

Paper

## Professor Frank Pantridge – From beriberi to pre-hospital coronary care.

Patrick J Morrison

### INTRODUCTION

It is a pleasure to be the guest editor of this special supplement on Frank Pantridge. It commemorates a man who made a significant contribution to Ulster medicine, and who is regarded as the father of emergency medicine in the USA. The papers in the supplement were presented during the historical section of an international symposium on Frank's legacy, held at Queens University Belfast, in June 2009. Professor Alun Evans, who is retiring later this year, coordinated the Symposium and our thanks go to him for the excellent international cast of speakers and session chairs that he assembled. The programme and further details are available online<sup>1</sup>.

### Beriberi: Etiological and Clinical Considerations

By J. F. PANTRIDGE, M.C., M.B.

FOR some time prior to the abrupt descent of the Rising Sun on 15th August, 1945, and for one month after that event, the writer had the opportunity of observing beriberi among British and Australian troops in various Japanese prison camps in Malaya, Slam, and Buzma. Sporadic beriberi was always with us, and two outbreaks were seen.

#### ETIOLOGY.

Beriberi was recognised by the Chinese 3000 B.C. The etiology, however, remained obscure till 1870. In that year Eijkman, working in Java, noted an epidemic of paralysis among fowls fed on polished rice. He found that this polyneuritis gallinarum could be cured if an extract of rice polishings were added to the diet. That polyneuritis gallinarum corresponded to human beriberi was shown by Frazer and Stanton in 1910. These investigators produced beriberi in convicts by feeding them a diet consisting solely of overmilled rice. They also succeeded in curing the disease by adding rice polishings to the diet. Frazer and Stanton concluded that the pericarp aleurone layers and the embryo of grain which are removed in the production of polished rice contained an anti-beriberi substance.

Fig 1. Front page of beriberi<sup>2</sup>.

### EARLY CARDIOLOGY IN NORTHERN IRELAND

Until the early part of the 20<sup>th</sup> century, general physicians or General Practitioners dealt with all medical treatments. There were no real medical specialists. In 1910, Dr John Elder MacIlwaine was appointed to the Royal Victoria Hospital as a physician. With the arrival of the (extremely large) ECG machine, he commandeered it and developed a sub-interest in 'cardiology'. Dr Robert (Bertie) Marshall was subsequently appointed in 1930. Bertie Marshall was one of the earliest physicians to specialise in pure cardiology, and he competed with his other cardiology colleague Dr Boyd Campbell - who by the time of Marshall's appointment - had succeeded John MacIlwaine, and had taken 'possession' of the ECG machine. Marshall was assigned to wards 5 and 6 and was perceived as the more intellectual of the two - in addition to his being cultured and widely read, he was also the editor of the *Ulster Medical Journal*, from 1943-1951. At that time the main diagnoses cardiologists saw were diseases affecting

the heart valves, (with rheumatic fever being top of the list of aetiologies), congenital cardiac anomalies, and angina. Any person who suffered a heart attack generally was dealt with by morphine and prolonged bed rest in the community, and usually did not ever make it to a hospital, let alone see a cardiologist. Pre-hospital coronary care at the time was confined to the home.



Fig 2. Professor Frank Pantridge in the early 1970's, holding one of the first light weight portable defibrillators. Picture courtesy of Dr N Campbell<sup>7</sup>.

### DR J FRANCIS PANTRIDGE MC MB

So this was the environment that Frank Pantridge encountered when he returned from his war years. Having graduated earlier with MB in 1939, and having gained the military cross (MC) towards the end of the war, he got straight down to work. A study of his camp mates in prisoner of war camps in the east was the subject of his first publication (figure 1) - a seminal nine page account of beriberi<sup>2</sup>. He graduated MD in 1946, and (presumably easily resisting doing an MA to allow a really

nice set of alphabetical letters after his name) having seen a case of giant follicular lymphoma, thereafter wrote an eleven-page account of Brill-Symmers' disease<sup>3</sup> in 1947. He was appointed as consultant physician and cardiologist in 1951, a year after the first cardiac surgery operations in Belfast, as the cutting edge mitral valvotomy technique opened up valve disease to treatments. He published two large series of outcomes on mitral valvotomy, including an evaluation of the

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Fig 3. The cardiac ambulance in 1970. Picture courtesy of Dr N Campbell<sup>7</sup>.

operation<sup>4,5</sup>. The latter paper was co-authored with another Dr Robert J Marshall, also known as 'Bertie' who was a registrar at the time. These papers demonstrated his tenacity and his ability to grasp an idea and run with it to completion – what we would now call 'evidence based medicine' probably combined with a demonstration of a complete audit cycle thrown in for good measure. Thus having 'sorted' valve disease, the foundation was laid for his future interests as he moved swiftly on to tackle coronary arterial disease<sup>6</sup>. The Belfast coronary care unit opened in 1963, and the rest is history. The Pantridge defibrillator (figure 2) and the cardiac ambulance (figure 3) became a normal part of medical care.

#### FRANK PANTRIDGE ANECDOTES

Everyone has their own anecdote to relate about Frank, such was his personality and impact on their lives. Some of these are of course unrepeatable, but even during the preparation of

this supplement, our sub editor Mary Crickard, when checking the references for each paper, volunteered hers:

'I remember when I first started in the Medical Library many moons ago, and was 'doing' my first Saturday morning alone! I needed to leave the library for ten minutes and asked this benign gentleman to look after the library. He looked up as if he didn't know where he was and smiled and told me that he would. When I came back, he was helping a reader! Yes, it was Frank Pantridge! I didn't know who he was until much later on - just another reader to me! However, after that he would give me a slight nod in passing.'

Mary Crickard.

In the end, he was a physician at heart as the title of his autobiography '*An Unquiet life: memoirs of a physician and cardiologist*' clearly stated. Patients today who are unfortunate enough to collapse with chest pain requiring either a defibrillator or a cardiac ambulance, will experience a vastly superior care and treatment throughout the world thanks to his far sighted vision.

#### ACKNOWLEDGEMENTS

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