Cork, Dublin and Limerick in September 1996. All were encouraged to suggest speakers.

• R. Timoney was thanked for setting up an IMS page on the World Wide Web. Its address is

http://www.maths.tcd.ie/pub/ims.

Departments were asked to add a pointer in the home pages of their entry on the WWW to the IMS page.

### 3. Bulletin

The issue of advertising in the bulletin was discussed. M. Tuite agreed to approach publishers on this matter.
It was mentioned that instructions to authors may be changed from Tex to Latex, as Latex appears to be more commonly used. Thanks were expressed to the editor.

### 4. Treasurer's business

The treasurer gave his financial report and was thanked. G. Lessells agreed to send a letter of thanks and a copy of the Bulletin to those people and institutions who gave financial support to last year's September Meeting.

### 5. September Meeting

D. Armitage reported that organization for the 1996 September Meeting is well under way and principal speakers arranged. Speakers for short talks were requested. The conference will be held in the Applied Mathematics building in Queen's University Belfast. A conference banquet will be held in the Great Hall of the university. The president appealed to all members to make a special effort to attend the September Meeting.

### 6. Any other business

The issue of awarding bonus points to honours mathematics in the Leaving Certificate was discussed. S. Dineen requested that any information or statistics that might support this practice be sent to him.

The meeting closed at 1.05pm.

Pauline Mellon
University College Dublin.

## PROFESSOR JOHN LIGHTON SYNGE, FRS
### Obituary

Professor John Lighton Synge, the most distinguished Irish mathematician and theoretical physicist since Sir William Rowan Hamilton (1805-1865), died in Dublin on March 30, 1995, exactly one week after his 98th birthday.

He entered Trinity College in 1915 and by the end of his first year he won a Foundation Scholarship in mathematics, an extraordinary achievement in view of the fact that in those days the Foundation Scholarship examination was normally taken in the third year. He graduated in 1919 with a Senior Moderatorship in Mathematics and Experimental Physics and a Large Gold Medal.

After a brief lectureship in mathematics in Trinity College he left for Canada in 1920 to join the University of Toronto as Assistant Professor in Mathematics. He returned to Trinity in 1925 to a Fellowship and the Chair of Natural Philosophy until 1930. His most brilliant students during this period were the late Dr A. J. McConnell (geometer and one time Provost of Trinity College) and the late Professor E. T. S. Walton (experimental physicist and Nobel laureate with Cockcroft).

He left Trinity College again in 1930 and after a succession of senior appointments at the universities of Toronto, Ohio, Princeton, Maryland and Pittsburgh, and a brief appointment as ballistic mathematician in the US Air Force during the war, he returned to his native Dublin in 1948 as a Senior Professor in the School of Theoretical Physics of the Dublin Institute for Advanced Studies.

It was during Professor Synge's tenure that the Dublin Institute for Advanced Studies became one of the great centres in relativity theory. Up to the mid sixties, and primarily under his influence, about 12% of the world's relativists passed, physically,

through the Institute.

Professor Synge made outstanding contributions to widely varied fields: classical mechanics, geometrical mechanics and geometrical optics, gas dynamics, hydrodynamics, elasticity, electrical networks, mathematical methods, differential geometry and, above all, Einstein's theory of relativity. His approach to mathematical physics in general, and to relativity theory in particular, is characterized by his extraordinary geometrical insight. He felt just as much at home in the ordinary three dimensional Euclidean space as in the four dimensional space-time of relativity. In an astonishing paper in the Proceedings of the Royal Irish Academy ( Vol. 53, Section *A*, No. 6, 1950) he was able, for the first time, to penetrate and explore in detail the region inside the Schwarzschild radius (what we now call a black hole). At a time when many relativists thought that it didn't even make sense to talk about this region, this work is very remarkable indeed.

The almost universal **geometrical** approach to the theory of relativity in the last thirty years or so is due primarily to Professor Synge's influence. As Professor Sir Hermann Bondi remarked in 1992, besides the 12% of relativists who were directly influenced by Professor Synge, "Every one of the other 88% has been deeply influenced by his geometric vision and the clarity of his expression". It is on record that the outstanding relativist Professor Sir Roger Penrose, and through him Stephen Hawking, decided to go seriously into the field of relativity after reading Synge's books on the subject.

He published eleven books, including three fascinating and delightful semi-popular books, and over two hundred papers, the last one at the age of 92; it was, appropriately enough, on geometry. Every single book and every single paper is a remarkable work of art.

His geometric insight and clarity of expression permeate all his scientific and semi-popular writings and all his superb lectures and seminars. His motto in all his writings, but especially in his semi-popular ones, is "The mind is at its best when at play", as he put it. He uses his fertile imagination and the "clarity of expression", and the sheer beauty of his prose, a gift he no doubt



inherited from his uncle, the famous playwright J. M. Synge, to set the mind of the reader "at play"; at the same time, imparting knowledge to the mind effortlessly and almost unconsciously.

His two passionate hobbies were cycling and sailing. While at the University of Pittsburgh he was cycling wearing a nose mask to protest against the polluted atmosphere of the city. He was, also, an accomplished painter. Well after retirement he took up the mandoline but without much success.

His mind was lively and vivid almost to the very end of his life. He continued reading three or four books a week and thinking about mathematical problems. On one of his visits just a few months before his death the present author was evidently surprised to see him reading a big medical book on the circulation of blood. Seeing my surprise he said "Oh, I have some troubles with the circulation of blood in my legs and I decided to learn something about it". On another visit, towards the end of 1993, he told me that the problem that occupied his mind at the time was Fermat's last theorem. When I ventured to say that "the problem was solved last July", he said "Oh, I know that, but I am thinking of the problem from a different angle, in terms of the zeroes of the Fermat function $x^t + y^t - z^t$. You can think of $t$ as a parameter and $(x, y, z)$ as a point in a three dimensional space or you can think of $(x, y, z, t)$ as a point in a four dimensional space". I don't know how far this approach would have led him, but it clearly indicated that his "geometrical vision" remained undiminished to the very end.

Professor Synge married Elizabeth Eleanor Mabel Allen in 1918 while they were both undergraduates in Trinity College; she died after a prolonged illness in 1985. He is survived by two daughters, Mrs Isobel Seddon and Professor Cathleen Morawetz. Professor Morawetz, an eminent mathematician in her own right, has the distinction of having been the first woman to hold the Directorship of the famous New York Courant Institute. She is currently the President of the American Mathematical Society.

Trinity College, Synge's *Alma Mater*, honours one of its most distinguished graduates on a permanent basis by the **J. L. Synge Prize in Mathematics** and the **J. L. Synge Public Lecture**,

each being given in alternate years. The first J. L. Synge Prize in Mathematics was shared by John Callan and Raymond Russell in 1993, and the second was awarded to Conal Kennedy in 1995. The first J. L. Synge Public Lecture was given by Professor Sir Hermann Bondi in 1992, and the second by Professor Werner Israel, a student of Professor Synge. The third lecture was given by Professor Sir Roger Penrose on May 7, 1996.

Professor Synge was a kind and generous man. He encouraged and inspired several generations of students who will always remember him with gratitude, fondness and the deepest respect.

Petros S. Florides,
School of Mathematics,
Trinity College,
Dublin 2,
Ireland.

# A CONIC AND A PASCAL LINE AS CUBIC LOCUS

P. D. Barry

## 1. Statement of results

This material arose out of an effort to generalize a result of William Wallace in 1797, to the effect that the feet of the perpendiculars from a point on the circumcircle of a triangle onto the side-lines are collinear. Through historical mis-attribution, the lines of collinearity have been widely known as *Simson lines*.

Our most general result is Theorem 3. A reduced case of that is Theorem 1. A converse of the latter is Theorem 2, and this constitutes an enhancement of the configuration in the celebrated Pascal's theorem.

**Theorem 1.** *In a projective plane, let $A_1$, $A_2$, $A_3$ be non-collinear points and $B_1$, $B_2$, $B_3$ distinct collinear points such that*

$$B_1 \neq A_2,\ A_3,\ B_2 \neq A_3,\ A_1,\ B_3 \neq A_1,\ A_2,$$

$$A_2B_3 \neq A_3B_2,\ A_3B_1 \neq A_1B_3,\ A_1B_2 \neq A_2B_1 \qquad (1)$$

*Let $C_1$, $C_2$, $C_3$ be the points specified by*

$$C_1 = A_2B_3 \cap A_3B_2,\ C_2 = A_3B_1 \cap A_1B_3,\ C_3 = A_1B_2 \cap A_2B_1. \qquad (2)$$

*For a variable point $P$, take points $Q_1 \in A_2A_3$, $Q_2 \in A_3A_1$, $Q_3 \in A_1A_2$, such that $Q_1 \in PB_1$, $Q_2 \in PB_2$, $Q_3 \in PB_3$. Then the set $\mathcal{E}_1$ of points $P$ for which $Q_1$, $Q_2$, $Q_3$ are collinear, contains the points $A_1$, $A_2$, $A_3$, $B_1$, $B_2$, $B_3$, $C_1$, $C_2$, $C_3$. It is either the whole plane or else a conic through $A_1$, $A_2$, $A_3$, $C_1$, $C_2$, $C_3$, and*