Dr Samways Writes to the Editor

Dr Samways Writes to the Editor:

The Life and Times of an Exceptional Physician (1857-1931)

By

Tom Treasure

Cambridge Scholars Publishing

Dr Samways Writes to the Editor:
The Life and Times of an Exceptional Physician (1857-1931)

By Tom Treasure

This book first published 2021

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-5275-6915-2
ISBN (13): 978-1-5275-6915-7

For Caroline

CONTENTS

LIST OF ILLUSTRATIONS

PREFACE

My first encounter with Daniel West Samways was finding letters from him in the correspondence columns of The Lancet and the British Medical Journal from more than a century ago. One caught my attention because of its remarkable prescience. Tracing the correspondence back through the bound journals in the library of the Royal Society of Medicine, I found that in 1898 he had written, "I anticipate that with the progress of cardiac surgery some of the severest cases of mitral stenosis will be relieved." This was an extraordinary statement. Fully fifty years before any effective operation on the heart would enter clinical practice, he was anticipating the development of cardiac surgery. I wanted to know more about this man.

I crossed the library to another set of shelves and looked in the Medical Directory for D. W. Samways. Not finding him, I checked my source and noted that his whereabouts were given as Mentone, France. Looking again, I found him listed under Practitioners Resident Abroad in 1900. He had trained at Guy's Hospital, where he had done his house jobs. Prior to that he had double first in the Cambridge natural sciences tripos with a distinction in physics, plus a doctor of science degree from London University. He had two MDs from Cambridge and Paris – three doctorates in all. For good measure he was also a member of the Royal College of Physicians. In addition to his writings in *The Lancet* and *British Medical Journal*, he had published papers in German and French. So why was he in Mentone? It took a while to find out. He had caught tuberculosis, as many young doctors did. There was no treatment but rest, good feeding, and fresh air. His career in academic medicine was likely derailed and he turned to general practice, basing himself on the French Riviera from November to April to avoid the English winter for the sake of his own survival.

Mitral stenosis, the focus of Samways's paper of 1898, is a form of heart disease which severely limits the flow of blood through the heart. In a healthy body, the oxygenated blood from the lungs collects in a low-pressure ante chamber called the left atrium. From there it passes through the mitral valve to fill the left ventricle. The passage through the valve should easily admit two fingers. A mitral valve damaged by rheumatic fever, then a common disease of children and young adults, progressively

narrows to about the size of a jacket buttonhole, barely big enough for the tip of your index finger. The whole of the circulating blood volume has to pass through that buttonhole each minute. The ventricle can only deliver what it receives, so this restricts exercise severely. The blood dammed back behind the stenosed mitral valve swamps the lungs, causing worsening breathlessness.

Dr Samways and his contemporaries could do absolutely nothing about this condition and saw young patients disabled throughout their teenage and young adult lives, facing an early death.

My first encounter with Dr Samways was about thirty years ago. Since then I have traced his writings by hand-searching Index Medicus. The more I looked, the more I found. He researched mitral stenosis at Guy's Hospital and survived tuberculosis. On both of these subjects he had strong views and much to say. In the correspondence columns he took on the big names of the time: William Osler, Ernest Starling, James Mackenzie, James Barr, and many others. He attended the annual summer meetings of the British Medical Association and his lectures and other contributions are on the record. He wrote from his own experience on a wide range of subjects, many highly topical in his time – the antivaccine movement, seawater cures, horse dung in the streets, spitting on pavements, and influenza. When the First World War prevented him going to France he took a post as a medical officer in a war hospital in Exeter, and still his letters appeared – on the design of ambulances, wound dressings, antiseptics for contaminated wounds, anaesthesia, oxygen inhalations, and the treatment of fractures.

This book is a biography of Daniel Samways. It spans forty years of medical practice, during which time there was a transition from diagnoses based on clinical description towards a greater understanding of the causes of disease. From our perspective, more than a hundred years later, Samways didn't always get it entirely right – and nor do we – but what he wrote was always well-reasoned, insightful, cognisant of science, intolerant of foolishness, and, very noticeably, considerate of the comfort and feelings of the sick.

ACKNOWLEDGEMENTS

This biography has had a gestation of about thirty-five years, and I have had many conversations about it. I am grateful to all who helped and advised as I traced Dr Samways's life and work.

There are others who should be on this list that I have forgotten, or for whom I cannot find a name – for which I apologise.

I am indebted to the staff of libraries and collections at St John's College Cambridge, Cambridge University Library, the Gordon Museum at Guy's Hospital, King's College London, the Royal College of Physicians, the Royal College of Surgeons, the Royal Albert Memorial Museum in Exeter, the Royal Society of Medicine, University College London, and the Wellcome Institute for the History of Medicine, who have been unfailingly helpful.

There are many individuals I would like to thank, including Wynne Aveling, Adrian Barker, Michelle Barnes, Catriona Batty, Jack Belcher, Russell Brock, Helen Bynum, Fiona Colbert, Graham Clarke, Adam Crothers, Anne Crowther, Ian Earl, Bill Edwards, Douglas Garnett, Robin Garnett, Rebecca Gladders, Christopher Gardner-Thorpe, Judith Hulf, John Hunt, Mark Jackson, the late John Kirklin, Andrew Knox, Christopher Lawrence, Siobhan Levesley, Christopher Lincoln, Fergus Macbeth, Kathryn McKee, Amanda Millar, Holly Morgenroth, Mark Nicholls, John Pickles, Alexandra Saunders, Iain Simpson, Julia Neville, Damien Samways, Richard Samways, John Stephens, Marvin Sturridge, Tilli Tansey Daffyd Sinden, Xerxes Talati, Elizabeth Treasure, Joe Treasure, Mary Treasure, Geraldine West, and Jo Wright.

AN INTRODUCTION TO THE BOOK

The first chapter introduces Dr Daniel Samways in mid-career at a transition in his life. I picture him settling down to his work in general practice in Mentone on the French Riviera. It is a moment for reflection on why he came to Mentone and whether to open his own experience of tuberculosis to public gaze.

The following chapters up to twenty-three are in chronological order, with some overlaps in their time frames. Chapters two to five are about Samways's early life, university education, postgraduate research, and teaching. Chapters six and seven cover his medical training and medical research at Guy's. Thereafter, the chapters vary between events within a specified time frame and other longer-running themes spanning ten, twenty, or more years. Chapter twenty-nine, "House of Rest," tells of his last few years and his death in 1931 at the age of seventy-four.

Chapter thirty is an afterword which allows me to tell something of the events after Dr Samways's death – it is a post-mortem examination, in a sense. I hope this will satisfy the need expressed by readers of my drafts to know what happened later, in heart surgery and tuberculosis.

The medical profession in Britain has a perplexing mixture of university and royal college degrees and diplomas which vary in their names, abbreviations, and precedence in a bewildering way. For some explanations, look in the Appendix under medical post-nominal letters, although it may still remain unclear why it has come to be the way it is. The correspondence columns of the medical journals had little outbursts in Samways's time about the use of the title "Doctor" when most medics didn't have a doctorate. And still now, highly qualified medical practitioners, on becoming surgeons, revert to Mr, but may be pleased to be called Dr when booking a table at a restaurant.

To limit the amount of explaining needed in the text, there is a glossary mainly of medical terms.

I have provided an index of names, mainly of doctors and scientists. Many of these are amongst the famous names in the history of medicine whom Samways took to task in his letters to the editor. The number indicates the chapters in which the named individual features.

Most difficult to craft was the General Index, but I remember my father applauding the opinion of Bernard Levin that an index was an essential part of a book of any worth. There are subjects that are scattered throughout the book, such as tuberculosis and mitral stenosis, for which I give a page range, indicating a chapter in which there is a substantial amount from Samways on the subject. Then there are occasional mentions that a reader might want to return to.

The references are deliberately copious. They were collected over many years. When I am reading I frequently look up references and see who is being cited. Not everyone does, but for me to know what the author relies on for certain statements is important. Providing a name and a date is informative in areas where the reader has some prior knowledge. For many of these references, the source will be easy to find because the contents of the British Medical Journal and The Lancet are digitised and can be found in electronic libraries. But just glimpsing at a reference gives an idea as to whether it would lead you to a substantial body of research, an anecdote, a chance remark, or an unsubstantiated opinion. In my biography of Samways, I provide some of all of those, and have not excluded sources according to my value judgements. They were all interesting enough for me to make a note of, and could be the jumping-off point for someone else's line of enquiry.

CHAPTER ONE

AN INTRODUCTION TO DR SAMWAYS, 1899

In the winter of 1899, Dr Daniel Samways was at his medical practice in Mentone on the French Riviera. He received his weekly copy of the British Medical Journal for November 4 and, among the letters to the editor, one in particular caught his attention. The letter from Dr Thorowgood[1] of Welbeck Street recommended lengthy ocean voyages as a treatment for tuberculosis. A colleague had discussed a patient with him, much improved after travelling in a sailing ship to the Mediterranean and back, including a rough passage through the Bay of Biscay. Dr Thorowgood had topped that with the tale of his friend with tuberculosis who made a return voyage, under sail, to Australia (Thorowgood 1899; Munk's Roll).

Dr Samways was very familiar with tuberculosis, and the lengths to which those affected would go in the hope of recovery – that is, if they could afford doctors' fees, and had the resources to follow their advice. After a high-flying undergraduate career studying physics in Cambridge, undertaking postgraduate research in Zurich, and lecturing in physiology as a fellow at St John's College, Daniel Samways qualified in medicine at Guy's Hospital, London. While doing research in rheumatic heart disease in the post-mortem room he began to cough. He recognised the ominous significance of the blood in his spit. In his lifetime, infectious diseases were the biggest killers of the young. This had all started in the winter of 1892–3 when Daniel Samways was aged thirty-five. As a doctor, he knew that tuberculosis killed maybe one in seven of all human beings (Koch 1882). As we now know all too well, it is the way with epidemics that the most disadvantaged fare worst, but the nurses and doctors who attend them are next in line. The poet John Keats,[2] who like Samways received his medical training at Guy's Hospital, coughed up blood in 1818 and also knew its significance – it was, he said, his "death warrant."

[1] 1833–1913.
[2] 1795–1821.

Daniel Samways had come to Mentone in February 1893, escaping from London in the hope of surviving his own tuberculosis. He recovered over the next year or two and attributed his survival to Mentone. He had come to love the town whose very special climatic features he extolled. He felt safe there (Samways 1899d, 1899f). As his health improved he studied in Montpellier and Paris to become fully entitled to work as a doctor in France. With his third doctoral degree of docteur en médicine from Paris, he was able to establish himself as a general practitioner in Mentone.

Throughout his life, Daniel Samways wrote extensively on a wide range of subjects, but revealed very little about his own illness which had halted his route towards what promised to be a prominent medical and academic career in London or Cambridge. What little I know about Samways's bout of tuberculosis is from his book *Mentone as a Health and Pleasure Resort* (Samways 1901b). Before quoting from his book, a few introductory notes may be helpful to explain some words which may be unfamiliar. He had been coughing up copious phlegm – pulmonary catarrh, in his terms – containing blood. Haemoptysis is still the standard medical term for blood in the sputum. He was in a hotel where he met three others with "phthisis," which was then the usual medical word for tuberculosis (it is easier if "ph" is let slip, as they did, and say thigh-siss). Samways made an adjective of it – phthisical – to describe a German lady. It means that she was thin to the point of wasting away. Samways and his colleagues used the Greek word rather than the more familiar "consumption." Consumption was a very long-standing term for wasting diseases in which the body's substance is consumed by the disease – cancer would have come under that heading. But it had become the everyday word for tuberculosis, qualified if necessary as pulmonary consumption to indicate specifically that the lung was the site of a disease that could affect other parts of the body.

So here is Samways's description of his companions in the hotel in Mentone.

> Nearly ten years ago I first visited Mentone, then as a patient with debility, pulmonary catarrh, and frequent slight haemoptysis. In the hotel there were at the same time a young German lady, distinctly phthisical, who had lost a sister the previous year from the same malady. A young engineer also arrived during my stay with indications of early pulmonary mischief. An American lady, somewhat seriously ill, completed the list of patients. After two winters in Mentone the German lady was sufficiently well to live in Berlin again, and later on I heard she had become engaged to be married. The engineer never needed to return, and I saw him in good health some years after. The American lady remained for several seasons in Mentone, but did not recover, though I hear she still lives. I am here to tell the tale.

> Half the English doctors who have practised in Mentone came to save their lives, and [only] one has failed. (Samways 1901b)

Samways joined those doctors who went to Mentone to save their own lives, and like others before him he stayed on to work there as a general practitioner. It is implicit in his account that all four people in the group had tuberculosis, although he was still reluctant to reveal his own diagnosis explicitly, referring to it coyly as "pulmonary mischief." From his own account in *Mentone as a Health and Pleasure Resort* and of the company he kept there in 1893, there can be no doubt that his own diagnosis was tuberculosis. For a doctor seeking to build a medical practice, it was perhaps prudent to not explicitly broadcast this fact in a book for the general public. But in 1899, Daniel Samways did write a letter to the editor, in response to Dr Thorowgood's opinions on "Ocean Voyages in Pulmonary Phthisis" (Samways 1899e). As we will see, letters to the editor could have a remarkably fast turnaround, and Samways made his replies quickly. To not get a reply published until after Christmas, on December 30, was an uncharacteristic delay. It was maybe a pause to ponder before responding to "Ocean Voyages." He may well have needed some time to decide how much to tell, and how to phrase it.

> Sir, Dr Thorowgood, in the British Medical Journal of November 11th, has called attention to the "remarkable benefit that many patients with tuberculous phthisis obtain from a sea voyage." His experience is but additional testimony to the fact that phthisis may be combated by almost any change involving fresh air, good feeding, and sufficient rest. A sea voyage has unfortunately many drawbacks. In bad weather rest is often impossible, while one has also to choose between close quarters below decks or damp ones above. At the equator sailing ships are often becalmed for some weeks, and then a moist shade temperature of anything between 80° and 90° must be endured, and is very exhausting. Moreover, after the Cape of Good Hope is passed, fog may be encountered for days, if ice is about, in any latitude south of 40 degrees.
>
> Having to leave England because of lung trouble, I tried two months (February and March, 1893) on the Riviera, and the next winter went for a voyage round the world in a slow steamship, where comforts were greater than in the best sailing ship I could find. The Riviera did me more good in two months than the whole winter.
>
> I believe from my experience that the most profitable part of a voyage round the world, as well as the pleasantest, is the portion spent on land, and Western Australia seems to me to have a more desirable summer climate by far than other parts of Australia or Southern New Zealand. It says much, I think, for Dr Thorowgood's powers of selection that the patients he sent on sea voyages did so well.

> Neither Switzerland, the Riviera, Egypt, the sea, or an English verandah, can justly claim patent right for the treatment of phthisis. Any of them may be statistically shown to be the best if the cases they treat are selected with sufficient care, and especially if their failures are quietly sent elsewhere.
>
> I am, etc.,
>
> D. W. SAMWAYS, M. D., M. R. C. P.
>
> Mentone.

Here I have presented the letter as it appears in the British Medical Journal as an example. In his first paragraph, Samways summarises the available treatment for tuberculous phthisis – fresh air, good feeding, and rest – to sustain the body while it fights its own battle with the infecting microorganism. The first effective antibiotic, streptomycin, was not discovered until 1943, and its effectiveness proven beyond doubt in a controlled trial in 1948 (Medical Research Council 1948). The world has faced a similar problem with the Covid-19 pandemic, but at a greatly accelerated pace. As the disease spread in early 2020 we had nothing to combat the virus itself. We were back with Samways and his colleagues, doing the best we could to sustain life until the body made its own antibodies to overcome the virus, this time not with fresh air and good feeding but purified oxygen and mechanical ventilation. Among all the variability in severity of the illness and the inherent resistance of the patient, controlled trials of treatments were expedited. With remarkable speed, vaccines were developed, tested, and made available.

The final paragraph of Samways's letter in 1899 resonates with my own present-day concerns about claims for the effectiveness of treatments. Extravagant claims can be made for the benefit of an operation when there are many patients with a potentially fatal condition, and those operated on appear to fare better than the general run of cases. Should we simply trust surgeons' claims? How can we know whether it was the expert surgery, or the expert *selection for surgery*, that deserves the credit? When, as is the case in operations for advanced cancer, where as few as one in thirty to fifty possible candidates actually receive the operation, wouldn't a cancer team select "with sufficient care" as Samways put it? (Macbeth and Fallowfield 2020). Ocean voyages may have helped some patients, but Samways didn't feel the proof was there in Thorowgood's anecdotal account.

So, meet Dr Daniel West Samways. When he wrote his book about Mentone he was forty-two, and as yet unmarried. The town he made his home for many winters between 1895 and 1930 had been Italian for centuries,

originally owned by the Count of Ventimiglia. It was annexed in 1793 by France following the French Revolution (Samways 1901b). Samways used the old Italianate spelling of Mentone until his 1929 letter to the editor, and so shall I (Samways 1929).

Old Quai-side Houses.

Fig. 1.1 A picture of Mentone from across the harbour ca. 1900 from the first edition of Samways's guidebook *Mentone as a Health and Pleasure Resort* (Lancet 1901d; Samways 1901b). From Google Books, free to use with acknowledgement.

Chapter Two

Portsea to Cambridge, 1857–78

Daniel Samways had no children and was his father's only son. I have found no family contacts. His collection of medical and scientific "lantern slides" was bequeathed to the Royal Albert Memorial Museum in Exeter, but I have discovered no letters or diaries. As a result, this account of his early life relies on facts and dates gathered from the registries of births, marriages, and deaths. From the censuses in the first year of each decade from 1841 to 1891 it has been possible to outline his immediate family.

Daniel's father, John Samways, was born in 1821. In 1841 he was living with his parents and three younger siblings – George, Martha, and James – in King Street, Alverstock, Gosport, Hampshire. Daniel's mother, Rebecca West, was born in August 1828 and baptised on Sunday 14 at the Baptist chapel in Middle Street, Gosport. In 1841 she was living as a servant in the home of Benjamin Hobbs, a brewer, and his wife Mary at Windmill Row, also in Alverstock. She was no more than thirteen years old.

John and Rebecca married, aged about twenty-four and seventeen, in 1845, on nearby Portsea Island. John Samways's occupation was given as a "furniture broker" – a dealer in second-hand furniture. In 1851 they were living at 3 Park Place, Portsea. With them was their first-born baby, also called John, a servant, and a sixty-two-year-old visitor. That little boy died in 1852 at about four years of age. There were two daughters born in the next few years – Rebecca and Mary Jane. Then came Daniel West Samways, born in Portsea on March 15, 1857. In 1859, aged thirty-eight, John Samways died leaving his wife Rebecca with two-year-old Daniel and his two older sisters. By 1861, Mrs Rebecca Samways was listed in the census as a lodging house keeper at Freemantle House in Portsea with her three children. The girls were aged eight and six, and Daniel was four years old. There were five resident servants: a cook, a nurse, a general servant, and two housemaids.

In 1863 Rebecca married a widowed Baptist minister, the Reverend John Hunt Cooke. He brought his three children to the marriage: Marianne, John,

and Emily Sarah. Together, during the next ten years, they had a further five children: Ebenezer, Thomas, Arthur, Rosa, and Edith. So there were three of hers, three of his, and five of theirs. In 1871 the Reverend Cooke and Rebecca were living in West Victoria House, Auckland Road in Portsea where they had two servants. Daniel was then fourteen. At school-leaving age he was the oldest boy in a household of eleven children, eight of them younger than himself. From his subsequent academic achievements – a first-class degree in the natural sciences tripos at Cambridge with honours in physics, a London University doctor of science, and with published research work from Zurich – there can be no doubt about his academic ability. But it seems likely that at school-leaving age he had no choice but to go to work rather than pursue higher education.

In 1878 Daniel Samways was in the admission register at St John's College Cambridge. His tutor is given as William Garnett. Garnett was a fellow of St John's and a university lecturer in science at that time (Nature Obituary 1932). He married Daniel's elder sister Rebecca the following year. Garnett's father was an auctioneer and, as we know, John Samways had been in the second-hand furniture business. Garnett had been baptised into the Baptist church in 1851 and Daniel's stepfather, the Reverend Cooke, was a Baptist minister, so it is likely that the Garnett and Samways/Cooke families knew each other through the church. It would have been a very natural thing for Garnett to mentor and provide some coaching for the younger brother of his bride-to-be.

In the *British Medical Journal* of August 31, 1878 it was announced that D. W. Samways had passed physics in the "preliminary MB conjoint examinations" of the University of London (*BMJ* 1878b). The first MB was taken in the basic sciences – physics, chemistry, and biology – as the first of a three-part examination to gain the medical qualification MBBS, that is the joint bachelor's degrees in medicine and surgery. The first MB was a course of teaching taken by students who needed to complete their basic science education before training as doctors. It was part of the University of London medical training until 1929, when the Incorporated Association of Headmasters proposed that "a pass at the main subject standard in the Higher School Certificate Examination in any subject of the First Professional Medical Examination should be accepted subject for subject, for the purposes of exemption from such subjects in the latter Examination" (Thomas 1929). Daniel had been studying at St Bartholomew's Hospital for this examination. This might indicate that he was catching up on missed school education. As a fellow of St John's College, Garnett was able to tutor his brother-in-law and guide him towards eligibility for admission.

The list of the examinations passed by Daniel Samways at the University of London in August 1878 was published in the *British Medical Journal* and *The Times* under BSc (bachelor of science) and preliminary MB (medical bachelor) conjoint examinations (*BMJ* 1878b; *The Times* 1878). Examinations were in chemistry, experimental physics, botany, and zoology. There were thirty-one candidates, all but two of whom took a single subject, and they were being prepared in half a dozen colleges, schools, and universities. The examination was in August, so it was possible that these were resits for candidates short of a component of their first-year examinations. For Daniel, it was likely that this pass made him eligible to matriculate for Cambridge University entrance.

In October 1878 Daniel was admitted to St John's College Cambridge aged twenty-one, a few years older than would have been usual, to study for the tripos in natural sciences. He was one of the twenty entrants that year to be elected to sizarship (The Eagle 1878). Cambridge sizars are students who receive financial assistance during their period of study. So it was that Daniel Samways was funded and launched on his undergraduate career.

The following year on August 21, 1879, William Garnett, fellow of St John's College, and Daniel's sister Rebecca Samways were married at the Missionary College, Richmond Surrey. The service was conducted by the Reverend D. Sanderson, assisted by Rebecca's stepfather the Reverend J. Hunt Cooke. The Reverend and Mrs Rebecca Cooke later moved to Crouch End in North London, and in the 1891 census, Daniel W. Samways M. D. was living with them listed as "stepson," followed by three high-achieving Cooke children.

CHAPTER THREE

ST JOHN'S COLLEGE CAMBRIDGE, 1878–82

Writing about Daniel Samways's undergraduate life is limited by my failure to find, so far, any personal records, letters, or diaries. There are clear indications of a highly-successful undergraduate career. He passed first class in all his examinations, went on to do postgraduate research in Zurich, returned to be a lecturer, and in due course was admitted as a fellow at St John's. That he made his mark is without doubt. But, although I do not have personal accounts, there is ample evidence of what was going on around him. I have the permission of the master and fellows of St John's College Cambridge to quote details of Samways's career from the Biographical Archive.

Since 1859, St John's College has published a gazette called *The Eagle*. It takes its name from the emblem of St John the Evangelist. The evangelists each had an emblem: Matthew the man, Mark the lion, Luke the Ox, and John the Eagle. The editor opens the first edition cautiously, perhaps bracing himself against failure. He recognised that there were voices in opposition to founding *The Eagle*, that it was a pointless venture, and was aware of predictions of an early demise. He wrote:

> It is wholly uncalled for; a mere whim; certain to fall through in a term or so; are some of the most tenderly expressed opinions with respect to *The Eagle*. (The Eagle 1859)

Evidently, some of the opinions were less than tender, but *The Eagle* was going strong twenty years later when Samways was admitted to St John's, and it thrives now. Thanks to *The Eagle*, the easy part of reporting Samways's undergraduate years is the record of his academic achievement.

In the 1878 Michaelmas term, Samways was listed among ninety-two students who matriculated on November 9 – that is, they were officially registered in Cambridge University. We can then follow the progress of this newcomer. In June 1879 he passed his first-year examinations in the natural sciences in the first class. He was in the first class again in 1880 and in 1881. He added more. *The Eagle* of Easter term 1881 announces that several

members of the college had been "remarkably successful" in doctor of science examinations of the University of London, including D. W. Samways for "Electricity, treated experimentally" and "Magnetism, treated experimentally." Samways achieved a first-class degree with distinction in physics in the natural sciences tripos in the university exams in the Lent term of 1882 (The Eagle 1882).

Cambridge bears the unfortunate distinction of being the last university in England to award degrees to women, which did not happen until the late 1940s. There were moves to support female higher education around Samways's time at Cambridge, most notably in a petition of 1880, but these initiatives were not successful. There was a famous vote in the senate in 1897 on the subject of awarding degrees to women, and some extraordinary photos survive of the crowds gathered outside (McKee):

> The number of the female students whose names appear in the list of the Cambridge Tripos Examiners, in the present academic year, is seriously reduced by the fact that most of the candidates from Newnham College cannot be included, as they have not passed the whole of the preliminary examinations imposed by the University in February last as a condition of formal admission to a tripos. The examiners, however, in mathematics, moral sciences, natural sciences, and history, have consented, at the request of the Newnham authorities, to allow their students to be examined informally, as in previous years, on the understanding that that this is the last time that such a request will be made. The result, so far, has been rather remarkable, since all four Newnham students have a first-class standard – Miss Moberley and Miss Finlay in the Moral Sciences Tripos, and Miss Eves and Miss A Johnson in the Natural Sciences Tripos. Miss Eves is the same student whose name recently appeared in the BSc class list in the University of London. (The Times 1881)

One can only hope that "remarkable" was used in the sense of being worth noting, rather than a clumsy male expression of surprise at their achievement. This paragraph appeared as a footnote to the announcement of the Cambridge University results in the natural sciences tripos. Samways is named among the firsts, and his brother-in-law Garnett amongst the examiners.

The Eagle provides information about how Samways's living expenses were funded. He entered St Johns as a sizar in 1878, named as a proper sizar in 1879, and a scholar in 1880. "Sizar" is derived from the word "size," which was a ration of food and drink allocated to poor students to assist them in getting an education at Cambridge. In 1881, in *The Eagle* for the Easter term Samways was listed as a Wright's Prizeman, receiving £100 for

the year. At the time, a skilled craftsman earned about £2 per week and a teacher about £120 per year, so this was a significant amount of money (Stanier). In an announcement of medical vacancies in the *BMJ* in 1878 for House Surgeons in Cumberland, Leeds, Macclesfield, West Herts, Royal Sea Bathing, and St Thomas's Hospital, all six offered £100 per annum, including board and lodging, and in one instance specified laundry (*BMJ* 1878a). The Wright's Prize of £100 was a valuable achievement.

In Cambridge, from the 1860s scholarships and "exhibitions" were a means of reducing tuition costs. Linehan writes in his history of St John's that, "The cleverest and most assiduous of the poorer students naturally forsook sizarships for these new awards, which carried status rather than stigma" (Linehan 2011). The stigma was that sizars sat at a separate table in hall. Linehan noted that there had been a "heyday of the academic sizar" in 1840–60 when a disproportionately high number went on to become fellows. In the 1850s, 11.6 percent of sizars made it into the fellowship, compared with 3.5 percent of pensioners (fee-paying students). It was then suggested that, "the clerical Fellows were exploiting the system to foist a Cambridge degree (and passport to preferment) on humble boys simply because they were willing to enter the Church of England." This made the college "one of the chief nurseries of the church's ministers" providing the benefits of an education to curates and under masters in schools. A pass degree was all they needed.

According to Linehan, the status of sizars was under review around the time that Samways was an undergraduate (Linehan 2011). Correspondence from 1870 onwards indicates that tutors had become more concerned with scholarly ability, and more attention was paid to their attainments from a headmaster or an examining body. In Samways's admission record, William Garnett was named, fulfilling the capacity of "headmaster" to give an assessment of Samways's ability. With his first MB from London University, Samways had a near equivalent of a first-year degree course in physics (*BMJ* 1878b). Sizarships were under threat in the 1860s and 1870s, but in the year before Samways's entry, "An Order … announced stringent conditions for continuing on the list" of sizars (Linehan 2011). In order to benefit from the continued reduction in fees, the sizar was required to pass examinations in the upper two classes.

Achieving high grades was not a concern for Samways – he was never out of the first class – but he might well have been sensitive to "stigma" from being marked out as a poor scholar. The contents of *The Eagle* from 1878 to 1882 gave some insight into the values and preoccupations of the college

at the time. There were announcements of college business and events, but about fifty of its sixty-four pages were given over to quite fine prose and verse. The poetry tended to be long romantic narratives with some humour and satire interposed. Among the essays, accounts of travels were a common subject matter: "A Ten Days Ride in Caria and Phyrigia," "The South of France and the Riviera," "From Naples to Ischia," and "Across the Straits: A Visit to Tangiers." Such essays on exotic places may have been a revelation to Daniel Samways. There were a couple more down-to-earth articles on economic themes: "Notes on Wages" and "Socialism." Might they have been more relevant to him?

In the pages before a laudatory appraisal of the poetry of Percy Bysshe Shelley is a piece called "Rolling In." It recounts a particularly horrific rite of initiation set in Harrow School. The "rolls" were bread rolls baked as hard as stones to be hurled at the initiate running a gauntlet between his tormentors. The episode's narrative involves Lord Byron – whether actual or imagined is not clear to us – but his behaviour would fit the epithet "mad, bad and dangerous to know" (Hayle 2016). The tale is told as if true, much of it in the first-person voice of the victim. The initiation left the supposed narrator unable to leave his bed for two weeks and living with broken teeth for the rest of his life. After nine pages of this tale of brutality, the writer comes to a dénouement:

> This was the ceremony of "Rolling in," and this and such like were the methods (and I could mention several still more severe at Harrow and at other Old Public Schools) whereby our forefathers were trained to take their part in the stern reality of after-life.
>
> ********
>
> When we think of these, we cease to wonder that they went forth to Conquer in many a battle by land and sea, that they extended the dominion of England in every continent of the earth, and made it supreme upon the world, of waters; and do we not also cease to wonder that wherever that dominion has spread, its boundaries have been fringed with blood and the multitudinous sea incarnadined with slaughter? "They went forth strong, self-confident, and defiant, too often carrying with them their intensest prejudices, and either ignored, or trampled on, the profoundest and most cherished convictions of the conquered races." If instead of treating our subjects as "niggers" as "an abject nation of cringing liars," fit only to be jeered at and kicked, we had shewn more suppleness in adapting our rule to their characters and more tact and sympathy in our dealings with them; if, I say, we had done this, how different might have been the history of our Colonial

> Empire! Perhaps we might not have been engaged at this very moment in beating down Afghans in Asia and exterminating Zulus in Africa.
>
> ********
>
> I believe that the Public Schools of England during the last three hundred years have had a great influence (far greater than most people are aware) in moulding, both for good and for bad, the present character and destinies of the English nation. Regarded from this point of view, the articles about those schools which are being published from time to time in *The Eagle* should become invested with a new and absorbing interest; it is from this point of view that I myself always regard the time-honoured legends, traditions, and customs that are gathered round my own old school; and it is from this point of view that I wish the reader to regard our bygone ceremony of "Rolling In." (JSS 1879)

Can we guess what Samways made of all this? What sort of people was he among? The last dozen or so pages of *The Eagle* headed "Our Chronicles" provide a record of the activities and achievements of the college. The pattern in *The Eagle* was to begin with a record of sermons given by the religious fellows of St John's and the appointment of theological and clerical Johnians to bishoprics and parishes. These were followed by academic appointments, but the larger part of "Our Chronicles" is the record of undergraduate activities, starting with examinations results, awards, and prizes. The sporting events and results are given, presumably in some order of priority: the Lady Margaret boat club with reports of rowing, including Henley, came first; then rugby union football, cricket, athletics, and tennis. Samways is never named in these. There are concerts, choirs, performances, and the debating society – still no Samways. Later, he would stand up to speak at British Medical Association annual meetings. We'll see much later that he was musical. At Cambridge he was a studious young man, but was it to the exclusion of all else?

There were clearly wonderful opportunities to be inspired. He was almost certainly at the inaugural lecture of Donald MacAlister,[3] medical lecturer to the college, on October 28, 1881 on "Natural Science and Medical Practice" (MacAlister 1882a). He expressed awareness of how little doctors really knew about disease and often relied on incomplete science and guesswork:

> Science, as such, can wait till her problems are solved. She holds herself in wise suspense in the face of an unsurmounted difficulty. Practice must act on half-formed intuitions; it must grope at the answer when the chain of the

[3] 1854–1934.

> solution is broken; it cannot wait for the "secure adjudication" of the schools. No mathematician need commit himself to a hasty conclusion regarding the number of regular figures in four-dimensioned space. The question is being worked out; the solution will come and will convince in due time; it will take its place rightly among the achievements of pure science, and will probably be of no particular use to anyone for some time to come. But the physician cannot wait till science has settled whether the *fons et origo* [the source and origin] of diabetes is in the liver or in the brain, or in neither. That may take years to settle, and meantime diabetics would die unrelieved. The physician must do something, and science does not yet tell him certainly what to do. He must be so far empirical as to use experience for which he cannot as yet account. (MacAlister 1882a)

MacAlister wanted doctors training in Cambridge to have a good grounding in science, to apply it in medical practice, and to improve medical thinking. There was remarkable insight in choosing diabetes as an example of something yet to be explained. Diabetes mellitus was well recognised as a condition in which there was an excess of urine which tasted sweet. The glucose content could be measured, but what was the cause? In 1899 it was found that removing the pancreas in dogs caused diabetes. In 1910 Sir Edward Albert Sharpey-Shafer deduced that there was a chemical missing from the pancreas in people with diabetes and proposed the name insulin. It was discovered by Sir Frederick G. Banting, Charles H. Best, and J. J. R. Macleod at the University of Toronto, and first used in January 1922 in the treatment of diabetes (Banting et al. 1922).

The whole lecture is magnificent, being inspiringly philosophically and immensely practical. There are two connections that suggest Daniel Samways was particularly influenced by MacAlister's teaching. In a subsequent lecture given at St John's – "Remarks on the Form and Mechanism of the Heart" – later published in the *British Medical Journal*, MacAlister quoted in detail from the work of the French physiologist Étienne-Jules Marey[4] (MacAlister 1882b). Some years later, Samways referred to Marey's work in his Paris MD and later in a lecture to the *British Medical Association* (Samways 1896a, 1899b). The other connection is an illustration of the valves of the heart which was in MacAlister's *BMJ* paper. The picture is among Samways's "lantern slides" – the material he used in his teaching as a lecturer. They are in a collection donated to the Royal Albert Memorial Museum in Exeter in 1919. MacAlister was soon to be physician at

[4] 1830–1904.