

LIGHT out of *Deep Darkness*



A Pioneer's Adventures in Egypt, 1903–1923, and his
Campaign against the Plague of Ophthalmia

A biography of
Arthur Ferguson MacCallan CBE, MD, FRCS

Michael MacCallan

A Synopsis¹, November, 2014.

Michael MacCallan
mmaccallan@yahoo.co.uk

© Michael MacCallan

¹ This Paper includes material presented to the International Coalition for Trachoma Control (ICTC) Conference in Paris, September, 2014 as part of the “ICTC MacCallan Medal” Award Ceremony.

Light out of Deep Darkness - A biography of Arthur MacCallan CBE, MD, FRCS.

Introduction

Arthur Ferguson MacCallan (1872-1955) (Fig.1) was an ophthalmic surgeon who undertook his pioneering work in Egypt between 1903 and 1923. During that time, he established the ophthalmic hospital infrastructure in Egypt consisting of both travelling and permanent hospitals along with the training of surgeons.



Fig.1: Arthur, 1923

He also became a world authority on trachoma; the *MacCallan Classification of Trachoma*, initially published in 1908, was the first grading system used to standardise the diagnosis of trachoma and was later adopted by the World Health Organisation.

Background

Arthur's tale is a fascinating one. In 1903, aged 31, he was working as an unpaid ophthalmic surgeon at Moorfields. By a stroke of good fortune, which "*transcended even my dreams*", he was offered a position in Egypt to operate the first travelling ophthalmic hospital (TOH) which was funded by a £E40,000 trust (equivalent to £4 million today) established by the financier and philanthropist Sir Ernest Cassel.

Cassel had been involved in the construction of the Aswan Dam during the late 1890's and had been shocked at the extent of ophthalmia that plagued the vast workforce of up to 15,000 people. He subsequently established the Cassel Trust Fund in 1902 with the specific aim of teaching "*the principles of ophthalmic surgery to Egyptian surgeons in order that they may give their services gratuitously to relieve the sufferings of their fellow countrymen.*" The Committee established to manage the trust, chaired by Lord Cromer, then the British Consul, decided to use the interest from the fund to finance an experimental TOH, on the lines that had been used in Russia and Hungary. The concept was to bring the temporary eye hospital to the local population and spend a short time in that place before moving on to another town.

Arthur's early days

Arthur arrived in Cairo in July, 1903 (Fig.2). His initial instructions were to familiarise himself with the "ophthalmic problem" and make recommendations. Ophthalmia was rife in Egypt; it was estimated that some 90% of the population suffered from some sort of eye-disease (Figs.3&4) and that some 7% of the population was blind in one or both eyes. Furthermore, there was little formal ophthalmic treatment at that time; regrettably, many operations were still being undertaken by "quacks". Arthur quickly concluded that hospital doctors had little knowledge of eye treatment but that success of the TOH scheme would be assured given the potential overwhelming demand for treatment.



Fig.2: Arthur, Cairo, July 1903.



Fig.3: Exceptional cases of neglected eye disease.



Fig.4: Patient with trachoma

Arthur was keen to commence the experiment with the first TOH which was established at Menouf towards the end of 1903 (Fig.5) and began work in January, 1904 (Fig.6). Menouf was selected as being one of the most populous towns in the Delta; an acre of land was hired on the outskirts of the town and was enclosed by a rough cotton-stalk fence. The initial hospital camp comprised eleven tents, the largest of which was “a lofty tent of the Swiss Cottage pattern” floored with concrete, and nine staff. When the weather became too hot for work under canvas, they were replaced by mat huts (Fig.7).



Fig.5: Menouf camp, 1903



Fig.6: Arthur with Saladin at Menouf camp, 1904



Fig.7: Mat huts at Menouf camp, 1904

Initially, some of the *fellaheen* were suspicious; Arthur was even considered a “freak” by others. However, this prejudice was soon overcome by the empathy Arthur showed, and the skill and professionalism by which he organised and treated his patients; they could literally “see” the benefits of his operations. Soon the demand grew rapidly (Figs.8&9) as more people clamoured for more treatment; indeed such clamouring in the early days led to unruly crowds of patients which necessitated Arthur having to have a police guard to maintain order. In any event, Arthur soon became established and his reputation and credibility grew rapidly (Fig.10).



Fig.8: Patients waiting for admission, Menouf 1904



Fig.9: “No more can be admitted”. Menouf 1904



Fig.10: Patients recovering. Menouf 1904

Arthur’s volume of work in these early days was enormous; during the first three months of 1904, at Menouf, he treated more than 6,000 patients and performed some 600 operations (Fig.11). Where anaesthetics were required opium, cocaine or chloroform were used; in some cases, where no anaesthetics were available, patients might still insist that the appropriate operation be performed, so great was their desire for treatment. This was also the era before antibiotics.

Working conditions were also harsh with the heat, sand, flies, lice and “mosquitoes as big as sparrows, very bony and strong”. This environment put great strain on him personally and he admitted that “the work is now very onerous” and “I don’t know how long I shall be able to stand this sort of life”.

Nevertheless, he persevered, recognising the overwhelming need by the population for professional treatment to fight the plague of ophthalmia. Indeed, so successful were the results from the first TOH that, in 1904, Cassel provided the funds for a second “*hospital under canvas*” which was initially established at Fayoum (Figs.12&13).



Fig.11: Arthur operating in the desert. Menouf 1904



Fig.12: Fayoum camp 1904



Fig.13: Arthur at Fayoum 1904

Establishing a long-term “Vision”

Arthur quickly identified the extent of the devastation caused by ophthalmia. Even with the second TOH, Arthur felt that this overall extent of ophthalmic treatment was just “*a drop in the ocean*” and that a bolder, long-term plan was needed.

Arthur developed his “Vision” which was to “*create a stable central ophthalmic administration with the best possible clinical and scientific teaching adjuncts.*” Furthermore, he wanted to ensure that at least one permanent ophthalmic hospital was established in each of Egypt’s 14 Provinces. Over the next twenty years, Arthur worked tirelessly to achieve his self-imposed goals. Indeed, he found himself bearing the mantle of “ambassador” in promoting this cause in which role, over the years, he persuaded both local notables and Government to provide significant funding and other support for the development of the ophthalmic hospital infrastructure.

Two core character traits of Arthur’s, observed by fellow ophthalmic professionals, were fundamental to the successful implementation of his ambitious plans:

- “*His drive, energy and resolution all went into his efforts to convert the amorphous mass of human suffering from trachoma into a concrete scientific and administrative problem*”;
- “*MacCallan has had the courage to think in large figures. He has foreseen what he wanted, has asked for it, and has known how to get it.*”

The first of these traits led to Arthur bringing “order out of chaos” by his disciplined approach in analysing the stages of trachoma. By identifying its component parts, the disease could be more readily managed as “*a concrete scientific and administrative problem*”, resulting in patients’ symptoms being more readily identified and thus more readily treatable.

The second trait ensured that Arthur kept focussed on achieving his long-term goals by harnessing political will to raise the funds required for building hospitals. He persevered despite having to develop skills in “*the art of propaganda among all classes of the population*” and despite having to apply “*myself to the niceties of administrative routine which I hated*”.

Arthur's achievements over twenty years in Egypt (1903-1923)

Ophthalmic research

From his early exposure to trachoma in his many patients, Arthur developed his "*classification of the stages of trachoma*". This *Classification* was a natural step in analysing and structuring the trachoma problem into "*a concrete scientific and administrative*" issue.

His initial findings were published in 1908 and then further developed in his book "*Trachoma and its complications in Egypt*" in 1913. He subsequently updated and expanded his work at the request, in 1935, of the International Organisation of the Campaign against Trachoma which led to his authoritative book "*Trachoma*" being published in 1936. Then, in 1952, a Committee of experts on trachoma was nominated by the World Health Organisation at Geneva to make recommendations for the treatment of the disease. MacCallan's "*Classification of the Stages of Trachoma*" was adopted.

Establishing the ophthalmic hospital infrastructure

Permanent ophthalmic hospitals

In 1905, the Egyptian Government took over the administration of the Cassel Fund and started providing more finance for the treatment of ophthalmia. Arthur was delighted and noted that "*the national importance of the struggle against ophthalmia has thus been recognised and must henceforth take its place amongst the measures essential to the prosperity of the country.*"

The first permanent ophthalmic hospital was based at Tanta (Fig.14); Government funding was approved in 1906 but, due to financial difficulties of the contractor, was not opened until 1908. A second permanent hospital was opened at Assiut in 1910 (Fig.15). These, and other, permanent hospitals were funded by a combination of local and Government finance and, in many cases, included generous donations of both land and money from wealthy individuals.

On Arthur's departure in 1923, there were 23 ophthalmic hospital units, including five TOHs, and two planned hospitals. The Memorial Ophthalmic Laboratory at Giza was then under construction. Many of these hospitals are operational today.



Fig.14: Tanta, 1908



Fig.15: Assiut, 1910

Travelling Ophthalmic Hospitals (TOHs).

The actual number of TOHs depended on circumstances and available funding at the time. In 1904, for example, there were two TOHs which treated patients at Menouf, Fayoum, Damietta and Calioub. One beneficial consequence of these travelling hospitals is that they acted as "roving advertisements" for the ophthalmic treatment available. As people were so impressed by the great relief from suffering

they provided, it encouraged private donations to be made, both of money and land, some of which were significant. By 1909, for example, more than £E10,000 had been subscribed, equivalent to over £1 million today.

Tent hospitals were also used to respond to an initiative by Lord Kitchener, British Counsel 1911-1914. This led to Arthur establishing travelling hospitals to fight ankylostomiasis (hookworm) (Fig.16).

Given their flexibility, these “*hospitals under canvas*” were used to great effect in 1915, during World War I, when they were commissioned by the military to treat the sick and wounded from the campaigns at the Suez Canal, Gallipoli and Salonica. The largest tent camp contained 650 beds; this was initially established in Alexandria and then moved to Giza for the winter of 1915. Arthur was commended by Surgeon-General Ford that his hospital was “*a model of what a war hospital under canvas should be.*” (Fig.17).



Fig.16: Ankylostomiasis camp with brick latrines



Fig.17: “A model of what a war hospital under canvas should be”. Giza 1915

Training ophthalmic surgeons

At his leaving tea-party in December, 1923, Arthur proudly noted that “*at the first meeting of the (Egyptian Ophthalmological) Society in 1903, there were 17 members, only 7 of whom were Egyptians. Now there were 96 members, the vast majority of whom were Egyptians, and most of them had been his pupils.*”

This training was of a practical, surgical nature and supported by lectures and examinations. A complete course of post-graduate lectures was also introduced which included clinical pathology and bacteriology.

At the tea-party, Arthur also quoted, with some pride, statistics which recorded the significant growth in the number of patients seen and treated since he had arrived in Egypt:

Operational Statistics

	1904	1922	Increase
New patients treated	3,379	133,750	40x
Attendances at hospitals	18,973	1,510,020	80x
Operations performed	1,268	76,035	60x

Egyptian Ophthalmological Society (EOS)

Arthur played a key role in the development of the EOS. In 1912, he was elected President and was created an Honorary Member in 1925.

Hygiene awareness in schools

Given that trachoma was so highly contagious, particularly in the close environment of the family unit or schools (Fig.18) Arthur spent much time and effort in trying to educate people on the benefits of personal ophthalmic hygiene and so *prevent* the spread of the disease. Indeed, one of his early professional calls in 1903 was to the headmaster of Menouf School with the offer of inspecting the pupils for ophthalmia and offering appropriate treatment.

The extent of the ophthalmic problem in schools may be illustrated by the following example. Whilst inspecting Tanta School in 1907, Arthur found that only 16 pupils, from a total of 485, “*were free from granular ophthalmia or trachoma*”. Typically of Arthur, he worked tirelessly both to *prevent* the disease, through education, and *cure* his patients through operations and medicines. One practical approach adopted by Arthur, in educating people on the importance of facial and ophthalmic hygiene, was to exclude patients with dirty faces!



Fig.18: Child with trachoma

In Arthur’s words “*perhaps the most important work carried out was the institution of ophthalmic treatment in all Government Primary Schools throughout Egypt.*” Over the years, this initiative to educate the population was supported by lectures, pamphlets and talks on ophthalmic hygiene.

Memorial Ophthalmic Laboratory, Giza²

Now known as the Giza Memorial Institute for Ophthalmic Research



Fig.19: Memorial Laboratory, 1925



Fig.20: Memorial Laboratory, 2009.

The Memorial Ophthalmic Laboratory, Giza was completed in 1925 and formally opened in 1926. (Figs.19&20). Arthur commented that “*this laboratory was envisaged by me many years beforehand. I got the site, the money for the building, arranged the endowment, and designed the interior, with all detail*”.

In 1931, a ceremony was held at Giza to dedicate a bust to Arthur commemorating his twenty years’ dedication to the Egyptian ophthalmic service; this bust was funded by his students, patients and colleagues. It is interesting to relate that when the bronze bust was imported into Egypt in 1930, the Ministry of Finance agreed to waive the import customs duty as a token of recognising the “*moral*



Fig.21: Renovation of Arthur’s bust, 1992

² This Laboratory was funded by the Imperial War Graves Commission as a Memorial to those men of the Egyptian Labour and Camel Transport Corps who fell during the Great War 1914-1918.

significance” of Arthur’s work in Egypt over twenty years. At the unveiling ceremony Arthur noted that “*this Memorial laboratory, the negotiations and interior plans for which I was responsible, I look upon as the coping stone of my work*”.

The commemorative bust was renovated in 1992 (Fig.21); unfortunately it then disappeared in the early 2000’s. Whilst it is pleasing to report that the bust was replaced, this replacement was not the same quality as the original.

Expansion of the ophthalmic hospital infrastructure

Arthur established robust foundations for the ophthalmic hospital infrastructure so, even after his departure, this continued to develop and expand. By 1937, there were 63 permanent ophthalmic hospitals, 15 travelling hospitals and treatment centres in 38 Government schools. Over 1.2 million new patients had been seen with almost 115,000 operations performed.

Light out of Deep Darkness (Fig.22)

This biography is based on Arthur’s original-source documents and photographs. It describes his considerable achievements (discussed above) and the many challenges he faced.

It also includes lighter moments through many amusing anecdotes. Amongst these is the tale of the funeral of Jock, a poodle, with the locals flocking to witness the event. Other stories include those of his servants, some more honest and eager to please than others; the methods he used for patient crowd-control as they flocked to be treated; his requisitioning of trains; the unfortunate “fall-out” caused by someone trying to do Arthur a good-turn; the soul-searching he underwent in his early days as to whether he should remain in Egypt or return to England. These stories, typical scenes of the early TOHs and of the war years are brought to life by the many photographs taken by Arthur.

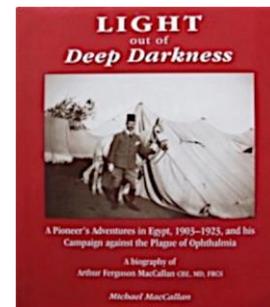


Fig. 22: Book cover

During his time in Egypt time, Arthur remained on good terms with the senior Egyptian and British representatives. Indeed, in the latter case, Lords Cromer, Allenby, and particularly Kitchener, actively encouraged Arthur’s pioneering ophthalmic campaign. On Arthur’s departure from Egypt, Field Marshall Viscount Allenby, then British High Commissioner for Egypt, recorded that “*the record of your work, of incalculable benefit to the people of this country, will rank high in the history of British endeavour here.*”

Arthur was awarded the CBE (1920) and Order of the Nile (1916; 1924) for his services to ophthalmology. In 1931 the commemorative bust was erected at the Memorial Ophthalmic Laboratory.

Postscript

More recently, in 2014, the International Coalition for Trachoma Control (ICTC) initiated the “ICTC MacCallan Medal” (Figs. 23) to recognise a current practitioner’s outstanding contribution in the fight to eliminate blinding trachoma by 2020. By naming this award after Arthur, it recognises his pioneering spirit, his *clarity of purpose* and his *determination to succeed*. These personal attributes, along with the examples of Arthur’s accomplishments a century ago, thus continue to resonate with the profession today.



Fig. 23: Arthur with ICTC MacCallan Medal

Michael MacCallan, November, 2014