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SAFETY CONTROLS
Doing One Thing Well
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The early history of water feeders could well be called the Dark Ages of boiler feeders. It covered a lot of years, but practically nothing transpired up to the time we started out to do something about it.

To put it another way, the only significant history of boiler feeders has been our history, but that isn't to say there hadn't been water feeders on the market a long time before we started. Water feeders had been made way back in the 1880's, and I think they were first brought out by Kieley-Mueller of New York who produced both single valve and duplex feeders in a fine assortment of sizes from 1/2" pipe tapping to 2" tapping. At about the same time or earlier, there was a feeder known as the Nason which was used in the East. I can vaguely recall having seen its fossils somewhere, and it had a very long float chamber and a composition disc like all the feeders of the Dark Ages -- a construction that, strangely enough, is still to be found in this age of so-called enlightenment.

Later Kieley-Mueller's line was duplicated by Boylston Steam Specialty Co. of Chicago, and later still by my old friend McAlear. This was a logical development; both McAlear and Boylston had been sales agents for Kieley-Mueller at different times and were sufficiently impressed with the item to pick up the idea -- although not enough impressed to do any more about it than to follow the old beaten path.

This beaten path followed by the old-timers through the Dark Ages of feeders had been to make them in a full assortment of pipe sizes, but have practically the same size valve orifice in all of them. All had composition discs and all fed the water into the float bowl. It was the old game of selling equipment by pipe sizes without any regard to how big the orifice was, or how high the disc would lift, or how much water would be fed to the boiler. The prices went up with the pipe sizes, but the capacity just laid there.

I went to work for Jim McAlear in 1919 after getting out of World War 1, and during the five years I was with him the water feeder scene didn't change a bit. Water feeders were just items in the

catalog. They were just bought; never sold. Plenty of pipe sizes, plenty of prices, but same old types of feeders with composition discs, water fed into float chamber, little if any feeding-capacity data.

Then the Dark Ages ended and the Reformation began. I left McAlear in 1924, and the year I left the firm had sold about 75 water feeders; so you can see I was sparked far more by my belief in the water feeder idea than by any sales statistics indicating great market potentials. I guess it was more what feeders were not than what they were that prompted me to make the leap. Maybe it was the moans and groans from the cracked sections and burned boilers of the nation's boiler boneyards that goaded me on. Anyhow, we started, and, as you know, we've been at it ever since.

It can't be said, however, that we immediately shook off the mud of the old road, ourselves, during those early years. Like our predecessors, we fed the water from the city supply line into the float chamber, and when the water was heated up the lime and scale were precipitated out of it with the result that in certain hard water districts the feeder was out of commission in a very short time. After a lot of headaches, augmented by having to take it in the neck for a number of bad jobs, we grappled with the problem and finally came up (in 1928) with our rotary valve feeder. Mechanically it was a beauty, and it truly was a big improvement over anything preceding it. One thing it did was to get away from the composition discs. We've been metal-to-metal ever since. But still clung to the idea of letting the water out as well as putting it in -- the duplex idea that has now been outmoded. It also had a certain amount of heat at the feed valve which caused (although in lesser degree) a certain amount of scale and resulting sticking of the valves.

This trouble woke us up to the need for getting down to fundamentals. If heat at the feed valve was the root of most feeder troubles, why not get at the source of the trouble and design a feeder in which the water at the feed valve is kept below the temperature at which water precipitates its solids?

We succeeded in doing this in our No. 30 Feeder. It was the first "cool feed valve" feeder and was named for the year it came out - 1930.

The cool feed valve was the big jump ahead; the development that spelled dependability for our feeders -- then and ever since.

In our catalog sheets we show how water precipitates solids when the temperature rises above 120° F. The temperature at the feed valve in our feeders is always below 120° F. under all conditions of boiler operation. That's what keeps us out of trouble -- no matter how "hard" the feed water.

Another big development we made in the small boiler field was the "Quick-Hook-Up". One of the real headaches in hooking up feeders on certain types of round boilers and certain types with water glasses in the first section was getting a level in the float chamber that properly represented the true boiler water level. We had found that if the equalizing pipe connections went into the bottom of the boiler we might have a false water line in the chamber; so we searched around for the best way to duplicate the water level and finally arrived at a perfectly simple solution. Naturally, the most representative place was the very place the boiler manufacturer had chosen to locate his water glass. We simply worked out fittings for installing the feeder right in the gauge glass tappings and that was the start of the Quick-Hook-Up.

Actually we had killed three birds with one stone. We had assured (1) exactly the right height for the feeder, (2) the best possible reproduction of the water level in the float chamber, and (3) given the steamfitter a quick, easy way to install the feeder. Actually the method got its name from an accidental, but a no less real, advantage. The boys in the field called it a quick-hook-up and our merchandising sense told us to hop on and ride. "Quick-Hook-Up" it is and as Bonwit Teller says, it's "Ours Alone".

There were a lot of other things that happened along the road out of darkness into light. There was, as I said, getting away from the composition discs by developing precisely machined stainless steel seats and needles. There was the discarding of packed joints for packless, almost frictionless sylphon bellows. There was the designing and making of better integral strainers. And then there were endless refinements like the straight-thrust valve action, and so on and on.

So while today we are still working harder than ever, and with better facilities than ever, on making boiler feeders ever better, the fundamental work - the ground work - has been done. Our feeders are all rated, all Underwriters' approved, all engineered to their vital job. From hereon in, it is just a matter of more and more refinement.

It's interesting to note how thinking changed about the duplex feeder as engineering attention focused on boiler efficiency. Naturally, the first thought of maintaining a boiler water level was to determine some level at which it was to be held; then admit water whenever it fell below this point and drain it out whenever the water line went above this point. Obviously this meant wasting heat every time water drained out and chilling the boiler with cold water whenever make-up water was admitted. Of course, the engineers couldn't see that at all; so today we set the feeding point low and admit water only when there is a real low water condition. Insofar as small boilers are concerned, the Quick-Hook-Up assures doing this correctly. It locates the feeder so that no water is fed until it should be fed.

I went through the boiler feeder history as a separate subject before going into the low water cut-off history to avoid confusing the two subjects. However, the two went along together, as you know, and are often combined as in the No. 47-2 and larger combinations. In other cases, the cut-off, functioning as a float-switch, actually becomes a boiler water feeder as in the No. 150 when used as a pump control, or in the No. 67 when wired to operate the No. 101 electric water feeder.

As to the history of low water cut-offs, it is more contemporary, and more ours, than that of boiler feeders. The first low water cut-off I know of came out in 1926 and we developed it. It was known as our No. 25 and I am sure it was daddy of them all.

A little while later Mercoid came into the picture. Our first cut-offs had incorporated a Mercoid tube and movement. Since we had used bellows in our cut-off, and Mercoid was tied in with Detroit Lubricator (a competitor) on the basis of a tube and bellows, we had to swing away from Mercoid. We went over to Absolute Con-Tac-Tor who later became a part of Minneapolis-Honeywell who were later to cause us a lot of consternation by bringing out a cut-off, although in the light of what has happened the fear of competition from this source was not very well founded.

After we swung away from Mercoid, this organization brought out its own line of cut-outs, and in the years that have followed there has been, as you know, quite a number of low water cut-offs put on the market. However, as in the case of the feeders, those coming into the field just shuffled along without making any contributions and left the pioneering to us. It

remained for us to work out the all-essential deep sediment chamber, the much-needed, big-capacity, straight-through blow-off valve, the cam-and-rocker control of float bobbing, the specially designed built-ins, and so on down the list of features.

While the cut-offs have gone big, particularly our cut-offs, I still think of them as simply an "out" for the owners who balk at the price of combined feeders and cut-offs. To put it another way, they are an "out" for the contractor who doesn't like to bother with salesmanship, which, as you know, is the energetic art of persuading a man to buy what he should have, instead of following the lazy course of simply giving him what he thinks he should have.

As a matter of fact, there is evidence that plenty of us are showing people what they need. Despite the fact that the feeders have "spotted" the cut-offs a good price advantage, the percentage of feeders sold today is surprisingly large in comparison with the lower priced cut-offs.

Over in the field of higher pressures -- the field involving low water cut-offs also functioning as pump controls for boilers from 15 pounds on up -- we also did the pioneering. At first we made the natural mistake of trying to adapt our low pressure control to this job, but it soon became apparent that we had a new set of conditions to contend with. So we got down to business and after a lot of designing, followed by "bug" extermination, finally perfected the No. 150 which is a high-pressure, high temperature device through and through.

This No. 150, in the final analysis, is more than a piece of equipment; it is a method of better boiler water level control. It is the best means of following the best practice -- using the boiler water line itself to start and stop the pump -- thus keeping the boiler water line within close limits that assure high steaming efficiency and returning the condensate as hot as possible to conserve heat and fuel.

The herring across the trail just at present is the magnetic type of control. But this, I assure you, is simply an old fogy with some new store clothes. I have here in the office a patent taken out by Caggen in 1888, another by Renbold dated 1910, another by Davis dated 1928, and we have a list of others who have played with this same principle. As far as boiler control is concerned the idea has failed all the way -- failed because of the metallic and mineral constituents of boiler water. The idea has a certain

amount of glamour about it, and it has a definite value in certain types of work like refrigeration, but when applied to boiler water level control the magnetic control has steadily proved out of its element.

As you probably know, we have been given first opportunities to accept or reject principles of this kind, including electrode types of control. We weighed them all open-mindedly, went into every angle, and it has been our considered judgment to stick to the float. This doesn't mean we have a closed mind; it simply means that thus far we have seen or discovered nothing better. If something better ever comes along, or comes up, we will be quick to adopt it.

If we haven't been right in our principles, an awful lot of buyers have been dumb, or our selling and advertising has been awfully good. And while I feel we've done a great job of selling and advertising, I still feel, as A. D. Lasker has said, that: "The product that won't succeed <u>without</u> strong sales promotion, won't succeed <u>with</u> it."

We have dominated our market by sheer force of merit. Boylston quit making feeders long ago. We just never hear from McAlear or Kieley-Mueller or other old-timers any more, and I think they have practically quit making their water level control items.

Of course, some others have come up and taken their places, but we're still way out there in front; and you can be sure we got there on the merit of product well presented by advertising and a number of good articulate boys like yourself.

Copes, Stets and S-C have been prominent all the way in the extreme pressure field but have never reached down into the medium or low pressure field, which doesn't displease us at all.

That's just about the whole story. We have always considered quality first and let the price fall where it chose. A veteran and realistic salesman once said to me that a fellow should either sell the best or the cheapest. He was selling the best product in his field with tremendous success, and his subtle point was that there is no bottom to price -- no "cheapest".

You're selling the product that showed the way. You're selling the product that will continue to show the way. You're selling the best.

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