

RONALD ROSS: KNOWN SCIENTIST, UNKNOWN MAN

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Sir Ronald Ross was a scientist of great eminence. A man, the world holds in great esteem till this day. However, not much has been revealed about Ronald Ross as a person. This paper attempts to make a sketch of the man behind the mosquito, a man who was as human as any of us, given to temperamental fits, frustration, errors in judgement and remorse. This has been a very sincere and honest endeavour to explore the other side of a scientist the world adored.

Introduction

Greatness is an elusive quality they say, often found in the unlikeliest of persons. It chooses its subjects carefully, without bias, casting its spell of ingenuity and enlightenment upon the unsuspecting individual, thus elevating him to a pedestal much higher than that of his peers. It takes years, often an entire lifetime to come to terms with this halo of brilliance, to believe that greatness resides within and has manifested itself in a body of work.

These greats are the chosen ones, who, with their unparalleled dedication and excellence reach the greatest heights of success, leaving their parents and acquaintances awestruck and upon departing, leave behind their 'footprints on the sands of time'. Sir Ronald Ross was a scientist of great eminence. A scientist, the world holds in great esteem till this day. However, not much has been revealed about Ronald Ross as a person. This paper attempts to make a sketch of the man behind the mosquito and malaria parasite, a man who was as human as any of us.

A Man of Many Dimensions

If Sir Campbell Clay Grant Ross, a Scottish Officer

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in the British Indian army was told that his 1857 born son Ronald Ross would revolutionize medical science, the General would have undoubtedly laughed it off. For, the young Ross was a dreamy, imaginative child who appeared interested in everything but, sadly committed to nothing. He dabbled around in poetry, painting and composing music. Studies did not particularly interest the sixteen year old who made a pencil copy of Raphael's painting titled 'Torchbearer' in a matter of minutes and stood first in the Oxford and Cambridge local examination in drawing. The Indian Medical Service in those days was an alluring prospect as it was well-paid and possessed many good appointments. General Ross suggested that his son study medicine and finally join this Service. In 1874, the teenager joined St.Bartholomew's Hospital in London with some reluctance. Much to his father's anguish, he spent most of his time in medical school, composing music or writing poems and plays. In 1879, Ross barely managed to scrape through his Royal College of Surgeons examinations, but could not clear the qualifying examinations for the Indian Medical Service¹. Outraged, his father threatened to cancel his allowance. Seeing no other way out, Ross had to take up a job as ship's surgeon on a vessel, sailing between London and New York, and gained the Licentiate of the Society of Apothecaries. In 1881, Ronald Ross ranked seventeenth of twenty-two successful candidates, and at last fulfilled his father's wish by entering the Indian Medical Service. With his low rank, Ross was commissioned for the Madras service, the least prestigious of the three Indian Presidencies of which Bengal and Bombay were more favoured.

The Hand of Destiny and The Discovery

Ronald Ross' life had taken a course of its own, a course determined by Destiny herself, that was to lead him along the path of self-revelation to a startling and path-breaking discovery.

Ross went to England after seven years in India in 1888. He returned to India in 1889 with his wife Rosa Bessie Bloxam³ for duty as a staff surgeon in a small military hospital.

He was thinking to give up medicine, because whatever he tried landed in failure. He went to England again in 1894³ and his career was transformed after he met Sir Patrick Manson in London. Manson advised him to read about mosquitoes before undertaking the work. In fact, Ross' knowledge on mosquitoes was superficial. He used to keep a diary where he recorded his frustration and malaise. He admitted his failure on paper, saying that all his endeavours including his novels and mathematics had been unsuccessful. He felt that he had made a 'laughing stock' of himself before his colleagues. Ross was no longer deterred by failures. He resolved to work on mosquitoes and said that if he could prove malaria is due to mosquito, it would be a fitting reply to his detractors³. Ross' unsuccessful novels and his faltering attempts at mathematics, were constant reminders of his failure and he zealously avoided being lost in their shadow.

On his return to India in 1894 he joined his service at Secunderabad. Ross' work on malaria at Secunderabad was interrupted by an outbreak of Cholera at Bangalore and he remained there from September 1895 until March 1897⁴.

Back in Secunderabad he started his research on mosquito and malaria apart from his hospital duties. Finding it extremely difficult to carry out his experiments successfully in the sweltering summer of India, and vexed at his inability to concentrate totally on his scientific work, his cry of despair could be heard in his long poem "In Exile":²

"What ails the solitude?
Is this the Judgement Day?
The Sky is red as blood;
The very rocks decay...
The world is white with heat;
The world is rent and riven;
The world and heavens meet;
The lost stars cry in heav'n"

In these lines, one finds a somewhat apparent relation between the frowning sun, pouring out scorching heat on the earth and reddening the sky thereby, and the human blood carrying malarial parasites, that were harping on the mind of Ross continuously with the ultimate success in research constantly eluding him, Ross here described his "world" as "rent and riven" and with no ray of hope anywhere.

On 20th August, 1897 he observed a black dot in the stomach wall of a 'brown' mosquito (probably *Anopheles stephensi*). That was the first detection of malaria parasite in mosquito. Ross decided to observe, the 20th August, 1897 as "Mosquito Day", as it was a landmark in his research on malaria. One does not find too many scientists who had such poetic potency. Nor were or are too many scientists in the world who would rejoice on the occasion of his great discovery, acknowledging God for gifting "a wondrous thing". That was Ronald Ross in a class of his own.² He was transferred to Presidency General Hospital in Calcutta and arrived there on February 17, 1898. The next twelve months were marked by endless hours of back-breaking work followed by a celebrated discovery that solved the riddle of malaria transmission dynamics. Ross' grit and determination had reaped him the best possible results. He was awarded the Nobel prize in 1902 for this great and epoch making discovery². Ronald Ross was finally out of the shadows. This is one of the most dramatic episodes in the history of medicine.

Mindset and Attitude

Ronald Ross was born in Almora, a beautiful picturesque hill station in north of India². The family had connections with the country which stretched back five generations, and like so many other children of the Raj, Ross retained the vivid memories of his early years in India, before being sent back in 1865 to England for schooling. He spent his most important working years in various places of India and also lived here for a considerable period of time with his own family. He received the Nobel prize for his work in India. However, we find that this gifted and creative scientist's understanding about the culture and the people of his birth place to be somewhat prejudiced.

Scientific mindset of Ronald Ross is commendably of the highest level and beyond criticism. There is no denying the fact that his attitude towards the then British government in India and his critical assessment of the Indian character is not in the best light. The typical mindset of Ronald Ross has revealed itself comprehensively

in letters to Sir Patrick Manson, dated March 9, 1898, Calcutta.

“The laboratory assistants are useless and I am training men I have hired.”

It is from 173 such correspondences with Manson that the other side, the more human side of Ronald Ross unfurls itself.⁴

He spoke of the British Government in India in unflattering terms, calling it ‘...mule as regards Science’ which would not ‘do anything unless driven.’ He strongly disapproves of the unpardonable callousness of the government. The Government exasperated him as he was sure that it ‘..won’t hesitate over sending’ him back to England ‘on duty and will think twice as much of the commission in consequence.’ In fact, in his opinion it was best to ‘bully them, squeeze them’ as they deserved it, so that they would ‘respect the whole business much more.’ Ross had reason to be upset with the administration. He had applied for assistance which had inevitably been refused. He wrote to Manson that ‘things will never be done on a proper scale until a fuss has been made.’⁴

The more light-hearted side of Ross reveals itself from all that he writes to Manson about his friends and colleagues. He writes about his contemporary Lawrie, who under the guise of Bugobutty Bose had crushed the mosquito theory completely in the Pioneer. Ross said that he was practically accused of ‘fabricating false evidence!’ Ross humorously remarks that ‘poor man’ Lawrie had become ‘an absurd crank’ and that the medical papers would not ‘take his effusions’⁴

In a similar light-hearted fashion, Ross writes to Manson about Maynard, acting editor of the IMG — ‘He is a very good man, but was not sound on the parasite. He distrusted me and malaria work generally; but I have knocked him into shape a bit.’⁴

His working conditions in India were quite constrained due to inadequate infrastructural facilities and administrative support. He writes: “Imagine my disgust on arriving here (Presidency General Hospital, Calcutta) to find that there is no reference medical library. I don’t know what to do for some literature I want.”⁴

Ronald Ross, it seems, had had enough, what with the sweltering tropical heat and humidity, not to mention his deplorable surroundings. At times when his work was stagnating like mosquitoes in a pond, and when he seemed to make little headway with his findings, his frustration increased. He could never accept India or her people as his own and sought no feeling of kinship with them. In

fact, his attitude towards Indians was quite condescending as is evident from his statement that ‘The native of India is really nearer a monkey than a man.’⁴ This statement is offensive, but possibly not outrageous, considering the Colonial era when it was mentioned in. The Bengalis, Ross felt, were ‘superstitious’ and ‘stupid’, which could be attributed to their lackadaisical attitude to work.

Ironically, Ross would always remain a distrusting foreigner of India and the people he worked with. ‘The Indian post is quite untrustworthy and the clerks in my opinion, make a habit of stealing unregistered parcels,’ he said. Apparently, a number of parcels addressed to him and his wife had never reached them.

Ross had completed his discovery by July 1898. It was a huge discovery, one that registered his name on the pages of history for posterity. Whenever someone makes a discovery or achieves something of such great proportions, it can be safely assumed that the achiever will be at least content if not completely happy with his work and the results it reaped for him. The same could have been safely concluded for Ross had not some startling pieces of evidence come before us which seems to suggest otherwise. Around six months after this discovery, Ross writes to Manson that it would definitely be a good idea to continue with his research in India, but that ‘there are other things to be considered and many cogent reasons why I should now leave India for good.’⁴ It is quite intriguing that after such a path-breaking discovery, a scientist of Ross’ caliber should be forced to rethink his decision of continuing work in a country, especially since it is not known what these ‘cogent reasons’ are. We might presume that these reasons might border on being financial as in the immediate next line of the letter Ross says quite ominously ‘I fear also that I may even sell my microscopes.’⁴ One can’t help but feel the desperation underlying such thoughts, even though the mind churning them out is undoubtedly among the best of the century. According to Ross’ letter, he had previously thought of collecting his pension and returning to his first love, literature, which he jokingly remarked might fetch him better monetary dividends than his microscope might. Nevertheless, he knew that literature faded before the glory, research on medical subjects brought him. Ross had finally decided that at last it was time to pay attention to his other, more humane needs of ‘clothing, the pockets’⁴. He was after all, a human being.

Relationship with Patrick Manson

The relationship of mutual respect between two great Scottish men, Ronald Ross and Patrick Manson had

naturally evolved over the years. It began as one of student and mentor. Manson was a good friend and guide, often tutoring him and giving him strong, well-solicited advice. He was a pillar of unwavering strength and support to his protégé. Ross returned triumphantly from India in 1899, having proved that mosquitoes are agents of malaria transmission. Ross acknowledged that it was Manson who egged him on, often bailing him out of trying situations with his ideas. This was Manson's 'Great Induction' that Ross talks about. But surprisingly, the latter correspondence speaks of a souring of such a deep relationship.

Manson learnt of Ross being awarded Nobel prize from the newspapers. This is further revealed by the absence of a letter of condolence after Patrick Thurburn Manson's death in 1922 which is incredibly strange. Ross' medical practice never flourished like Manson's and he was never financially well-off as Manson was, at least by his own standards. It was probably Ross' frustration that had come between the two.

Ross' dispute with G.B Grassi of Italy is well known and is a skeleton in the closet of the history of Malariology. This coldness between Ross and Manson was even more triggered by Grassi who dedicated his second book to Manson⁴

The warmth of the personal relationship and friendship further diminished on Manson's visit to Italy and regarding the discovery of the causative organism of sleeping sickness. Ross supported E.Dutton against Manson's claim for himself and C.W. Daniels for the discovery.⁴

In spite of strained relations, Ross always held a special place in his life for his mentor, Patrick Manson. Two years before his death he insisted that he still held Manson in the 'warmest affection and regard' in his privately published write up in 1930 titled 'Ross' Memories of Sir Patrick Manson'. By then Ross himself had a stroke and was confined to the wheel chair⁴. Perhaps, Ross was then more philosophical about life.

Manson once mentioned that his role in the malaria story was to have discovered Ross. While he was leaving

India after his great discovery of the transmission cycle of malaria in Calcutta, Ross wrote Manson a letter (dated, 24th February, 1899), in which he congratulated himself for finishing the task imposed on him by Manson.

A 'loner'

Ross' discovery was a remarkable episode that has carved a permanent niche for itself in the history of medical research. A century later, the world bows in reverence before the man whom it was hard to love but, equally easy to look up to. It is true that Ross' ego-centric and to an extent abrasive character earned him very few friends. He did not have any group of researchers around him and was what we call a 'loner'. "Ross ... has left a range of intellectual legacies that have carried through even to our generation"⁵.

Ross was a many faceted genius, a person who defied all odds to pursue his dreams. It could be his brilliance that immortalized him, or the chance encounters with Manson that shaped his life, else it could be that Ross' story was how it was meant to be. It was written.

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