VIEWS FROM THE PAST

John Honour, Sir Thomas Lewis's personal laboratory assistant

Arthur Hollman

Sir Thomas Lewis (1881–1945) was a renowned cardiologist and a great pioneer of scientific medicine. His entire working life was spent at University College Hospital London where his department was a power house of original work into cardiac arrhythmias, the peripheral circulation, and pain. His outstanding ability attracted young research workers from around the world. In addition, he founded and was the sole editor of the prestigious journals *Heart* and *Clinical Science*.¹ When I wrote about a technician who had helped Lewis with his early work,² Dr Howard Burchell remarked to me that the technicians of distinguished scientists and doctors rarely get mentioned in the literature. Therefore, I felt it well worth recalling the career of John Honour, Sir Thomas Lewis's personal laboratory assistant for nearly 20 years. Honour was Lewis's right hand man and an indispensable member of his staff. All the young investigators in the department, many of them American, were guided and instructed by him and several later became renowned in medical research.

Early life

Alfred John Honour was born in London in 1911 and was the third in a family of eight. His father was an electrical engineer at the Savoy Hotel. He did well at school and at age 10 gained a scholarship to a polytechnic; fortunately, his parents could not afford him to attend, and instead he had an excellent education at the Central School in Camden Town. The school had laboratories for physics and chemistry and he was taught technical drawing, metalwork, and woodwork. His mother attended the pioneer Child Welfare Clinic at University College Hospital where Lady Blacker, wife of the professor of obstetrics, was a voluntary worker. It was she who arranged for John, when he left school at 15, to apply for a vacant post in Sir Thomas Lewis's department.

An interview with Lewis

John turned up in his school cap and shorts and remembers not only that Lewis "scared the wits out of me" but also that Lewis exam-

ined his hands in great detail and apparently thought—so he was informed later—that they were very capable. In this era it was usual for everyone, even good friends, to use only surnames so from then on he was known as Honour. (It should be mentioned that the "senior" technician Edward Bridger was only 16.) Lewis never left things to chance and he must have had a policy of choosing young men (schoolboys actually) and giving them considerable responsibilities. Honour started work in 1926 and his wage was £1.00 per week, about a third of the wage of an adult technician in a university department; 10 years later it had gone up to £5.00.

Initial work in Lewis's department

In 1926 Lewis was engaged on his electrophysiological studies of the dog heart, assisted by A N (later Sir Alan) Drury. The laboratory was a large basement room with no windows, heated by a coal fire. Part of the basement was divided off to house the large Cambridge electrocardiograph, the photographic plates of which had to be loaded in the dark. One of Honour's first jobs was to master the difficult task of using this apparatus with its Einthoven string galvanometer, and to help with the experiments.

The smell of burning from the cautery used on the dog's chest pervaded the laboratory, as did cigarette smoke from the operators and the ether anaesthetic, which provided a constant hazard of explosion from the open fire. The room was used for patients as well as for experimental work because Lewis was in charge of the Cardiographic Department of the hospital, as well as being director of his own Department of Clinical Research. Clinical electrocardiography was still being done with the patients' hands and feet in large jars of saline—Lewis was slow to change over to the strap-on metal electrodes. Phonocardiograms were recorded with the twin string galvanometer using a carbon microphone that was insulated inside a box of sawdust. It stopped working when the carbon granules got stuck together, then Honour would tap the box with a hammer to shake them up. For a boy in his early teens this must have been a tough introduction to work, but

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Figure 1 John Honour in 1931 at the age of 19. (Reproduced from Hollman A. Sir Thomas Lewis. Pioneer cardiologist and clinical scientist. London: Springer, 1997:128, with permission.)

he did well and Lewis was impressed enough to make him, at the age of 19, his personal laboratory assistant (fig 1). From then on he was always present whenever Lewis did any experimental work.

Engages in experimental work

Lewis gave up his research on cardiac arrhythmias and in 1927 he turned to a study of the circulation in the skin. Honour was frequently an experimental subject in these often uncomfortable studies, but he discovered that Lewis always performed new experiments on himself first. A typical session lasted about three hours during which time either his head or an arm was immobilised (and any irrelevant remark frowned upon) while Lewis and Eugene Landis from Boston examined the capillaries in his ear lobe or nail bed. In fact most of Lewis's studies were done almost in silence because of his intense concentration and his dislike of small talk. Honour turned out to be good with his hands, and during the research on Raynaud's disease he was given the task of dissecting out the digital arteries postmortem. In a paper on cutaneous hyperalgesia in 1935 Lewis wrote that some of the evidence had been obtained by "my laboratory assistant, Mr A J Honour, upon the accuracy of whose observations I have long known I can rely". Honour was then 24. In that era it was rare for a technical assistant to be mentioned at all in print. The research on the peripheral circulation led to a long, experimental study of pain in which, again, Honour was often the second subject of any experiment. These included burning the skin with hot metal or ultraviolet light, and producing ischaemic pain in muscles. The pain in some of these episodes was severe, but Honour was glad to put up with the discomfort as he knew the work was important, and he admired his chief and his scientific dedication. Lewis took a keen interest in the pathology of the heart, and Honour had

the task of preparing all the sections of cardiac specimens for microscopy. On one occasion he mounted hundreds of sections from the junctional tissues of a man with Wolff-Parkinson-White syndrome.

Assists with editorial work, the Harvey film, and electrocardiography

Although clinical research was the dominant feature of Lewis's work there were other matters that claimed his attention, and which involved his personal assistant. He had been editor of the journal *Heart* since 1909; in 1933 he renamed it *Clinical Science, incorporating Heart*, remaining as editor until 1944. Honour was given the important task of lettering the submitted illustrations and graphs, and he often had to redraw them to Lewis's high standard. During his work on the wards and with outpatients, Lewis was meticulous in making notes on any interesting phenomena, and these notes would be handed over to Honour for filing. From time to time Lewis would go through these files and obtain a good idea for a new line of enquiry. When an attack of brachial neuritis kept Lewis in bed at home for six weeks it was Honour's job to visit the house taking journals and books for Lewis to read. He remembers well that, being only a technician, he had to go into the house by the back door, the "tradesman's entrance".

Two years after joining the department, Honour was closely involved in the film which Lewis and his friend Henry Dale had devised as part of the celebration in 1928 of the tercentenary of the publication of William Harvey's *De Motu Cordis*. This was photographed in the basement laboratory and Honour brought various animals, such as snakes, from the London Zoo in a taxi. Lewis did all the experiments and he was a good operator as shown by his earlier work with the electrophysiology of the dog heart. However, Honour remembers from later work with cats that Lewis was not so good with survival experiments because he sweated a lot while operating and the sweat dripped into the wound that was also contaminated by his dangling watch chain.

The cardiographic department did all the electrocardiograms for the hospital and Honour was responsible for taking the tracings, developing the photographic films, and arranging for Lewis to report on them (fig 2).

Assists young research workers

Honour did a lot to assist Lewis's research workers. When E J (later Sir Edward) Wayne did his pioneering work on angina during effort in 1933, Honour devised metal electrodes to enable electrocardiograms to be taken easily without recourse to placing limbs in the saline tubs. G W (later Sir George) Pickering joined the department in 1929 and stayed for 10 years, becoming Lewis's chief assistant, and Honour often helped with his work. An experiment which used a plethysmograph to measure forearm blood flow took about two hours to set up. Sometimes, when the study had just started,

Figure 2 A photograph of John Honour demonstrating the three limb leads. (Reproduced from Lewis T. *Clinical electrocardiography*. 6th edn. London: Shaw and Sons, 1937:6, with permission.)

Lewis would come into the room and stand there for a few moments. Although he said nothing, his entry disturbed the patient enough to ruin the experiment, and Pickering and Honour came to call him “the vasoconstrictor”. They learnt to listen for the distinctive sound of his footsteps (his shoes had steel toe caps), and then quickly lock the door. When Pickering started to study renin in 1937 he was joined by Myron Prinzmetal from Los Angeles who became a good friend of Honour’s, and always called on him when he was in London in later years. Milton Mendlowitz from New York was another visiting worker in 1937 and Honour constructed a special calorimeter to measure finger blood flow in patients with clubbing of the fingers. The work of the department came to an abrupt halt with the outbreak of war in 1939, but in the 13 years since Honour had arrived there had been a constant stream of young research workers who owed to him their introduction to laboratory work.

American research associates

Most of the young research workers from abroad came from the United States and included Harold M Marvin, Paul D Camp, Ashton Graybiel, J Edwin Wood, Norman Wetzel, T Duckett Jones, William J Kerr, L E Viko, Eugene Landis, Edward F Bland, Louis B Laplace, Milton Kissin, B B Gelfand, and R Hussey. From Europe there was Yngve Zotterman (Stockholm), Maurice Regnier (Brussels), Imre Haynal (Budapest), and Werner Hess and Paul Rothschild (Frankfurt). They were all in daily contact with Honour and appreciated his friendship as well as his help. Dr Laplace is remembered for some of his remarks which illustrate Lewis’s often dour per-

sonality. At the end of a very long ward round, Laplace unwisely said “Say, Sir Thomas, at what time do we eat?”; Lewis replied, “We eat when we are hungry, the time is twelve thirty, does that answer your question?”. And when Laplace left he said how much he appreciated having been in the department adding “I feel sort of sentimental about leaving”. Lewis replied, “We have enjoyed having you Laplace, but that word is not one that we use here. Goodbye, and mind the step as you go out.”

World War II

In 1939 University College Hospital closed except for emergency work and Lewis took charge of the medical students who went to Cardiff for their clinical training. Honour of course went with him and set up an electrocardiographic service at Llandough Hospital. Later on Lewis’s clinical duties were in a small hospital in Watford where Honour created a useful laboratory in a gardener’s shed using equipment from the former department. Honour’s ingenuity and practical skill in devising a sensitive method of measuring the volume of the hands and feet enabled Lewis to undertake, in an unpromising environment, some important work on “immersion foot”, a serious wartime condition in shipwrecked sailors.

Lewis as a chief

Lewis was a formidable person to those who worked in his department as well as to his students. He was a loner with few close friends, and he was renowned for his forthright manner, impatience, and on occasion rudeness. However, Honour emphasises that he was always treated with consideration, even though the best praise he ever got for a good piece of work was “that will do”. Lewis told Honour that if someone came to discuss an important matter he would never send him out of the room. He trusted Honour never to tell what he had heard—and he did hear some quite confidential remarks. Honour had great admiration for his chief and was grateful for an outstanding training. A typical opinion of Lewis was given by a student who said, “He was not an amiable chap”. Honour was once asked what he really thought of him and he replied, “Lewis could be a so and so—but I loved him”. Not many can aspire to such a perceptive and warmly worded epitaph.

In late 1944 Lewis developed heart failure resulting from coronary artery disease and was admitted to University College Hospital. Honour helped his revered chief for the last time by taking his electrocardiogram (fig 3). In spite of Honour’s protest, Lewis insisted on seeing it, but he just pulled on his moustache in a characteristic way and made no comment. A few months later Lewis was dead.

Honour’s later career in Oxford

After Lewis’s death in 1945 Honour stayed at University College Hospital for a while. He then worked in South Africa and later in

Figure 3 The electrocardiogram (three limb leads) of Sir Thomas Lewis, taken by John Honour on 28 December 1945, 10 weeks before Lewis's death. (Reproduced from Hollman A. *Sir Thomas Lewis. Pioneer cardiologist and clinical scientist*. London: Springer 1997:266, with permission.)

Vancouver, Canada as a demonstrator in physiology. In the meantime Sir George Pickering had become the Regius Professor of Medicine in Oxford and was finding his department difficult to run. It was natural for him to call on Honour for assistance because during his 10 years with Lewis he had admired Honour's technical and organisational skills. In 1959, at the age of 48, Honour embarked on the last stage of his career as first assistant

in the Regius Professor's department where he stayed for 18 years. It was a remarkably productive time for him because he became actively engaged in several research projects, being a full member of the research teams, and was co-author of 87 papers. His special interest was in arterial thrombosis and it was his own idea that aspirin had an important synergistic action with dipyridamole in affecting platelet thrombi in living blood vessels. This work gained him the degree of Doctor of Philosophy in the University of Oxford, a fine achievement undreamt of by the boy who left school at the age of 15. However, Lewis would not have been surprised; when Honour was 20 he wrote a testimonial for him that ended with the words, "If he chose to do so I think he could obtain a science degree within a few years and have told him so".

John Honour, now aged 85, is a wonderful source of information about the early days of cardiology and clinical science, and he is always glad to share his experiences of that splendid pioneering era.

- 1 Hollman A. *Sir Thomas Lewis. Pioneer cardiologist and clinical scientist*. London: Springer, 1997.
- 2 Hollman A. Bernard A Robinson 1888–1979: an unknown pioneer of electrocardiography. *Br Heart J* 1990;63: 200–4.