Comments from Readers

Welded Pressure Vessels

In the issue of August 31 there is a letter from A. J. Lamie in which reference is made to some articles that I have written in connection with welded pressure vessels. It is always a difficult matter, and possibly not entirely fair to an author, for someone else to express the author's views without making direct quotations so that the reader may see exactly what the author has said. Mr. Lamie has stated my position in the following words:

> He took the position that the society should not produce codes that deal with engineering matters from a public-safety point of view, but that its codes should consist of specifications based on the very latest engineering methods, without attempting to restrict the general use of such methods by everyone, by injecting a safety factor sufficient to compensate for poor application of method.

I should be glad to have Mr. Lamie reconcile this statement with the following quotations from my article in *Mechanical Engineering:* "In other words, the author's conception of a code is that it is a description of the minimum allowable requirements for safety," and "A code differs from a specification in that it is written primarily as a safety measure."

It would, therefore, seem that Mr. Lamie's statement of my position is not correct. I also think it would be fairer to say that, if the code that I proposed were adopted, it would give *properly* welded tanks an equal standing with those of riveted construction. I certainly have never advocated giving what I consider improperly welded tanks any rating at all.

I might further say that my proposed code is based on work done in commercial shops, the results of which are given in Bulletin 5 of the American Welding Society, these results being those of the tests made by the Bureau of Standards, and further, that these results are so far behind what has been accomplished in the laboratory that there is no comparison. In other words, it does not "set up as a standard the ultimate in scientific achievement," nor does it even set up as a standard what is being done in the best commercial practice, because I agree with Mr. Lamie that neither of these can be used as a standard.

In Bulletin 5 referred to herein, the committee of the American Welding Society made certain recommendations based on the tests, of a factor of safety of 5 and a weld value of 80 per cent, using 50,000 lb. ultimate strength of the plate as a basis, and insisting on the use of the double-V-weld for longitudinal seams. These same recommendations are used in my proposed code.

Mr. Lamie states, "I have seen dozens of welded air tanks that exploded under normal working pressure." I believe he would confer a favor on everyone if he would make up a list of these tanks, giving the circumstances and the result of the investigation with a complete description of the tank and weld. This list could be compared with my proposed code to see if tanks made in accordance with the latter had given any trouble. I might say that I have repeatedly tried to get similar information and have never been able to.

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High-Pressure Steam in Heating Mains

The article on the new heating plant at the University of Rochester, by Prof. J. W. Gavett, in the issue of Aug. 10, interested me. There is one feature in the steam distribution to buildings upon which I should like to make some comments.

The article states that it is the practice to carry steam to each building at full boiler pressure, reducing in one step in the building to one or two pounds for heating, and to 25 lb. for other purposes. The writer does not approve of this practice for a number of reasons. Pressure-reducing valves are not infallible, and if for any reason one of these fails to function, steam at full line pressure may be admitted to the heating system. Besides the damage to thermostatic traps, a serious accident due to the bursting of a radiator is likely to follow. The writer has had some unpleasant experiences along this line in years past, when it was the practice at the University of Missouri to carry full boiler pressure, 100 lb. or more, to each building, there to be reduced to building pressure, exactly as described in the Rochester article.

Our present practice is to reduce from boiler pressure, which is 150 lb., to a pressure of 30 to 40 lb. at a point in the steam tunnel near the power plant. Steam at this reduced pressure is carried through tunnels and underground conduits to some nineteen buildings having a total of about 71,000 sq.ft. of radiation. A recording pressure gage in the office of the Superintendent of Buildings records this pressure, giving instant notice of any change up or down. In case a pressure-reducing valve in a building should get out of order and permit the full pressure on the building, this pressure cannot exceed that which is carried in the steam mains.

We find it advantageous for other reasons to carry just as low a pressure in the heating mains as possible, consistent with an ample supply of steam to each building. Reduction of pressure at or near the power plant tends to dry and superheat the steam, thus reducing troubles due to accumulation of water in the pipes. The writer believes that the high steam velocities brought about by the reduction in pressure are of advantage.

The lower temperature of the low-pressure steam is another thing in its favor. The temperature of saturated steam at 30 lb. gage is 274.5 deg.; at 150 lb. it is 366 deg. The loss due to radiation in long lines extending to distant buildings will evidently be much less in the former case than in the latter.

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