Copper Development Association

Press Information

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Back to the Future

Copper alloys return to the front line of infection control

Long known for their antimicrobial properties, it has taken recent laboratory work at Southampton University and a clinical trial at Selly Oak Hospital in Birmingham to bring copper and its alloys to the attention of those looking for solutions to today's hospital infections. Copper's potential role was highlighted at a recent event at St Thomas' Hospital in London, under the watchful gaze of Florence Nightingale.

Copper Development Association was invited by the RIBA group, Architects for Health, to exhibit at the recent Ward Layout event, which combined the latest thinking in ward layouts with the latest evidence for copper's role in fighting infections. The event took place in Central Hall, the location of the life-sized bronze statue of the world-renowned champion of hygiene, the 'Lady of the Lamp', Florence Nightingale.

Nightingale has significant connections with St Thomas'. She established the first training school for nurses, the Nightingale Training School, at St Thomas' in 1860 and she had input into the ward layout that bears her name to this day – the Nightingale ward. This dormitory-style configuration has beds spaced to allow better circulation of air (at the time, 'bad air' was believed to spread disease) and, at Nightingale's insistence, one bed for each patient! Today, St Thomas' is home to the Nightingale Museum, which celebrates the life and achievements of this remarkable woman.

While new hospitals are being built with more single room and 4-bedded bay configurations, there are still many Nightingale wards around the country. One of these is B4, the test ward at Selly Oak Hospital, where copper components such as taps, grab rails, door handles and light switches have been introduced in a trial that has demonstrated copper components have 90-100% fewer disease-causing micro-organisms on their surfaces compared to standard items.

It would appear that ancient measures for infection control are only now being rediscovered, but in fact they have been quietly implemented for many years. Visitors to St Thomas' will

still see original brass push plates and handles on the doors leading off the main corridor. With their warm, golden colour they stand out from the now familiar materials of the healthcare environment – stainless steel, aluminium and plastic, materials that do not share the biostatic property of copper.

In the oldest part of the hospital, where all the door furniture is still brass, the wood-panelled board room houses a display cabinet featuring a copper dressing tray recovered from the bomb-damaged buildings of WW2. This basic piece of hospital equipment would have been easy to form, functional and long-lasting, and also hygienic as germs simply do not survive on copper.

Copper Development Association exhibited at the Ward Layout event at the invitation of Architects for Health President, Ann Noble, a speaker from the first Copper and Public Health conference in Athens last year. Among the many visitors to their stand was a retired microbiologist who recalled that his professor at King's had told him back in 1955 that the reason hospital door handles were made of brass (an alloy of copper and zinc) was because it kills germs.

In 1984, an American clinician, Phyllis Kuhn, carried out a study which showed that in her hospital, brass door handles had fewer micro-organisms on them than the replacement stainless steel handles, leading her to urge caution in replacing the traditional brass components.

But it is not just this relatively recent awareness of copper's hygienic properties that has been overlooked: ancient civilisations knew it, too. Egyptians used copper as a sterilisation agent for drinking water and wounds, and Aztecs treated sore throats with it. The 'father of medicine' himself, Hippocrates, is known to have treated open wounds and skin irritations with copper, and the Romans prescribed it for a wide variety of diseases.

Now, thanks to peer reviewed and published scientific research, copper's efficacy has been proven in the laboratory and on the ward, and the infection control community is looking at how copper surfaces can be incorporated in hospitals to break the chain of infection between the patient and the environment.

In Nightingale's day, the link between germs and disease had not been established, but if Florence were alive today and could peer down a microscope to see how germs survive on

different materials, then she would surely insist that frequently touched hospital surfaces were made from copper or brass, just like her lamp.

Florence Nightingale statue

Brass door handles at Selly Oak Hospital, Birmingham

Right:
Original brass door furniture, St Thomas'.

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