Check out our monthly digest of rather unreliable science and technology mini-stories.

By Mike Barfield

**MODERN SCIENCE FROM NEWTON TO NEUTRON**

Chapter 26: Van der Waals, Force of nature

Johannes Diderik van der Waals was born in Leiden, Holland, in 1823, the son of a poor carpenter. Perhaps if his father had been better in his profession, he could have paid for him to attend a better school. As a result, young Johannes missed out on learning Latin and Greek – excluding him from enrolling as a student at Leiden University. Instead, he attended science lectures there as an outside student, while also working as a schoolteacher.

With a brilliant grasp of physics, yet unable to pursue his dream, van der Waals’ predicament was a rare twist on an old adage, namely: ‘Those who can, don’t; those who can’t, teach.’

Three years later, Leiden relaxed its rule on classical languages and van der Waals was allowed to study for a doctorate. As the relieved van der Waals commented at the time: “I have no words to express my gratitude. Well, not any Greek or Latin words, certainly…”

Van der Waals’ abiding interests were thermodynamics and kinetic theory, reflected in his PhD thesis, ‘On the continuity of the gas and liquid state’. This was a brave and bold paper, James Clerk Maxwell declared that ‘this at once puts his name among the foremost in molecular science’, before adding swiftly, ‘though not alphabetically, of course’.

Many plaudits followed, along with a professorship at the University of Amsterdam. Here van der Waals continued research into the continuity of states, arguing that from the viewpoint of molecular mechanics, there was no real difference between behaviour of molecules of a gas or a liquid. As he himself said: ‘It’s just a phase they’re going through.’ He also estimated the size of a hydrogen atom (‘small, very small…’) and in 1880 formulated his law of corresponding states. This breakthrough led to the liquefaction of hydrogen (1898), the liquefaction of helium (1908) and the first ever impression of Joe Pasquale (also 1908).

He died in 1923, having received widespread recognition and acclaim, including the Nobel Prize for Physics in 1910. He proudly accepted the honour, though with the citation in Swedish and Latin, he probably couldn’t make head nor tail of it.

**NEWS FROM NADIR**

‘NFC’ is the current buzzword at NaDiR, where the software buffs are trying to develop a contactless payment system to compete alongside Apple Pay, Android Pay and Google Wallet. Until recently, most NaDiR staff would have guessed near-field communications had something to do with farming or camping rather than smartphone finance, but things are changing rapidly.

NaDiR’s cross-platform prototype is called SoftTouch and has been installed on the phones of several colleagues for use within the canteen. Early reports indicate that SoftTouch is more than living up to its name – with phantom payments galore, many for several times the sum actually required. Worried staff have been assured that all such errors will be reimbursed, but calls and emails to the SoftTouch office continue to go unanswered. As one NaDiR wag summed it up, “How much more ‘contactless’ could you get?”

**DOMESTIC SCIENCE**

Delicious Dishes for Hungry Engineers
No. 26: Cog and chips

For dogs or cats

**Clerihew Corner**

This issue’s clerihew reveals a new side to regular Acro-namer Jim Waterton.

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