

extended knowledge of osmosis. In his textbook, *Elements of chemistry*, there are eight pages on osmosis and he clearly indicated its probable importance in biology. Extracts of this section were quoted at length in many of the textbooks of physiology, widely read by medical students and doctors at times when great cholera epidemics were raging.

The failure of the medical and chemical establishments to link together cholera and osmosis seems in retrospect a remarkable failure in constructive thinking. Had the two imaginative men, Dutrochet and O'Shaughnessy, met by chance in 1832 in Paris or London, their conversation over a bottle of wine might have led to the means of saving many millions of lives.

## THE ONE HUNDRED AND SECOND ORDINARY MEETING

This meeting took place in University Hall, St Andrews, on 19 June 1982, when two papers were presented. The first, by Professor Ian A. D. Bouchier, was entitled:

### WHALES AND WHALING: CONTRIBUTIONS BY THE MEDICAL PROFESSION

There is a rich heritage of literature related to the whaling industry. Much of it is documentary, natural history, and of a scientific nature; but at least one great work of art, *Moby Dick*, has emerged. Remarkably little has been contributed by the medical profession; remarkable because from the seventeenth century, each British whaler carried a surgeon, and he would have been the one man aboard with the requisite education and scientific training to observe and record events occurring during the voyage. The surgeon lived in the cabin and messed with the captain and mate. Very often, he had just taken his degree and had not yet settled into his practice. The reasons for doctors to undertake these voyages were varied: financial, love of adventure, and a desire to see new and unexplored parts of the globe, initially the Arctic, then the Pacific and South Seas, and, from the early part of this century, the Antarctic.

#### *John Lyell (1807–74)*

Lyell is the first of our medical authors. Born at Newburgh, Fife, he was a Licentiate of the Royal College of Surgeons of Edinburgh (1829) and later MD of St Andrews (1850). He kept a careful diary<sup>1</sup> of his voyage as surgeon on the whaler *The Ranger* from 1829 to 1833. The diary, located in the Perth Museum, has never been published. It is of considerable interest both as a record of whaling life and of travel, and contains charming and accurate watercolour illustrations of islands, fauna and flora, and whaling artefacts.

*Ranger* fished in the Pacific, both north and south of the Equator, and towards the end of the voyage, life was quite uncomfortable. Lyell relates how he had to sleep atop

<sup>1</sup> Diary of John Lyell, ship surgeon. Written on a voyage to the Southern Arctic Seas, 1829–33. I am grateful to the Curator of the Perth Museum for access to Lyell's diary.

two trunks to keep dry at night and had to lie under pieces of canvas to protect himself from dropping moisture. He tells little about the men and their illnesses. In August 1830, however, there is a detailed entry about the problem of scurvy, a hazard encountered by merchant seamen even well into the nineteenth century, partly from ignorance and partly because of the attitude of the owners. Indeed, scurvy was such a problem for whalers that they often had to leave the whaling grounds when fishing was most productive and put into islands such as the Marianna or Sandwich for the crews to recover.

On his return, Lyell settled in Newburgh and practised there and in Abernethy. He was a founder of the local Horticultural Association. In 1870, he went to Glasgow to become a City Missionary, but he had to retire to Perth because of ill health and died in 1874. A son, David, took over his practice and a grandson, John Lyell, was also in medical practice in Perth.

#### *Thomas Beale (1807–49)*

Our second medical writer published his experiences of a two-year voyage he undertook in 1830. In 1835, an important treatise on the natural history of the sperm-whale<sup>2</sup> appeared and, encouraged by the success of this, in 1839 Beale produced an expanded version of his voyage. This book is one of the earliest to provide a detailed description of whaling life, and one person who read and was influenced by it was Henry Melville. We know that Melville had an annotated copy, and that he relied heavily on Beale's descriptions of sperm whales and the whaling industry when writing *Moby Dick*.

Beale, born in 1807, was educated at the Aldergate Street Medical School during 1827–29. A year later and a married man, he set off in the *Kent* on his 50,000 mile journey that lasted thirty months. The fishing was mainly in the Japanese Sea. Conditions on board must have been trying for, although he provides us with little information about events on the *Kent*, Beale records that the captain abused and ill-treated his men to such an extent that the mate left the ship, several of the men deserted, and in June Beale himself transferred to the *Sarah and Elizabeth* by swapping berths with the surgeon, Mr Hildyard. The latter had been a medical student with Beale, and it was on his own request, and against Beale's advice, that he moved to the *Kent*, a decision Hildyard was to regret. On his return, Beale took the post of Assistant Surgeon at St John's British Hospital in Hatton Garden, London. Later, he moved to Limehouse where he led a busy life in general practice, dying of cholera in 1849.<sup>3</sup>

#### *Frederick Debell Bennett (1806–59)*

Bennett is our third important author. Born in Plymouth, he was admitted Licentiate of the Society of Apothecaries in 1828, proceeding to the MRCS the following year. On 17 October 1833, he set out from London on the South Sea Whaler

<sup>2</sup> Thomas Beale, *A few observations on the natural history of the sperm whale, with an account of the rise and progress of the fishery, and of the modes of pursuing, killing and "cutting in" that animal, with a list of favourite places of resort*, London, Effingham Wilson, 1835.

<sup>3</sup> Veronica F. Barker and Ian A. D. Bouchier, 'The polymath practitioners', *Practitioner*, 1976, 217: 428–434.

*Tuscan* for a three-year voyage. His account of this was published in 1840.<sup>4</sup> Bennett collected a large number of botanical and zoological specimens, which he presented to the Hunterian Museum of the Royal College of Surgeons of England, the Linnaean Society, and King's College London.

As the *Tuscan* travelled north, across the Equator to colder waters on the west coast of America, many of the crew developed a profuse eruption on the skin of minute vesicles, attended with intense itching upon exposure to the cold. It is not clear what this was, but one possibility is sensitization to the marine animal, resembling seaweed, called *Alcyonidium gelatinosum*, and as such Beale's description bears a relation to that ailment of North Sea fishermen known as "Dogger Bank Itch".

Of considerable interest is Bennett's account of an illness following the ingestion of salted albacore or tunny. A few hours after the meal, the affected men became febrile, complained of headaches, and broke out in a "scarlet rash". The illness was not brought on by eating fresh tunny and was short-lived. I believe that this is an early, if not the earliest, account of scombrototoxic poisoning, which results from eating tuna, bonito, or mackerel, the flesh of which has become toxic as a result of bacterial contamination and growth. It is a form of histamine poisoning in which there is a brief, non-fatal illness of headache, fever, diarrhoea, and a bright red rash. The incubation period is a matter of hours, the onset abrupt, and the illness lasts from three to six hours and is always over by twenty-four hours. Although as little as 20 mg histamine/100 g flesh may cause symptoms, the usual dose is in excess of 100 mg/100 g.<sup>5</sup>

The great days of whaling are over. In the early part of this century factory ships were developed and accelerated the decline of an industry that had already squandered the resources on which it depended. These factory ships brought a new dimension of health care to the whaling crews; and a new literature of life in the frozen south emerged in which medical writers have made their own contributions. Three examples of modern medical writers may be cited.<sup>6,7,8</sup> Excellent though these be, they cannot equal in importance the early writings of the whaling surgeons.

The second paper was presented by Dr David Wright with the title:

#### ARSENIC AT ST ANDREWS, 1943

On 15 and 16 January 1943, there was an outbreak of acute arsenical poisoning in St Andrews, following the consumption of contaminated sausages. As a result, one

<sup>4</sup> F. D. Bennett, *Narrative of a whaling voyage round the globe from the year 1833 to 1836*, London, Richard Bentley, 1840, 2 vols.

<sup>5</sup> R. J. Gilbert, G. Hobbs, C. K. Murray, J. G. Cruickshank, and Susan E. J. Young, 'Scombrototoxic fish poisoning; features of the 50 incidents to be reported in Britain (1976-9)' *Br. med. J.*, 1980, **281**: 71-72.

<sup>6</sup> A. Conan Doyle, *Memories and adventures*, London, Hodder & Stoughton, 1924.

<sup>7</sup> H. R. Lillie, 'With whales and seals', *Br. med. J.*, 1949, **ii**: 1467-1468.

<sup>8</sup> R. B. Robertson, *Of whales and men*, London, Macmillan, 1956.