

THE ORIGINS AND HISTORY OF THE FIELDS MEDAL

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SUMMARIES

The Fields Medal is the most distinguished international award in mathematics. John Charles Fields felt strongly the lack of a Nobel Prize in mathematics. He was also disturbed, as Chairman of the Committee of the 1924 International Mathematical Congress, by the scars left from the Versailles Treaty which marred the international character of the Congress. This paper traces the evolution of the award from incidents in Fields' background, through its formal inception at meetings of the University of Toronto Committee for the 1924 Congress, to its eventual establishment and the first awards at the Oslo International Congress in 1936. Included are a list of all Fields Medal winners to date, the text of Fields' proposal for the establishment of the award, and relevant excerpts from minutes of the Toronto Committee, and a photograph of the medal

La "Fields Medal" est le prix le plus distingué en mathématiques. John Charles Fields ressentait profondément l'absence d'un prix Nobel en mathématiques. Il fut également troublé, comme président du Comité du Congrès International de mathématiques de 1924, par les cicatrices causées par le Traité de Versailles, qui dénaturait le caractère international du congrès. Cette étude s'occupe de l'histoire du prix à partir du temps d'arrière incidents dans la vie de Fields, par le début formel à l'occasion des réunions du Comité de l'Université de Toronto pour le Congrès de 1924, jusqu'au moment où il fut finalement établi avec la distribution des prix à l'occasion du Congrès International d'Oslo en 1936. L'étude comprend aussi une liste de tous les gagnants des "Fields Medals" jusqu'à présent, le texte de la proposition de Fields afin d'établir le prix, extraits pertinents des procès-verbaux dressés aux réunions du Comité de Toronto et une photo de la médaille.

The Fields medal is often referred to as the "Nobel Prize of Mathematics." Although this may be a misnomer, the existence of the award is undoubtedly related to the fact that Alfred Nobel chose not to include mathematics in his areas of recognition. There is no documentary evidence to explain this exclusion, but the general gossip in the mathematical community attributes it to a personal conflict between Nobel and the distinguished Swedish mathematician Magnus Gotha Mittag-Leffler (1848-1927). The legend is backed by J. L. Synge [7 February 72]: "It was from Fields that I heard of the difficulty between Nobel and Mittag-Leffler. I gather that it was a matter of personal jealousy,.... To anyone who regards mathematics as 'the queen of sciences', its exclusion from the Nobel awards is indeed strange...." A brief summary of Fields' early career establishes his connection with Mittag-Leffler and also helps to shed light on the attitudes that led him to establish the award that bears his name.

John Charles Fields (1863-1932) received his B.A. from the University of Toronto in 1884 and his Ph.D. from Johns Hopkins in 1887. After teaching there until 1889, and at Allegheny College in Pennsylvania until 1892, he spent a decade in Europe continuing his studies. "This long period of study,...exercised a decisive influence on his life and outlook,.... Of the connections which he established, perhaps the most important was an enduring friendship with Mittag-Leffler." [Synge 1933a, 131] In 1902, Fields came to the University of Toronto, where he remained until his death three decades later. [For additional biographical and bibliographical details, see Parks 1932, Synge 1933a and b, Tropp 1971, Wallace 1949, 163.]

Another factor that had a strong effect on Fields' attitude was the bitter feeling among various nationals resulting from World War I and the Versailles Treaty. The regular sequence of International Mathematical Congresses, begun in Zürich in 1897, was broken by the war. The International Mathematical Union was established in 1923, with the intention of re-establishing the International Congresses. (See Appendix III for further details on this IMU and the present one founded in 1950.) However, it excluded nationals from the Central Powers and thereby also excluded them from participation in a Congress. The strong feelings both for and against such exclusion threatened the success of the Congress planned for 1924. Despite the difficulties arising from this emotional environment, Fields conceived and successfully promoted a Congress which was held in Toronto in 1924 under the regulations of the International Mathematical Union. Of Fields' views about exclusion, Synge [1933a, 132] says:

"I do not think that he himself approved strongly of the prohibitory clauses in the regulations of the Union; indeed, I feel confident that he would have welcomed the opportunity of organizing a truly international congress in Canada. But he had sympathy with those who adhered strongly to the Union, and realized

that they would not give the congress their approval if held independently."

And in a more recent communication:

"An International Mathematical Congress was due to be held in 1924, but there was friction between those who wanted the Germans excluded and those who wanted them included. Fields took the former view. He had traveled much in Europe and knew many mathematicians personally; from these contacts he deduced that a Congress in Toronto was feasible if funds were available, and with stubborn determination persuaded the Dominion Government and the Provincial Government of Ontario to provide grants for travel subventions -- I think the sum was \$25,000 each." [Synge 14 Jan 72] These grants were later supplemented by \$2,000 from each government and \$6,500 from the Carnegie Foundation. [*Proceedings* 1924, 69]

From these comments, it would appear that Fields had mixed feelings about the Union's exclusion requirements. However, a memo (which will appear later in this paper) in which Fields first outlines his plan for a medal in mathematics, is very specific about the international character of that award. There are no exclusions. His decision to organize a Congress under the regulations of the Union appears to be the result of his judgment that this was the only way to have a successful meeting.

Another aspect to be considered is Fields' commitment to the importance of mathematical research. "...he urged the importance of academic research not only for its own sake, but also on account of ultimate material results. ...His long sojourn to Europe had given him views on the function of a University and the place of the University professor in the community rather different from those prevailing in North America at the time of his return. To these views, he adhered firmly, insisting that research was at least as important a function as the instruction of undergraduates, Two of his ambitions remain unrealized: one was to see the Graduate School at Toronto divorced from undergraduate work, in charge of a separate staff; the other was the establishment of research professorships attached to the Royal Canadian Institute." [Synge 1933b, 154]

From my conversations with individuals at the University of Toronto, correspondence with Professor Synge and perusal of Fields' papers and notebooks in the University of Toronto Library, I picture a man who was very meticulous, well organized and most importantly, had a tenacity once he set out to achieve a goal that continued until that objective was achieved. He also appeared to insist on dealing with minute details himself, rather than delegating them to others. Additionally, he appeared to have strong pride and attachment to his country and his university.

Although Fields' feelings about the need for an international award in mathematics may be traced back to his early European study decade and his association with Mittag-Leffler, it was the 1924 Congress that provided the vehicle. Records show that

between 1922 and 1924, he made three extensive trips to Europe (as well as eleven trips to Ottawa, Quebec City and Montreal). His broad itinerary on each of these trips is evidence of his insistence on giving his personal attention to every aspect of the forthcoming Congress. The University of Toronto established a Committee of the International Congress in 1923, and it held its first meeting on November 17 of that year with Fields as chairman and J. L. Synge as secretary. The collected *Minutes* of that Committee (1923-1934) contain the only documented material that I know of pertaining to the origin and eventual establishment of the Fields Medal. The first mention of a Committee discussion regarding a medal for mathematics occurs at a meeting held on 24 February 1931. At this session, it was reported that there was a balance of \$2,700 on hand after meeting the expenses of the Congress and the cost of printing the *Proceedings*. The Committee then "resolved that the sum of \$2,500 should be set apart for two medals to be awarded in connection with successive International Mathematical Congresses through an international committee appointed for such purpose initially by the executive of the International Mathematical Congress, but later by the International Mathematical Union, the total cost of Medals to be about \$400,.... It was resolved that the custodian of these Funds should be the Royal Canadian Institute. It was resolved that Professors Fields and McLennan should be free to assign the application of the remaining funds to the foundation of a medal in the University..." [*Minutes*]

The next recorded meeting of the Committee occurred on 12 January 1932, with Fields still chairman. At this meeting, the Committee first rescinded the previous motion regarding the awarding of a medal in the University and the trusteeship of the fund. Fields also indicated support for the presentation of an international medal by major mathematical societies of the U.S., France, Germany, Switzerland, and Italy.

A memorandum entitled "International Medals for Outstanding Discoveries in Mathematics" was accepted and appended to these minutes [*Minutes*; see Appendix I for complete text.] This document, signed by Fields, outlined the procedure, principles and underlying philosophy of the proposed awards. On the character of the awards, Fields stated: "It would be understood, however, that in making the awards while it was in recognition of work already done it was at the same time intended to be an encouragement for further achievement on the part of the recipients and a stimulus to renewed effort on the part of others." Fields indicated that he viewed this type of award as "...a new departure in the matter of international scientific cooperation..." His concept was a sharp departure from the basis of the awards established by Nobel. The post-World War I dissension and its nationalistic impact was also reflected in his statement about recognition: "...the medals should be of a character as purely international and impersonal as possible. There should not be attached to them in any way the name of any country, institution or person." The last word of this

sentence is enlightening. Fields did not want his or anyone else's name attached to the award. Had he lived to see this proposal adopted, he would have opposed naming it after any individual donor, including himself.

With the Committee's acceptance of his memorandum, Fields began making preparations to present the proposal to the 1932 International Congress which was scheduled to meet in Zürich in September. In May of that year, however, he fell ill, and he died on August 9 of a cerebral hemorrhage. Synge writes: "When he was near death, he sent for me to be present with his lawyer when he made his will. He could hardly speak and the lawyer had some difficulty in making out what he wanted to have done. As I recall it, the will was saying that he left his estate...for prizes to be awarded at the International Congress of Mathematicians.

"After his death, I went to the Congress in Zurich in 1932 and told them of the offer.... This was discussed and the offer accepted, after, I think, a little opposition from some who disapproved of such prizes. Perhaps I should insert here something that Fields told me and which I later verified in Sweden, namely, that Nobel hated the mathematician Mittag-Leffler and decided that mathematics would not be one of the domains in which Nobel prizes would be available. So Fields was setting up rival prizes for mathematicians, much more modest of course." [Synge 14 Jan 72]

The germane provision of Fields' Last Will and Testament (after monetary bequests to Mrs. Julia Agnes Sinclair and his brother, Albert Franklin Fields) is "...to transfer and pay over the balance of the residue of my Estate to John Lighton Synge, ...and the person for the time being the Premier of the Dominion of Canada in trust ...for the purpose of providing out of income thereof prizes to be attached to the International Mathematical Congress and also Medals. The Medals and Prizes aforesaid are to be designated by committees from time to time appointed for that purpose by the Executive Committee or other Committees from time to time appointed by the meetings from time to time held of the International Mathematical Congress." [Fields 1932, 2-3]

The Toronto Committee held its next meeting on 16 January 1933 with H. J. Cody, President of the University, as chairman. The proposal was accepted at this meeting, and the medalist selection was announced as consisting of "Birkhoff, ...with Prof. Severi as chairman..." [*Minutes*] The Toronto Committee further reported that it had been informed of the provisions in Fields' will and concluded with adoption of procedures for designing a medal and selection of a designer.

The Committee's final official meeting on 4 January 1934 was devoted to the establishment of a Trusteeship, the terms of Fields' will related to this, and contingency provisions dealing with a lack of funds, a surplus of funds, or the lack of a continuation of the holding of International Congresses [see Appendix II for appropriate excerpts from the *Minutes*].

In 1936, the International Congress met in Oslo, and the first Fields Medals were awarded to Professor L. V. Ahlfors (Harvard University) and Jesse Douglas (Massachusetts Institute of Technology). There were no awards presented for 14 years due to World War II, and the next ones were made at the 1950 Congress in Cambridge Massachusetts to Laurent Schwartz (University of Nancy) and Alte Selberg (Institute for Advanced Study, Princeton). Since then, two medals have been awarded every four years at the International Congress with the exception of 1966 and 1970, when accumulated income made it possible to make four awards. The subsequent medals have been awarded as follows:

1954 (Amsterdam)	Kunihiko Kodaira [Princeton University] Jean Pierre Serre [University of Paris]
1958 (Edinburgh)	Klaus Friedrich Roth [University of London] René Thom [University of Strasbourg]
1962 (Stockholm)	Lars V. Hörmander [University of Stockholm] John W. Milnor [Princeton University]
1966 (Moscow)	Michael Francis Atiyah [Oxford University] Paul J. Cohen [Stanford University] A. Grothendieck [University of Paris] Stephen Smale [Univ. of California, Berkeley]
1970 (Nice)	Alan Baker [Cambridge University] Heisuke Hironaka [Harvard University] S. P. Novikov [Moscow University] J. G. Thompson [Cambridge University]
1974 (Vancouver)	Enrico Bombieri [University of Pisa] David Mumford [Harvard University]

"With regard to the years 1966 and 1970 the Congress made four awards rather than two. This was made possible because of accumulated income being held by the National Trust Company. In 1970 Dr. S. P. Novikov did not attend the International Congress in Nice and therefore did not receive his award. In September 1971 the Executive Committee of the I.M.U. met in Moscow and on September 20th at a luncheon given by the hosts, the medal was awarded to Dr. Novikov by the Past President Henri Cartan. At the same time Dr. Novikov was informed that the \$1,500 cash award was being held in Trust for him in Toronto." [Claringbold 6 Nov 74]

APPENDIX I

International Medals for Outstanding Discoveries in Mathematics

(This document referred to earlier is signed by Fields, but not dated. It was attached to the *Minutes* of 12 January 1932. Prof. Syngé also sent me a copy of the document with the following comment: "I did unearth the original memo in which Fields outlined his plan. ... It is undated, but must have been written in 1932, the year of his death." [Syngé 14 Jan 72])

It is proposed to found two gold medals to be awarded at successive International Mathematical Congresses for outstanding achievement in mathematics. Because of the multiplicity of the branches of mathematics and taking into account the fact that the interval between such Congresses is four years it is felt that at least two medals should be available. The awards would be open to the whole world and would be made by an International Committee.

The fund for the founding of the medals is constituted by a balance left over after financing the Toronto Congress held in 1924. This must be held in trust by the Government or by some body authorized by government to hold and invest such funds. It would seem that a dignified method for handling the matter and one which in this changing world should most nearly secure permanency would be for the Canadian Government to take over the fund and appoint as its custodian say the Prime Minister of the Dominion or the Prime Minister in association with the Minister of Finance. The medals would be struck at the Mint in Ottawa and the duty of the custodian would be simply to hand over the medals at the proper time to the accredited International Committee.

As things are at present a practicable course of procedure would seem to be for the Executive Committee of a Congress to appoint a small international committee authorized to add to its number and call into consultation other mathematicians as it might deem expedient. The Committee would be expected to decide on the ones to whom the awards should be made some three months in advance of the following Congress. Its decisions would be communicated to the President and Secretary of the Organizing Committee of the Congress, this committee having the duty of communicating to the Prime Minister of Canada the names of the recipients in order that the medal might be prepared in time and forwarded to the President of the Organizing Committee. Immediately on the appointment of the Executive Committee of the Congress the medals would be handed over to its President. The presentation of the medals would constitute a special feature at some general meeting of the Congress.

In the above arrangements the role of the Organizing Committee might be taken over by the Executive of the International Mathematical Union at some time in the future when that organization has been generally accepted.

In coming to its decision the hands of the International Committee should be left as free as possible. It would be

understood, however, that in making the awards while it was in recognition of work already done it was at the same time intended to be an encouragement for further achievement on the part of the recipients and a stimulus to renewed effort on the part of others.

In commenting on the work of the medalists it might be well to be conservative in one's statements, to avoid invidious comparisons explicit or implied. The Committee might ease matters by saying that they had decided to make the awards along certain lines not alone because of the outstanding character of the achievement but also with a view to encouraging further development along these lines. In this connection the Committee might say that they had elected to select subjects in Analysis, in Geometry, in the Theory of Groups, in the Theory of Numbers etc. as the case might be. When the Committee had come to an agreement in this sense the claims for recognition of work done along the special lines in question could be considered in detail by two smaller groups or subcommittees with specialized qualifications who would have authority to take into consultation or add to the subcommittees other mathematicians of specialized knowledge.

With regard to the medals themselves, I might say that they should each contain at least 200 dollars worth of gold and be of a fair size, probably 7.5 centimetres in diameter. Because of their international character the language to be employed it would seem should be Latin or Greek? The design has still to be definitely determined. It will have to be decided on by artists in consultation with mathematicians. The suggestions made in the preceding are tentative and open to consideration on the part of mathematicians.

It is not contemplated to make an award until 1936 at the Congress following that at Zurich during which an international Medal Committee should be named.

The above programme means a new departure in the matter of international scientific cooperation and is likely to be the precursor of moves along like lines in other sciences than mathematics.

One would here again emphasize the fact that the medals should be of a character as purely international and impersonal as possible. There should not be attached to them in any way the name of any country, institution or person.

Perhaps provision could be made as soon as possible after the appointment of the Executive of the Zurich Congress for the consideration by it of the subject of the medals, and the appointment without undue delay of a Committee on the award of the medals to be made in connection with the Congress of 1936.

Suggestions with regard to the design of the medals will be welcome.

(signed)

J. C. FIELDS
Research Professor of Mathematics
University of Toronto

APPENDIX II

Excerpts from *Minutes of the Organisation (sic) Committee of the International Mathematical Congress*

(In 1923, the original Committee consisted of: Sir Robert Falconer, Prof. J. C. Fields, Prof. J. P. McMurrich, Mr. Vincent Massey and Prof. J. C. McLennan. I have not attempted to reproduce the complete 1931-1934 file, but merely those portions which I felt were relevant to this topic.)

Meeting of 24 February 1931 (Professors Fields, McLennan, Chant and Synge present): ...It was resolved that the sum of \$2500 should be set apart for two medals to be awarded in connection with successive International Mathematical Congresses through an international committee appointed for such purpose initially by the executive of the International Mathematical Congress, but later by the International Mathematical Union, the total cost of Medals to be about \$400,.... It was resolved that the custodian of these Funds should be the Royal Canadian Institute. It was resolved that Professor Fields and McLennan should be free to assign the application of the remaining funds to the foundation of a medal in the University,.... It was resolved that a final meeting of the Committee should be held in the autumn of 1931.

Meeting of 12 January 1932:...

4. *It was decided to rescind a previous resolution with regard to the presentation of a medal in the University;...*

6. *It was decided to allot a maximum of \$600 for the design of the medal.*

7. *It was decided to rescind the former resolution that the Royal Canadian Institute be guardians of the fund. It was decided that the Chairman should see the Prime Minister of Canada to arrange if possible how permanence of capital and of interest of the fund might be assured....*

9. *The Chairman reported that the following bodies had expressed approval of the scheme for the presentation of the International medal: American Mathematical Society, Société Mathématique de France, Deutsche Mathematiker Vereinigung, Société Mathématique Suisse, Circolo Matematico di Palermo.*

Meeting of 16 January 1933:...

4. *...(1) The International Congress of Mathematicians held at Zurich accepts with thanks the offer made by the late Professor Fields, chooses a small committee consisting of the following gentlemen: Birkhoff, Carathéodory, Cartan, Severi, Takagi. The committee is empowered to complete itself in the event of one or more of these gentlemen declining the election or if other circumstances render this necessary. It was further stated that Professor Severi of Rome had been chosen as the president of this small*

committee, which will decide on those to whom the medals shall be awarded at the Congress in Oslo in 1936....

8. A letter from the Prime Minister, Mr. R. B. Bennett, was read stating that the Dominion Government could not undertake the duties of a Trustee, and recommending that a trust company be asked to act.

9. The contents of the will of Dr. J. C. Fields were communicated to the Committee; the will provides for the establishment of prizes in connection with the International Mathematical Congress Medals and also medals, the present committee having the duty of designating permanent Trustees. The funds are provided by the residue of Dr. Fields' estate after certain annuities have been paid. On the motion of Professor Chant, seconded by Mr. Dobson, it was resolved:

That the Board of Governors of the University of Toronto be approached through the President, and asked whether they would be willing to act as permanent trustees of the medal fund and of the prize fund to be established under the terms of the will of the late Dr. Fields.

10. A letter from the Master of the Royal Canadian Mint was read. At present rates the cost, inclusive of striking and material for two medals, would be \$414 for fine gold and \$308 for 18 carat gold, if the size is 2-13/16 in = 7.14 cm. It was resolved that the medals should be struck at the Mint.

11. It was resolved to offer the commission for the design of the medals to Dr. R. Tait McKenzie of Philadelphia, the fee to be \$1100 (Canadian Funds), this fee to be inclusive of the design and the cutting of the dies for two faces.

12. A subcommittee, consisting of Dean DeLury, Professor Burton and Professor Synge, was appointed to approve the design.

Meeting of 4 January 1934:

1. A letter from Dr. Mouré was read stating that the Board of Governors of the University were willing to act as Trustees for the International Mathematical Congress Medals, but that they were not willing to act as Trustees for the Prize Fund to be established under the terms of the will of the late Dr. Fields.

2. It was resolved that the National Trust Company shall be the permanent Trustee of the Prize Fund to be established under the terms of the will of the late Dr. Fields and that the details of the terms of the Trust be decided by the Board of Governors of the University of Toronto in consultation with the Departments of Mathematics and Applied Mathematics of the University of Toronto. (The National Trust Company, Ltd. is still the permanent Trustee of the Prize Fund as established by this resolution.) [Adams 9 Feb 72]

3. The following resolution transferring to the Board of Governors of the University of Toronto the permanent Trusteeship of the Medal Fund was adopted:

Resolved, that since the Board of Governors of the University of Toronto have expressed their willingness to act as permanent trustees of the fund for the provision of medals to be awarded at successive International Mathematical Congresses, the property held in trust by this Committee, as set out in this resolution, be transferred to the Board of Governors of the University of Toronto to hold in trust under the terms set out in this resolution....

Terms of Trust:

(1) *In each year in which an International Mathematical Congress or International Congress of Mathematicians, hereinafter referred to as Congress, is about to be held, the Trustees shall, on receipt from the President or Secretary of the Organizing Committee of the Congress of the names of those to whom the medals have been adjusted, make provision for striking the medals, engraving on them the names of the recipients and sending them to the President of the Organizing Committee of the Congress.*

(2) *Two medals shall be awarded at each Congress and they shall be struck in gold, unless the funds available should prove insufficient or the Trustees should receive from an International Mathematical Congress or a body designated by a Congress an official expression of a desire to change this arrangement. Under these circumstances the Trustees shall be at liberty to have the medals struck in cheaper material and give the available income as cash prizes with the medals.*

(3) *If at any time the funds should be more than sufficient, in the opinion of the Trustees, to make reasonable provision for the award of the medals in the future, the surplus funds shall be awarded as prizes to the recipients of the medals.*

(4) *In the event of no Congress being held for a period of fifty years, the above terms of trust shall lapse, and the Trustees shall use the fund either to establish International Mathematical Scholarships or to further in some other way the progress of mathematics.*

(5) *The opinion of the Trustees shall be final as to whether a gathering of mathematicians is a Congress in the sense of Clause (1) of these Terms of Trust.*

APPENDIX III

The International Mathematical Union

The chronology of the International Mathematical Union's original formation, dissolution and eventual rebirth has proved to be difficult to document. I report what I have learned to date, hoping that a future paper will be more inclusive.

In 1919 the International Research Council was founded, but it was not truly international, since it excluded representatives of the Central Powers. [Frostman 18 Apr 75] In 1923 an

International Mathematical Union was formed. It too lacked a truly international character. This is evident from Fields' 1932 memo: "...the role of the Organizing Committee might be taken over by the Executive of the International Mathematical Union at some time in the future when that organization has been generally accepted." [Appendix I, Paragraph 4] In 1931, the International Research Council was disbanded and was replaced by an International Council of Scientific Unions. [Frostman 18 Apr 75]

At a general meeting of the International Mathematical Union held during the 1932 International Mathematical Congress (Zürich, 11 September), the following events occurred: first, a report by the secretary indicated that the financial status was secure. Then the assembled members voted (23 in favor, 16 opposed, 5 abstentions) to liquidate the Union and deposit its funds in the Banque de France. This action was followed by the appointment of a Commission to study anew the question of permanent international collaboration and present its recommendations for a new organization to the 1936 International Congress in Oslo. [Valiron 1933] The year 1936 was not the best to discuss an international collaborative organization!

The present International Mathematical Union was founded in New York in August, 1950 [Yearbook, 405] and reacquired membership in the International Council of Scientific Unions in 1952 [Frostman 18 Apr 75]. In 1962, at the Stockholm Congress, the International Mathematical Union became involved in structural details of the Congress, thus finally implementing Fields' 1932 suggestion.

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THE FIELDS MEDAL

Obverse: Head representing Archimedes facing right, in the field is the word *ARCHIMEDOS* in Greek capitals and the artist's monogram and date (*RTM, MCXXXIIO.*) The inscription reads *TRANSIRE SVVM PECTVS MUNDOQVE POTIRE.* (To transcend one's human limitations and master the universe.)

Reverse: The inscription on a tablet reads *CONGREGATI EX TOTO ORBE MATHEMATICI OB SCRIPTA INSIGNIA TRIBVSRE.* (Mathematicians gathered together from the whole world honor noteworthy contributions to knowledge). In the background is Archimedes' famous sphere inscribed in a cylinder.

The inscriptions were composed by Professor G. Norwood of the University of Toronto. [Synge 17 Dec 74]

Photographs courtesy of the Royal Canadian Mint, Ottawa, Ontario.

The medal was designed by the noted Canadian sculptor Dr. Robert Tait McKenzie. His portrait of Archimedes evolved from "more than thirty pictures collected by Prof. David Eugene Smith, which show the ideas of many artists. The sculptor followed his own impression from reading his life and works. He shows the sage as a man of mature age, vigorous, with curly hair and beard, straight Greek nose and prominent brow." [Brown 20 Nov 1974] Regarding his interpretative portrait of Archimedes, McKenzie wrote to Synge:

"I feel a certain amount of complacency in having at last given to the mathematical world a version of Archimedes which is not decrepit, bald-headed, and myopic, but which has the fine presence and assured bearing of the man who defied the power of Rome." [Synge 20 Dec 74. For a biography of McKenzie, see Hussey 1929]

The model for the medal, now hanging in the Mathematics Department of the University of Toronto, was given by J. L. Synge to Prof. G. de B. Robinson who graduated from Toronto in 1923, continued his studies at Cambridge, and has been in the Mathematics Department at Toronto since 1931.