

## A Hundred Years Ago: the Birth of the Trinity Mathematical Society

A single letter<sup>1</sup>, preserved in private hands for over fifty years and now in the college archives, reveals the origin of the TMS. It was written by my father EA Milne after speaking at the 200<sup>th</sup> meeting in reply to a thank-you letter from the vice-president.

*Dear Mr. Elsey-Warren,*

*I have received in my life few letters which gave me as much pleasure as yours, undeserved by me as your remarks are. It is most good of you to write as you have done, and your letter together with the enjoyable time I had on Friday, both before and at the meeting, have done a great deal to cheer me up at a rather difficult time of my life.*

*The suggestion that a mathematical society be founded (or re-founded) after the war in Trinity originated in a letter which Prof. Hardy wrote to me when I was still at Portsmouth. There had been no such society in existence in my earlier time at Trinity (Oct.1914-March 1916) though I believe one had existed, and had come to an end, sometime before the war. Anyhow Hardy stated his views, and said it was up to me, as one of the senior returning mathematical undergraduates, to do something about it. I well remember journeying up from Portsmouth in RNVR uniform and changing into "civvies" for the occasion of the meeting in S Chapman's rooms in A Great Court. I remember too wondering how far the newly started society would be self-supporting and how far it would have to rely on dons; and hoping, too, that (a) few dons would turn up at meetings to be addressed by undergraduate members. From what I saw the other night, the Society is thriving and self-supporting, and I think that intense credit is due to the present and past generations of officers for giving complete continuity of existence to a society which, I know, is not one of those which runs itself. The 200 meetings have all meant hard and willing work; moreover 200 meetings in less than 20 years is a very good score.*

*I hope very much that it may be my privilege to come and attend some future meetings of the Society when I happen to be in Cambridge. May I also say that the Society seems to me very fortunate in its present and "present-past" officers? I hope*

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<sup>1</sup> Letter from EA Milne to CH Elsey-Warren, 30 January 1939, Trinity archives

*that many of us may foregather on the occasion of the 500<sup>th</sup> meeting, which I stand an even chance of surviving to.*

*Yours very sincerely,*

*E A Milne*

Curious as it may seem, Hardy was partly responsible for Milne being in Portsmouth. In 1916 Hardy, an ardent pacifist, had declined to apply his brilliant mind to aerial defence, and instead had recommended Milne, whom he rated “one of his best pupils”<sup>2</sup>. The upshot was that Milne left his undergraduate studies to join a pioneering team that transformed gunnery into a science<sup>3</sup>. He thrived on the mathematical challenges of ballistics and in early 1919, by then a naval lieutenant, and despite the Armistice, was busy at the gunnery school HMS *Excellent* at Portsmouth.

According to the minute book – the first fourteen pages are by Milne – Saturday 15 January was the date of that preliminary meeting attended by ten young mathematicians together with Chapman and JE Littlewood, Hardy’s great collaborator. Milne chaired an informal discussion about forming a society run by junior members of the college, i.e. not attained MA status. It was agreed that a subcommittee of EF Collingwood, WR Dean and RVH Roseveare would draft a set of rules, and to re-convene at the beginning of the Easter term.

Only a week later, on Saturday, 22 February, they re-assembled. Again Milne came up from Portsmouth to act as chairman; again Chapman hosted the meeting. (The minutes are headed “Trinity Mathematical Club”.) Milne outlined the club’s purpose: to discuss “matters of mathematical interest” by the “exchange and ventilation of views on mathematical topics”. The subcommittee was tasked with drafting the constitution and management of the club, and terms for officers and members.

By the Easter term the club had become a society. While Hardy was its inspiration, Milne had nursed the practicalities. The meeting on 29 April 1919, devoted to private business, is written up as the “First”. It was held in I Great Court, the rooms of Roseveare, who acted as chairman. Milne, now demobbed and in residence in L

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<sup>2</sup> Letter from AV Hill to WH McCrea, 2 November 1950, EA Milne papers, Bodleian Library

<sup>3</sup> See *The Fountain* **18** Spring 2014 pp.10-11. Weston Smith M., “Trinity and the Birth of Modern Gunnery”

Great Court, acted as secretary. The draft rules were adopted and the twenty-one junior mathematicians present were elected to membership, including S Pollard who was elected president. Among Honorary members elected were Hardy, Littlewood, Chapman, RH Fowler, and two elderly fellows, WW Rouse Ball and JWL Glaisher. Rouse Ball's *Mathematical Recreations and Essays* is currently in its 13<sup>th</sup> edition. Glaisher was president of the British Association for the Advancement of Science in 1890, and as a boy had flown in air-balloons with his famous father.

The fledgling society, which predates the university mathematics society, the Archimedean, was now ready to engage in mathematics, and on 6 May Milne gave the inaugural talk, "Gauss's Error Law", followed by Hardy on 21 May with "Elementary Theory of Infinite Number". Come the autumn, the society was in full swing with a smartly printed card announcing the programme for the Michaelmas term and two pages of printed rules. Meetings, usually on Wednesdays, took place at 8:30pm in the evening in someone's rooms, and finished with coffee. (No ceremonial apple.) The subscription was two shillings a term, about £4.50 in today's money.

Milne was now president of the TMS. Furthermore he had been elected a fellow – and never completed his undergraduate studies. While tremendously exhilarated by the fellowship, which enabled him to send money home, and gave him the freedom to continue in mathematics, he felt naïve sitting at high table among the scientific giants and august company. This is reflected in his account<sup>4</sup> of the TMS evening of 29 October held in Littlewood's rooms D Neville's Court.

*We held a great meeting of the Trinity Mathematical Society the other night. I was in the chair and Prof. Eddington gave a paper on "The Equilibrium of a Gaseous Star". . . I was not aware who was present at the back of the room, but when the paper was finished and I had made a few rather inadequate presidential remarks, what should I hear but the big booming voice of Rutherford at the back, starting to heckle Eddington. I can tell you I felt my remarks to be less adequate than ever. Eddington and Rutherford assisted by Hardy, Littlewood, (CG) Darwin and Fowler kept up the discussion for one and a half hours, to the no small delight of the mass of undergraduates present. It is very rare indeed that an un-premeditated discussion*

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<sup>4</sup> Letter from EA Milne to SA Milne, 9 November 1919, Milne papers, Bodleian Library

*between two such eminent men as Eddington and Rutherford can be overheard by other people. The meeting was, of course, tremendously successful.*

By this stage the TMS was sufficiently established to provoke the debating society, the Magpie and Stump. Founded more than fifty years previously in 1866, it feigned umbrage at the upstart TMS and challenged it to a silly race. This was to be a hoop-bowling contest from the north end of Tibb's Row to half way between the pro-ante-penultimate and ante-penultimate E in Magdalene Street. Milne, who relished the cut and thrust of repartee, had joined the Magpie and Stump and spoken at its witty, light hearted debates. Clearly this lark put him and others like him, who belonged to both societies, into an impossible position, probably deliberately, and prompted an outpouring of passionate mock-serious argument and hot air. Milne enjoyed the jape and wrote home that it was up to the TMS "to assert its dignity and prestige and in some way to tweak the nose of the Magpie and Stump."<sup>5</sup> Sadly history does not record whether the race ever happened.

TMS meetings generally focussed on an aspect of mathematics but on 21 January 1920 Rouse Ball broke the mould with an entertaining talk on "Indigenous Japanese Mathematics" illustrated with pictures. He attracted an audience of thirty, as did Milne on 28 April 1920 speaking about "Vectors and Tensors". (Chapman had persuaded Milne of the usefulness of vectors to tackle problems in mechanics, and Milne's textbook "Vectorial Mechanics" appeared in 1944.) He wrote<sup>6</sup> to his father

*I had quite a crowded house for my paper on Wednesday – my rooms, where it was held, were quite full. Eddington turned up and took part in the discussion, also Darwin and Fowler.*

The little group of members, the nucleus of the TMS, was strengthened by shared interests and friendships. At Portsmouth Dean, Fowler, Pollard and Milne were war-time colleagues – and soon Fowler and Milne would plunge into astrophysics. Milne wrote a paper with Pollard on errors in sound trumpets, and with Chapman on Earth's upper atmosphere. Hardy regularly invited Darwin, Fowler and Milne to play 'vint' (an elaborate Russian form of bridge) at which Hardy excelled. In June 1920 Darwin, Dean, Milne and Roseveare chased about Borrowdale on the Lake Hunt.

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<sup>5</sup> Letter from EA Milne to E Milne, 23 November 1919, Milne papers, Bodleian Library

<sup>6</sup> Letter from EA Milne to SA Milne, 30 April 1920, Milne papers, Bodleian Library

During these early months of the TMS, Hardy, who made “mathematics shine”<sup>7</sup> in Milne’s words, was under a cloud. His discomfort was due to his pacifism and his effort to re-instate Bertrand Russell, whose dismissal from his college lectureship in 1916 had caused a stir. In 1920 Hardy seized the chance to retreat to a chair at Oxford, returning in 1931 to Cambridge’s Sadleirian chair.

What of the vital subcommittee? In brief, Dean held a chair at University College London; Sir Edward Collingwood was president of the London Mathematical Society and held the office of High Sheriff of Northumberland; Roseveare became a schoolmaster and rose to be head of Cheltenham College then Gordonstoun School.

My father was the first to hold the new Oxford chair endowed by Rouse Ball (Littlewood occupied the Cambridge one), and was president of the London Mathematical Society and the Royal Astronomical Society. Ever eager to encourage students, he would be thrilled that the TMS has reached a landmark birthday with a huge membership and an extensive programme of events. Long may it flourish.

Acknowledgement. My grateful thanks to Miranda and Horace Barlow

February 2019

Meg Weston Smith

Author, “Beating the Odds: the Life and Times of EA Milne” Imperial College Press, 2013

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<sup>7</sup> Milne, EA., Obituary of GH Hardy in *Monthly Notices of the Royal Astronomical Society* **108** 1948 pp. 44-46