

Further comments by Joe Cliffe about Adrian Tester's new boiler book

On 20th July 2024, Joe Cliffe offered the following additional (and most interesting) observations:

“By all means use any of my words in promoting this outstanding work, which surpasses Chapelon in some respects.

We were both students of McAdams work: 'Heat Transmission' of 1933.¹ I still have the 3rd edition, 1954, which opened up the whole subject beyond the understanding of loco drawing offices, most of which never got it at all and instead seized upon Wagner's S/A ratios of 1930 - vide E.S. Cox.

Not to mention Margaret Fishenden² of Imperial College and her 'Heat Transfer' (1950), a first-class introduction to what was happening. Some ladies were very good at understanding these things, and there were several at Farnborough at the time, not to mention Rolls Royce and the Merlin fuel starvation and the sewing thimble solution.³ Excuse the digression!

All of whom promoted Osbourne Reynolds original dimensionless number, analysis, 1901 ... the key to understanding it all, and the split between laminar and fully developed turbulent flow ... and boundary and viscosity and friction effects - all backed up by experiment, not just a theory. The distinction between science and engineering!

Latterly, when at Power Jets⁴, I knew Brian Spalding⁵ who was at Imperial College at the time ... a specialist on combustion and his famous for his “three tees” quotation – “It's all about Time Temperature and Turbulence”.

Adrian, I have now got to the appendices and the LMTD methods which were common knowledge 'de rigueur' in the Power Industries in the 1950s

'Thanks for the memories', it all keeps me going now in my mid-90s. yes roll on vol 2.

Oh - I still use my slide rule for quick overall answers. Frank Whittle did it all that way in Lutterworth⁶ before Rolls Royce got at it post-war.

Life is great.”

¹ The 459-page 1942 version of the book can be found on-line at <https://archive.org/details/in.ernet.dli.2015.238768/page/n449/mode/2up>.

² For Margaret Fishenden see https://en.wikipedia.org/wiki/Margaret_Fishenden.

³ The sewing thimble that Joe refers would be “Miss Shilling's orifice” – see https://en.wikipedia.org/wiki/Miss_Shilling%27s_orifice.

⁴ For Power Jets see https://en.wikipedia.org/wiki/Power_Jets.

⁵ For Brian Spalding see https://en.wikipedia.org/wiki/Brian_Spalding/.

⁶ Lutterworth in Leicestershire was the location of the British Thomson-Houston works where Power Jets' developed its prototype jet engine - see <https://en.wikipedia.org/wiki/Lutterworth>.