



"In that case, she can jump," said Marmy, "because she is getting heat right now."

Marmaduke's Flying Propeller

► EVERY MARINE BOILER has a bottom-blow valve and a surface-blow valve. And every time we see a letter on the right or wrong way to install a blow-down valve we think of Marmaduke Surfaceblow. Then we wonder if his name has any connection with marine boilers.

Now that readers have had their chance to get into that valve argument (see "Arguments," in the last few issues) we thought Marmy might like to lock it up by putting in his oar. When we entered the old consulting engineer's dingy office above O'Houlihan's Machine Shop and Engine Works, we found him burning up someone at the other end of his telephone.

"If she threw a propeller blade, radio your chief engineer to slow her down until she doesn't vibrate. Keep running at that speed until you can get her into shipyard. THAT'S WHAT I SAID. And don't worry. I once ran all the way from Seattle to New York with a blade off."

Slamming down the receiver he spotted me. "Make it snappy," blasted Marmy. "This is my busy day."

"How about settling that argument in Power on installing blowdown valves with the pressure under or over the seat," I began.

"BILGEWATER ON BLOWDOWN VALVES," bellowed Marmy. "I'll tell you about a ship's propeller that almost knocked itself out."

With that he hoisted his feet onto his roll-top desk. Then he reached over to the potbellied stove, grabbed the coffee pot and poured himself a cup of black stuff that looked and smelled like hunker-C fuel.

Before I could ask why this sudden change from Sandpaper Gin, he put the steaming cup down and roared:

"Back in 1913 I was Chief on the freighter SS *Valparaiso*. She was a steam reduction-gear job. We carried general cargo to the west coast of South America. On our return trip we brought back copper, fruit, coffee and nitrate.

"The *Valparaiso* was an old ship. But my engineers were good, hard-working men who had all come up through the footle. They kept that old rust bucket running on schedule.

"One trip the *Valparaiso* pulled into Mobile, Alabama, to dry dock for the annual shipyard overhaul. Besides all the repairs we were doing below, the shipyard was to pull our tail shaft. That meant removing the propeller and breaking the 4-in.-diameter coupling bolts on the 16-in.-diameter tail shaft down in the shaft alley.

"Because a tail shaft is flanged on the inboard side, it must be removed by pulling it back through the stern tube inside the ship, after the propeller is off. To do that, the last piece of shafting before the tail shaft must be lifted out of the way. And a 16-in.-diameter shaft of about 10-ft length isn't light. Then the tail shaft is pulled inside through the stern tube to be examined.

"The shaft alley is narrow, with a catwalk along the shaft. And the shafting bolted together is from 100 to 150 ft long, depending on distance between engine and propeller. Every ten feet there are large spring bearings supporting the shaft.

"The 4-in.-diameter coupling bolts (Continued on page 172)



Photomicrograph of one type of silica scale in early formation stage. Further deposits will fill in between the "fingers" to form a dense, glass-hard, insulating covering that is extremely difficult to remove—and impervious to usual water treatment techniques.

STONE FOREST

(The boiler scale that fought back)

● When silica scale was mentioned, water-treatment experts used to change the subject quickly . . . until a plant using The Nalco System began having scaling troubles due to high silica content of the raw water.

That was many years ago. Today, the same plant, operating at 135 psi, maintains 500 ppm (29.4 grains per gallon) silica in boiler water without scaling.

The Nalco research program that solved this low-pressure boiler water silica problem is a continuous one, so that today The Nalco System successfully meets the challenge of silica wherever it arises in the field of water conditioning.

Whether your water treatment problem is silica—or something even tougher—Nalco has the solution, or can put the full facilities of the Nalco Laboratories to work on it for you.

LATEST STUDY ON SILICA CARRY-OVER

At operating pressures over 400 psi another silica problem—that of silica carry-over—often arises. One of the 1951 ASME papers, "Correlation of Silica Carry-over and Solubility Studies" is an up-to-the-minute, informative discussion of this problem. You are welcome to a copy. Just write to National Aluminate Corporation.

NATIONAL ALUMINATE CORPORATION

6222 W. 66th Place • Chicago 38, Illinois

Canadian inquiries should be addressed to Alchem Limited, Burlington, Ontario

THE *Nalco*

SYSTEM . . . Serving Industry through Practical Applied Science

POWER • JULY 1953