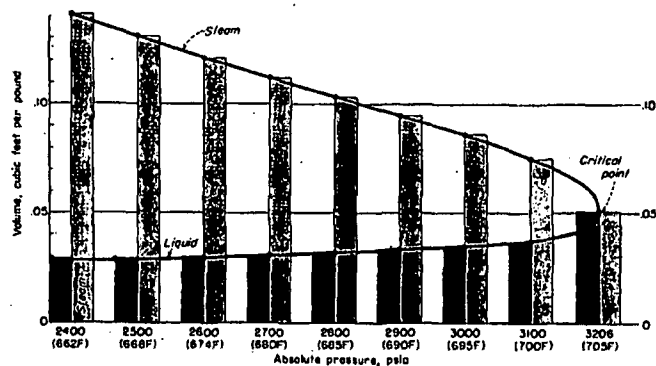




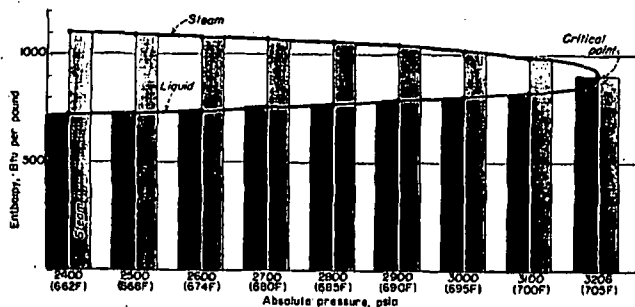
HEADWORK

PHIL SWAIN BRINGS ENGINEERING
THEORY DOWN TO EARTH



VOLUME

As pressure rises, saturated liquid water gets lighter, while saturated steam gets heavier. At the critical pressure (3206 psia) both have the same volume (0.0503 cu ft per lb) and, in fact, are the same thing.



ENTHALPY

As pressure rises, the enthalpy (heat added above water at 32°F) rises for saturated liquid water, but falls for saturated steam until both become equal (903 Btu) at the critical pressure.

The ABC of Superpressure—2

► FIRST, LET'S REVIEW a few fundamentals: For each pressure water boils at, there is a corresponding temperature called the *saturation temperature*. At this corresponding pressure and temperature both the steam and the liquid water are said to be *saturated*.

Saturation pressure and temperature rise together, but not in proportion, until the *critical point* is reached at 705°F and 3206 psia (lb per sq in. absolute).

Here (see curves), liquid and steam become exactly alike,

so "liquid" changes to "vapor" without adding heat or increase in volume. That's why critical boilers can make steam without "boiling."

Above 705°F, water cannot exist as a liquid no matter how high the pressure.

At 60°F, one cubic foot of saturated water weighs 62.4 lb. At the critical point both the water and the steam will weigh 19.9 lb.

More information next month on critical pressure.



How we combat corrosion and searing arcs

In most industrial plants, metal-clad switchgear is under constant attack—inside and out. To protect against the effects of arcing, Westinghouse lines arc chutes with a true ceramic containing a high percentage of *zircon*, which has the highest melting point of any known material.

Additional important factors in chute life that maintenance men appreciate: Westinghouse chutes will not absorb moisture, have dielectric properties comparable to porcelain.

This switchgear employs the most effective method of arc extinction in use today. The arc is extinguished in split seconds and it is on the main contacts for only a fraction of this time. Result: less contact burning, less chute wear, less shock to the whole unit.

Bonderizing® best practical surface protection. The best practical metal surface protection that we know of for switchgear is Bonderizing. We Bonderize our metal enclosures *after* they're assembled so that every nook and cranny gets the full five-dip treatment. Then the enclosures are painted twice and the paint sticks as though it is part of the metal.

In Westinghouse outdoor switchgear there's no worry about corrosion on the undersurfaces, either. After assembly, we spray them with a heavy layer of rubberized coating.

When you're planning switchgear installations, call in Westinghouse. And write now for your copy of booklet B-5306. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa. J-50170-C

YOU CAN BE SURE...IF IT'S
Westinghouse

