental Appetizers, Amusing and Deceptive

CLINICAL NOTES ON BUSINESS IN 1935

Controlled Markets or Free? By ROBERT F. ELDER 187

Accounting Policies under the Spotlight By WYMAN P. FISKE 190

Facing the Facts in Finance By FLOYD E. ARMSTRONG 191

MAIL RETURNS 161

THE TABULAR VIEW 162

Notes on Contributors and Contributions

THE TREND OF AFFAIRS 167

News of Science and Engineering

THE INSTITUTE GAZETTE 180

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AN AID TO ALUMNI IN FINDING DESIRABLE POSITIONS

THE TECHNOLOGY REVIEW

Vol. 37, No. 5



February, 1935

The Trend of Affairs

Notes and Observations

AS the vistas of 1935 unfold, Americans anxious for American preëminence might take satisfaction in a number of clearly developed trends. Americans are making notable contributions to world science, particularly in medicine, physics, chemistry, and biology. The year's-end meeting of the American Association for the Advancement of Science gave glimpses of the almost feverish activities of our researchers, and of the growing social consciousness of our scientists. With seven-league boots our transportation technique is striding ahead; our air transport is the toast of the world, even as it is the cocklebur in the pants of M. Farley; and our railroads are awakening from their spell of discouragement (see page 170). And, however expensive or premature, our public works inspire magnificent engineering.

It is not amiss to note here, too, how American painters are growing in stature, and in genuine distinction. No such phantasmagoria as Pittsburgh awards can obscure the fact that in its Middle-Westerners (Grant Wood of Iowa, Thomas Benton of Missouri, Charles Ephriam Burchfield of Ohio, John Steuart Curry, of Pennsylvania who paints Kansas) and their satellites, the United States boasts a talent and a force unique in modern

painting. More important in implication are the numerous canvases by unknowns that point clearly to a new generation of artists when Wood, Benton, Burchfield, and Curry shall have become Academicians.

Black against the shimmering curtain of achievement stand the negatives of American architecture and its allied engineering. American architects flubbed pretty completely the tremendous possibilities of the Century

of Progress. American schools still have ill-adapted Colonial façades, relatively bad ventilation, inadequate and conventionally placed fenestration. American architecture can boast few stimuli to world architecture such as the modern house by a Swiss-American in New York (see page 168). Americans resident in other places than New York have to travel long distances to see a corner window.

Meanwhile progressive American structural engineers are watching the completion of New York's planetarium in which for the first time here the concrete shell type of roof, generally used abroad, will be employed. Professors of advanced structures are hard put to point out good American examples of the Vierendeel truss, space frameworks such as the Schwedler Dome, parabolic arched halls, thin-ribbed arches and domes.

Apologists give many different reasons for this lassitude. Architectural plums, if any, they explain,

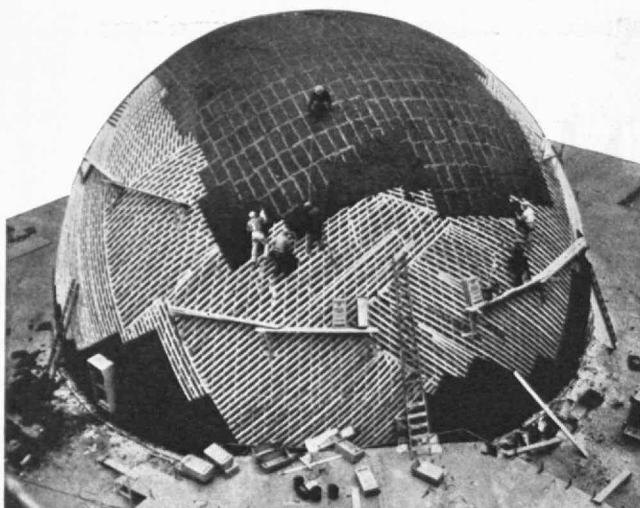
BAEDEKER For this Section

NOTES AND OBSERVATIONS

	Page
<i>A glance at some of the debits and credits on the arts and sciences ledger with an admittedly opinionated estimate of our architectural achievement.....</i>	167
<i>The late Lord Carnarvon and the late KLM Uiver.....</i>	168
<i>Clothes make the Washington Monument no less than the woman.....</i>	168
<i>Scherzo in A minor on the titles of scientific papers.....</i>	168
<i>Adagio on scientific words good and bad.....</i>	169

THE NEW TRAINS

<i>The Review, with the aid of informed railroad executives, maps the spread of the streamlined Diesel train, and suggests the tests which it must pass to gain a permanent place on the rails. —A prolegomenon to a definitive study wherein the chaff of fashion is separated from the wheat of operating realities.....</i>	170
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Wide World

Constructing form for concrete shell dome of Hayden (Charles Hayden, '90) Planetarium in New York. The dome, first of its kind in the U. S., is 80 feet in diameter, amazingly thin

usually fall to the well-known Olympians. These Olympians are, and usually have been, archeologists rather than architects. When they try to be modern, one remembers their archeology with nostalgia. Engineers can not be blamed — architects do not demand new structure. In defense of the architects it can be said that American engineering education does not generally offer enough mathematics to permit American engineers the intricacies of design handled with ease by our European brethren. American engineers, if really interested in new structure, might impose their wishes on the architects. It is being done in every other field.

The man in the street can feel that the incubus of post-and-lintel skyscraper construction lies heavy on both American architects and engineers. Whatever the reasons, it is clear to him that nowhere would the beneficent leaven of a kick in the pants be better applied than to American Architecture and its allied engineering.

EVERY so often life turns up one of those melodramas that even the stage at its ranting best cannot equal. Some years ago, it will be remembered, Lord Carnarvon was an ardent excavator of the tomb of Tut-ank-ahmen. Lord Carnarvon ignored the curse of the Egyptian monarch on whomsoever should molest his tomb. In Egypt, Lord Carnarvon was bitten by a spider and in England, towards the year's close, one windy night a limb fell from an oak on the ancestral estate, and in the morning Lord Carnarvon lay dead. One of life's melodramatic twists.

The latest of these befell in late December when on the wings of a special Christmas flight to Java, *Uiver*, KLM's finest American-built Douglas transport lay a mass of twisted ruins in Syria, less than two short months after it had leaped to air fame for its performance in the London-Melbourne Air Derby. Although the death list was slight, all Holland mourns what is regarded as a national catastrophe. The significant thing about the disaster, however, is that, so far as the 40-odd Douglas transports of this type now in service are concerned, this is the first conse-

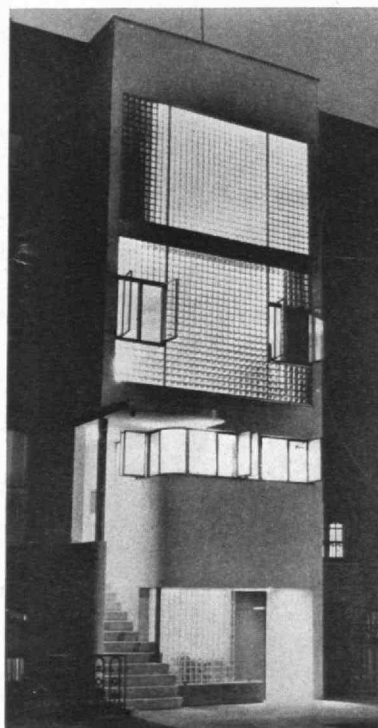
quential accident, and evidence by no means points an accusing finger at the plane. The spectacular nature of many plane crashes tends to obscure the safe and uneventful trips of thousands of air-transport passengers of today.

NOW that tubular steel scaffolding completely surrounds the Washington Monument in preparation for its semi-centennial cleaning, it is possible to admire the spidery beauty of this type of staging at its best. The current joke about the Democrats crating the monument to take it away is widespread; but it must surely have occurred to many who have seen the monument in its temporary cloak that it is perhaps better looking than before. With its temporary steel embellishment it seems more American, less archeologically Egyptian.

OCTOPLIIDY and Diploidy in *Miastor Americana* — This, Gentle Reader, was the luscious title of a paper presented at the recent meeting of the American Association for the Advancement of Science (a name mercifully reduceable to the formula *Triple A. S.*). One of our simple pleasures is to collect such titles and perhaps others would enjoy some of the additional specimens we garnered at this same meeting.

We shivered a little, for example, over *Normal Development of *Drosophila Melanogaster* Following Removal of Preblastodermic Oöplasm*. We haven't the slightest idea what Oöplasm is but we venture the opinion that it is an onomatopoeic word for the noise that a ghost makes. Our curiosity was piqued by *Some Geometric Properties of Lemniscates and of Equipotential Curves of Green's Functions*. Who is Green, who has such functions, and do any of our own functions have *Equipotential Curves*?

Did *Seismographic Sensitivity to Tilt* have any remote relation to alcoholism, or have the tabloids heard of



Wide World

House-atelier of architect William Lescage, New York's first residence in the "international style." The front of the upper stories is constructed of translucent glass blocks. Behind this façade of glass are various levels of rooms neatly arranged with intervening terraces. Skylights admit light which filters through glass tile into lower rooms