

BRADWELL HISTORICAL SOCIETY



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Up-coming events

This month's talk is on Women in Antarctica and will be given by Andy Smith on Tuesday 20th May at 8 pm in the Methodist Hall. About his talk Andy has written :

Unlike when America was "discovered" by Columbus, when Antarctica was discovered in the early nineteenth century, it had no indigenous residents - men, women or children.

In the Heroic Era of Antarctic Exploration, the expeditions of Scott, Shackleton and Amundsen were entirely male, with women supporting their men from a distance. In fact it was not until 1935 that the first woman stepped ashore on the Antarctic mainland.

The first women to spend a winter in Antarctica were the wives of the leader and deputy leader of an American expedition after the Second World War. They hated each other, as did their husbands!

Gradually women began to visit Antarctica in their own right as scientists, support staff, explorers or tourists, rather than as wives and female companions. The attitudes to these developments are discussed, as well as some practical consequences.

The talk highlights the contributions women have made to Antarctic scientific research and concludes by featuring a number of prominent women associated with Antarctica, and their achievements.

Sheffield's Human Guinea Pigs Part II

Later in WWII Kenneth Mellanby who had formed the Sorby Institute at the house called Fairholme in the Broomhill district of Sheffield was in the RAMC as Major K Mellanby. By this time the investigation of the causes and diagnosis of the disease of scabies (the itch) was coming to its conclusion. Nevertheless the group of

conscientious objectors (COs) Mellanby had brought to Broomhill were keen to carry on as volunteers in other studies with a medical background.

Hans Krebs had escaped Nazi Germany in 1933 and was by 1936 Lecturer in Pharmacology (until Biochemistry was recognised as a discipline in its own right later that year). Just days before the outbreak of WWII biochemist Krebs was naturalised British. He discussed with Mellanby how he might help in the war effort. Before his departure for the army Mellanby suggested that the Human Guinea Pigs might be recruited for a nutritional investigation into what became known as the 'National Loaf'. Until the war bread had been baked with flour that had been milled to include just 70% of the wheat. The question being posed was whether flour containing 85% of the wheat would be inferior nutritionally to the '70% loaf'. When Krebs spoke to the COs he got off on the wrong foot. He wanted them to include a 85% loaf as a major part of their diet. He told them that the change would mean that there would be more space on ships arriving with imported wheat at our ports. This was taken to mean 'more space for arms' whereas Krebs meant less ships and sailors exposed to the risk of U boats. After this clarification the study (complimented by one in Cambridge) went smoothly and it was found the 85% extraction was perfectly acceptable but only if extra calcium (in the form of chalk) was added to the bread. This is a practice that is still followed to this day although calcium propionate is the additive as this serves dual nutritional and preservative roles.

The value of the new national loaf was not the only nutritional question the COs got involved in, because at that time the correct human requirement for the vitamins was not well understood. So subcommittees of eminent scientist were set to advise the government on the way forward. The chair of the vitamin A subcommittee, Alan Morton, turned to Krebs with a request that the human guinea pigs would agree to have as much as possible of the vitamin withheld from their diets until signs of deficiency appeared in the form impairment of night vision. In a way that would not be allowed now the Medical Research Council (MRC) published the results of the study and identified the volunteers by name. From this we find Walter Bartley stayed without the vitamin for 23 months. Walter's wife Melia is also named in the study but she withdrew after 8 months (when she was known to be pregnant). When dietary vitamin A was re-introduced after deprivation it was found that 1300 International Units (IU) daily was just sufficient to reverse and prevent impairment of night vision. (The current recommended daily allowance is 3000 IU but this takes into account developmental roles for the vitamin in children that were not known at that time). The COs findings helped the government to direct that the vitamin be added to margarine at 15 000 IU per pound (lb – 453 g).

For most of the COs in the vitamin A study there was hardly any discomfort. One exception to this was Bernard Hicken who wrote

There was uncertainty about that (*the risk*) because Vitamin A is pretty important. But you have this feeling that it's the right thing to do, so you carry on ... I suppose nature caught up with me. I was taken to hospital. When I came out I felt like an old man, not someone of 25. It was the end of the experiments for me.

Later in the war and into the peace the focus switched to the study of vitamin C. From the experience of sailors it had long been known that they develop scurvy when deprived of vitamin C. The external signs of scurvy included bleeding of the gums and around hair follicles and poor repair of wounds. To assess the role of vitamin C in wound healing the vitamin was withheld from the COs and a 3 inch incision was made in the thigh (under local anaesthetic) and 5 sutures were applied to close the wound. At differing times for differing subjects the wound was excised during the withholding and reintroduction of the vitamin and its breaking strength was assessed. If vitamin C intake was reduced to 1 mg a day scurvy developed within 4 – 6 months whereas the addition of 10 mg reversed the disease in weeks. This led to a government directive that there should be a daily intake of 30 mg. The current recommendation is for a daily intake of 40 mg.

To support the known need for vitamin C children early in the war been paid at the rate of 3d per pound (1b) to collect ripe rose hips, a rich source of the vitamin. To keep children's interest in the collection the Ministry of Food produced a leaflet called *Food facts* with its own quiz corner.

The question posed was :

- What is (or are) Rose Hips?
- (a) Name of a famous woman spy
 - (b) An eastern dance
 - (c) Pods of wild rose, rich in vitamin C
 - (d) Name of a Russian folk song

Even after the war the Guinea Pigs kept in touch via a Sorby newsletter and in one published in 1947 they were still able to laugh at their experiences in the vitamin C study at the hands of the vitamin C subcommittee:

There has been an important meeting of the inner circle of the Vitamin C committee in Wimpole St. An unconfirmed pronouncement is that they were all psycho-analysed with the result that all findings have been declared null and void. You can all have your wounds back.

In 1947 Krebs was elected as a Fellow of the Royal Society an honour for their 'dear leader' celebrated by the Sheffield Human Guinea Pigs in their Sorby Newsletter.