

Biography: James Lind (1716-1794)

James Lind was a Scottish physician. He was a pioneer of naval hygiene in the Royal Navy. He developed the theory that citrus fruits cured scurvy. Besides his publications on scurvy (*A Treatise on the Scurvy*, 1753) Lind published essays on fevers and infections (1763), on diseases incidental to Europeans in hot climates (1768), on jail distemper (1773), and on the most effectual means of preserving the health of seamen (1779). His recommendations contained a number of important and innovative ideas concerning hygiene, nutrition, the importance of fire and fumigation in combating infection, and on the destruction of clothing and bedding in order to prevent the spread of typhus. He wrote: ...almost all diseases are easier prevented than removed”.



James Lind was born on October 4, 1716, in Edinburgh, Scotland. His parents were Margaret (nee Smelum) and James Lind, a prosperous merchant. Like all young, well-placed Briton received a good basic education (he was graduated from high school in Edinburgh) and in the 1731 began his medical studies. He was a student (apprentice) of physician-surgeon George Langlands. After completing his training in 1739 he set off south and joined the British Royal Navy (as an assistant surgeon - surgeon's mate). The next nine years he spent voyaging in the Mediterranean, off West Africa, and in the West Indies. and in 1747, he was promoted. This was due to the start the service on the HMS "Salisbury", on board of which Lind conducted the first in the history of medicine, controlled medical experiment. He carried out experiments to discover the cause of scurvy, the symptoms of which included loose teeth, bleeding gums and haemorrhages.

In a war (this war was on the Austrian Succession) weeklong cruises caused mass illness of sailors from scurvy. James Lind divided sick sailors into six groups and give each a definite diet containing one of the specifics at that time considered to be useful for scurvy (cider, beer, vitriol, sea water, pasta with garlic and mustard,

Barley's water and citrus). Sailors receiving citrus fruits quickly return to health after a week of experiment, some of them could return to service. In 1750 James Lind was elected a fellow of the Royal College of Physicians (Edinburgh) and seven years later became its treasurer. He also became a member of the Philosophical and Medical Society of Edinburgh. But his important scientific findings he published in 1753 in his classic work *A Treatise on the Scurvy* and dedicated it to Lord Anson, the First Lord of the Admiralty, who as a commodore had sailed round the world in 1740 and knew all about the ravages of this disease. Unfortunately, this work was by the medical community ignored.

Lind was not the discoverer of the beneficial effect of citrus. Already in 1601, the British East India Company, and specifically Cpt. James Lancaster has provided his sailors with oranges and lemons, so the crew escaped scurvy. In the seventeenth century the Dutch founded citrus orchards along the ocean route around Africa and conducted horticultural experiments on the board ships. After the publication of Lind's many of doctors on the Royal Navy board tried to fight scurvy with citrus juice, a breakthrough was one very long, twenty-three week trip to India. In 1794, Captain of HMS "Suffolk", Peter Rainier,

under the pressure of Admiral Alan Gardner, ordered to give each seaman daily 2/3 ounces of lemon juice mixed with grog.

The decision was salutary, there was not an epidemic of scurvy. But, only a year after the death of James Lind, in 1795, the Admiralty decided to introduce this preventive measure for all ships. Thanks to that, the scurvy ceased to be a problem in the Royal Navy.

Shortly after the end of the experiment on board HMS "Salisbury" James Lind ended up serving in the Navy and returned to Scotland, where he began his studies at the University of Edinburgh for the degree of Doctor of Medicine (MD). Due to his excellent education and many years of practice, this degree has been given to him already in 1748. His versatility shows e.g. on the thesis, which is concerned with... venereal diseases.

After graduation he began medical practice in Edinburgh. He married Isobel Dickie and had two sons - John and James. Both instilled in his two passions - sea and medicine. The elder son, John (1751-1794) followed in his father's footsteps, became a doctor and in 1783 succeeded him as the chief medical of Haslar Hospital. The younger son, James (1752-1823), like his father, began his career in the Navy. He served at sea for many years, rising to the rank of captain. He commanded HMS "Centurion" and played a significant role in the Battle of Vizagapatam in 1804, for which James Lind Jr. was knighted.

In 1758, James Lind was appointed as the chief physician of Royal Naval Hospital Haslar in Gosport on the south of England. In this hospital patients were treated with typhoid fever including. Lind has introduced stringent hygiene requirements on the top floor of the hospital, the sick sailors were bathed, lice deprived and sheets were disinfected and changed. These actions led to the situation in which typhus

disappeared from that floor but raged on floors below, where the hygiene measures were not implemented. These observations of Lind led to the introduction of compulsory shaving, bathing and regular change of bed linen and clothing in the Royal Navy. As a result, the British sailors not often suffered from typhoid fever, giving the British Navy a significant advantage over their main opponents - the French.

The sailors were sent to the Haslar hospital with many tropical diseases. This allowed of James Lind for the observation of symptoms of these diseases and their treatment. In 1768, Lind published an essay on diseases of Europeans in hot climates (An Essay on Diseases Incidental to Europeans in Hot Climates), which was the main source of information on tropical medicine for 50 years.

The versatility of Lind was due to his skills of observation, reasoning and finding in many fields of science. In 1759, Lind discovered that the water obtained from a vapour of heated sea water was fresh and was suitable for drinking. He also proposed the use of solar energy for water distillation. Unfortunately, the technology at that time did not allow for effective distillation of useful scale. It was not until the introduction of a new kind of stoves in 1810 allowed for the implementation of this, from the point of view of navigation, a momentous discovery.

In 1783 Lind became a Fellow of the Royal Society of Edinburgh and retired. He died on 13 July 1794, at the age of 78, two years before his wife, and was buried in Porchester Church. Deservedly, he is widely regarded as the first modern clinical investigator.

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