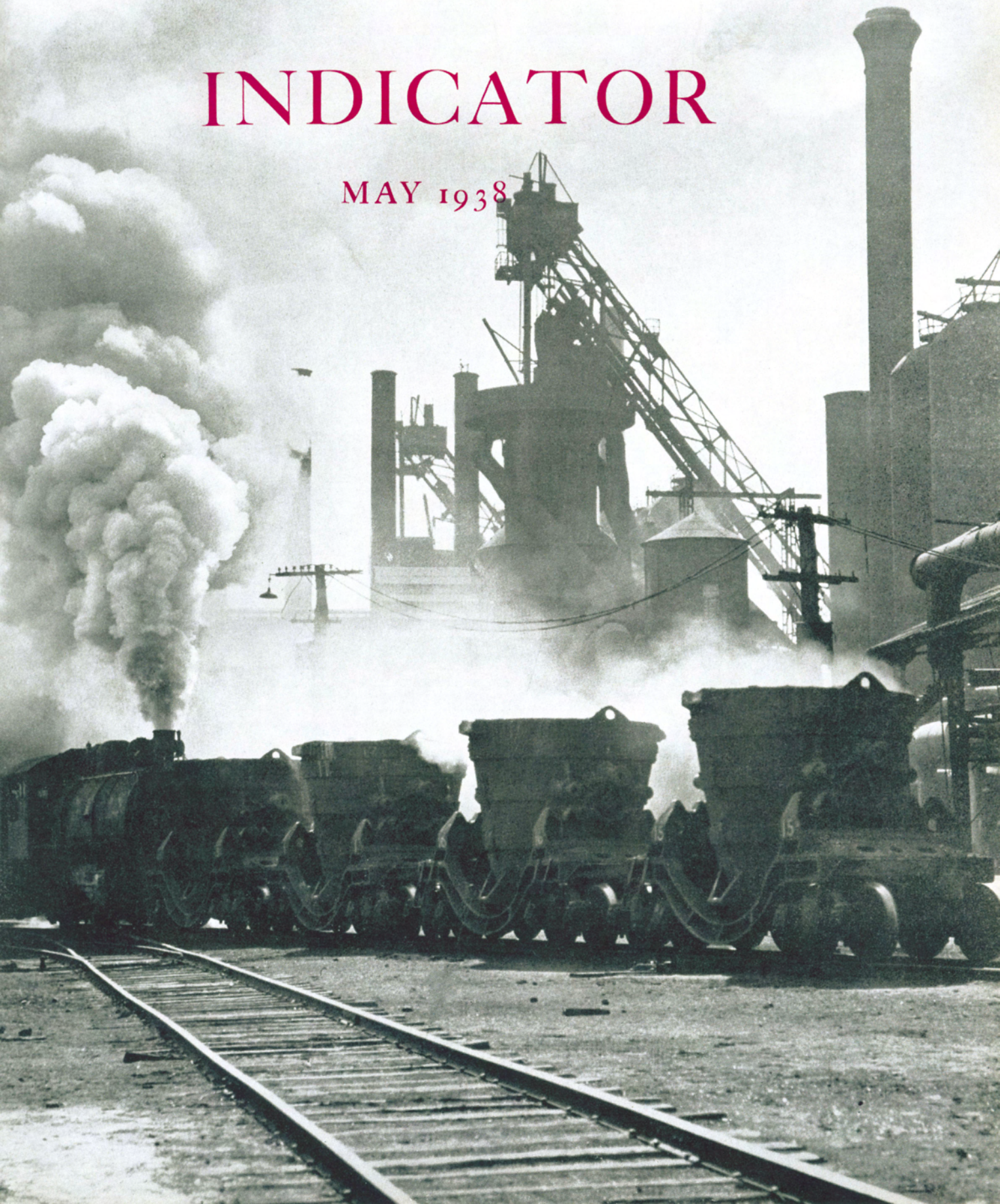


STEVENS

INDICATOR

MAY 1938



# STEVENS INDICATOR

*of the*

ALUMNI ASSOCIATION OF STEVENS INSTITUTE OF TECHNOLOGY

CASTLE POINT

HOBOKEN, N. J.

VOLUME 55

May, 1938

NUMBER 3

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Mercury Fountain at the Paris Exposition

# Mercury Fountain

Sandy Calder '19

*describes the inception, construction and operation of the Spanish Government's Mercury Fountain at the Paris Exposition. We are also indebted to W. B. F. Drew '19 for the article.*

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WE ARRIVED in Paris about the middle of April, last year, and at once proceeded to look up our old friends. Among these was Joan Miró, Spanish painter, often listed as a surrealist, but who, to my mind, has been in a class all by himself for quite a number of years. He and Picasso were to do paintings to be placed on the walls of the Spanish pavilion at the Paris 1937 Exposition. So one Sunday I went with him, and the architect, Sert, to see what sort of space he was to work on. At that time there was little but a few girders and columns to indicate where the wall would eventually be. But there was a winding ramp, as a means of entrance to the upper floors, and also a flight of stairs, out in space, as an exit, and these presented many spots which I felt might well be embellished by something of my own—a "MOBILE"—i.e. an abstract sculpture which moves, propelled by wind, motor, jet of water, or some other means.

I proposed this to Sert, but although he likes my work very well, he refused, for I wasn't Spanish. So I thought I wasn't to have any part in the exposition—though I really hadn't even hoped to, until that moment.

A month later I saw Miró, and he said, "Sert wants to see you." I was curious, but he wouldn't say anything more. So I went to see Sert, and he explained to me that it was the intention of the Spanish government to make a feature in its exposition of the mercury mines of Almaden situated in the southwest of Spain, and decidedly an objective of the Rebel attacks at that time. To do this, a fountain had been made which would spout mercury, and sent up to Paris, together with the machinery to operate it.

But this fountain had been set up for a trial in Barcelona, and photographed, and from the photographs Sert felt that it would not make a fitting combination with the Miró and the Picasso, and his own very fine and spirited design for the pavilion. So he asked me if I would undertake to design one to put in its stead.

So I made a model of sheet aluminum, using a handful of ball bearings to simulate the mercury, and when Sert had approved the design, I went ahead with its construction. To begin with, I was told that the only materials I could use were glass and polished steel, due to the corrosive effects of the mercury. I tried hard to find someone in Paris who could make what I wanted in glass, or who might have something I could use, but without success. In the meantime the pump and reservoir were installed in the closed part of the building, which was at one end, and two pipes run under the paving from there to the center of the building on the ground floor, which was open on both sides.

Here a basin some 2 m 20 was constructed of concrete, to be lined with pitch. So I discovered that pitch would resist corrosion. That was fine, for pitch with a flat black surface would give a colour which is the greatest possible contrast to the shining metallic mercury, much more so than glass, or polished steel.

Due to the weight of the mercury, the height I was permitted to spill it from was about a meter. And it splashes a great deal when permitted to fall more than two or three inches onto another surface of mercury and wastes itself all about in very fine globules.

As the intent was to show mercury, in the basin, and in the air, I found that to have it in the air I would have to support it. So I started at about a meter height and let it spew onto a plate, of irregular contour and warped surface, which in itself was a dynamic shape. After the mercury had trickled across this it poured out of a weir onto a second plate, of a different contour and surface. It flowed across this making a sort of lagoon on its way. The third plate was a chute, with a dam at the head end, making a basin into which the mercury could spill. Running down this chute the mercury was returned to the center of the basin.

To give the whole design more height, and to increase its mobility I hung a rod vertically from a ring at its middle, whose lower end widened out into a plate of irregular form, at the center of the basin, so that the jet of mercury leaving the chute would strike the plate causing it and the rod to sway about. From the upper end of the rod I hung another, lighter rod, in similar fashion, at whose lower extremity was a circular disc painted red, and from whose upper end was flaunted the name of the mines, Almaden, in brass wire.

The plates were made in a shop, and then taken to the pavilion and supported in place over the basin on a falsework, and then I designed the supports. As the mercury only arrived the day of the inauguration of the pavilion the construction of the fountain was done without any opportunity to try out the flow on the surfaces, which I made up with careful thought, and a design which would permit of final adjustment of the inclination of the surfaces after the installation.

Once everything was in position, I had the upper surfaces covered with pitch and the rest painted black.

When a large flat truck finally drove up with a great many little cylinders about five inches in diameter and ten inches high, made of sheet steel, welded, I gave three cheers. For those were the "bottles" of mercury. There were two hundred, each holding a litre, the total valuation being put at 500,000 francs. We put 150 into circulation, and held the rest in reserve (*Continued on page 7*)

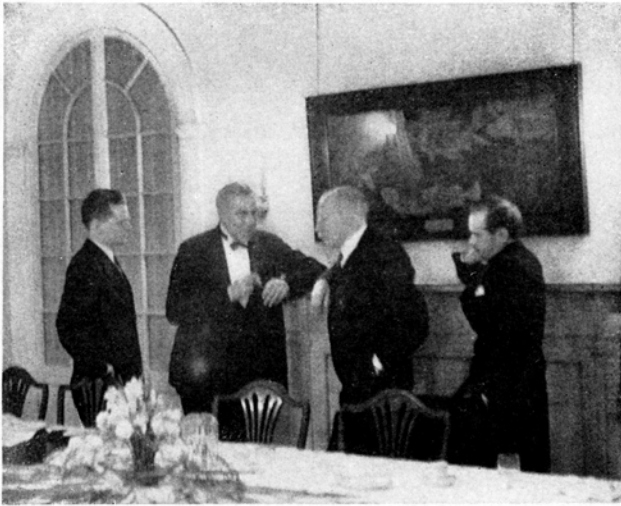


Photo by W. W. Wallace '33  
Dr. Davis at the Cosmos Club, Washington, D. C.

## Stevens Calendar

Feb.	26	Basketball—Bard 26—Stevens 41
March	26	Lacrosse—Alumni 1—Stevens 13
April	1	Lacrosse—Williams 5—Stevens 10
April	2	Baseball—Alumni 8—Stevens 10
May	4	Baseball—Panzer; Tennis—Upsala
May	14	Spring Sports Day—Movie, 4:30 and 8:30 P.M.; Baseball—Pratt; Lacrosse—Swarthmore; Tennis—Lafayette
June	11	Thirtieth Annual Alumni Day

## Corrections to 1937 Alumni Directory

DR. DAVID S. JACOBUS '84 is Advisory Engineer of the Babcock & Wilcox Co., 85 Liberty Street, New York, N. Y., and not Consulting Engineer, as listed.

The title of D. S. BUSHNELL '96 was omitted. Mr. Bushnell is President of the New York Transit Company, 26 Broadway, New York, N. Y.

PAUL E. BREUNICH '25 received the degree M.B.A. (Master of Business Administration) from the New York University Graduate School of Business Administration in 1933. This degree was omitted.

### Mercury Fountain

(Continued from page 3)

to take care of losses due to seepage, splashing, the depredation of uncouth visitors, etc.

The fountain proved quite a success, but a great deal was due, of course, to the curious quality of the mercury, whose density induced people to throw coins upon its surface, and often three hundred francs were taken in a day in this manner, for the benefit of the Spanish children.

## A Wife Laments

### A Comment on Engineers as Husband Material

AN ENGINEER is a strange and wonderful creature. He deals with such sonorous and splendid-sounding words as "elliptic integrals" and "radii of gyration," thereby completely baffling us lesser mortals of the weaker sex.

He lacks guile and subterfuge, and is apt to state quite frankly that your new fall headgear has latent possibilities as a "conical solid of revolution," but is certainly not *his* idea of a proper hat!

He is familiar with all of the various gadgets under the hood of the family car, and tinkers away by the hour, coming in grim but triumphant just fifteen minutes before the guests arrive for dinner.

He can pinch-hit as a handyman about the house when the vacuum cleaner or the electric iron suddenly refuses to function; and when it comes to figuring out on his slipstick just how many tablespoons of butter equals two-thirds of a cup, if thirty-two tablespoons equal one pound, and a cup holds half a pound—why, there's many an angel food cake he's saved from otherwise certain destruction!

Decidedly, there are great advantages in being an engineer's wife; he stands as a buffer between you and the confusing intricacies of this mechanical age. But he also stands ready to feed you large doses, conversationally speaking, of this very thing. Should your nature be such that you shy away violently from anything resembling an algebraic equation or a graph—should you be the sort of person who can add a column of figures three times and get three different answers—then a diet of "viscosity curves" and "regenerative cycles" is apt to lead to a severe case of inferiority complex.

Your theories on the relative merits of new draperies for the living room versus having the old wing chair re-covered will echo faintly in the silence. But let the 7:43 mail plane drone overhead on a soupy night and you'll see the world's sprint record being broken in a mad dash for the front door.

All we wives need to cope with this distressing situation is a new vocabulary.

Never will I forget my elation when I once mentioned, with studied nonchalance, something pretty profound regarding the difference between left- and right-handed screws. It brought forth more acclaim than the most perfect biscuits could ever have commanded!

Visualize, if you can, the joy for us in knowing that the phrase, "moments of inertia," does *not* mean anything like taking an afternoon nap; that "control surfaces" are not remotely related to the art of corseting.

Now that Stevens is improving the lot of an engineer, why not focus some attention on the engineer's wife? Perhaps a correspondence course in "Correct Conversation," or a simple handbook on "Pitfalls to be Avoided," would prove helpful.

These engineers are mighty fine husband material, and if they want floating axles and diametral pitch served along with the roast beef, it's up to us to make 'em happy.—J. T.