

INSTITIÚID ÁRD-LÉIGHINN BRÁILLE ÁTHA CLIATH
(Dublin Institute for Advanced Studies)

Annual Report of the work of the
Institute and its Constituent
Schools presented by the Council
to the Minister for Education in
respect of the Financial Year

1945-1946.

INSTITIÚID ÁRD-LÉIGHINN BHAILE ÁTHA CLIATH
(Dublin Institute for Advanced Studies)

Annual Report of the work of the Institute and
its Constituent Schools presented by the Council
for the Financial Year 1945-46.

In accordance with the provisions of Section 29 of the Institute for Advanced Studies Act, 1940 (No. 13 of 1940), the Council of the Institute has the honour to present to the Minister for Education for submission to the Government a report of the work and activities of the Institute and its Constituent Schools for the financial year ending 31st March, 1946.

The general purpose which it is hoped to accomplish is clearly stated in the Act establishing the Institute, namely, the Institute for Advanced Studies Act, 1940 (No. 13 of 1940) and in the Establishment Orders establishing the two Constituent Schools, namely, the Institute for Advanced Studies (School of Celtic Studies) Establishment Order, 1940, and the Institute for Advanced Studies (School of Theoretical Physics) Establishment Order, 1940, and need not be referred to here. It is deemed desirable, however, to include in the report for the purposes of record certain particulars about the Constitution of the Council of the Institute and of the membership of the Governing Boards of the two Constituent Schools on the 31st March, 1946.

The report is presented under the following principal heads:-

- 1^o. Constitution of the Council of the Institute and of the Governing Boards of the two Constituent Schools on the 31st March, 1946.
- 2^o. Report of the Governing Board of the School of Celtic Studies.
- 3^o. Report of the Governing Board of the School of Theoretical Physics.

1^o. (a) Constitution of the Council of the Institute.

CHAIRMAN:

The Reverend Patrick Browne, M.A., D.Sc.;

EX-OFFICIO MEMBERS:

Dr. Arthur W. Conway, M.A., D.Sc., Sc.D., LL.D., F.R.S.,
President, University College, Dublin;

Dr. Ernest H. Alton, M.A., Litt.D.,
Provost, Trinity College, Dublin;

Dr. T. P. C. Kirkpatrick, M.D., Litt.D., D.Litt., F.R.C.P.I.,
President, Royal Irish Academy.

MEMBERS APPOINTED BY THE GOVERNING BOARDS OF THE CONSTITUENT SCHOOLS:

Right Reverend Monsignor Patrick Boylan, D.D., M.A., D.Litt.;

Professor Thomas F. O'Rahilly, M.A., D.Celt.Litt.;

Professor Felix E. W. Hackett, M.A., M.Sc., Ph.D.;

Professor Albert J. McConnell, M.A., M.Sc., Sc.D., F.T.C.D.

(b) Constitution of the Governing Board of the School of Celtic Studies on the 31st March, 1946.

CHAIRMAN:

Right Rev. Mgr. Patrick Boylan, D.D., M.A., D.Litt.;

SENIOR PROFESSORS:

Thomas F. O'Rahilly, M.A., D.Celt.Litt.;

Richard I. Best, D.Litt.

APPOINTED MEMBERS:

Miss Eleanor Knott, M.A., D.Litt.;

Miss Áine de Paor, M.A., Ph.D.;

Reverend John Ryan, S.J., M.A., D.Litt.;

Reverend Francis Shaw, S.J., M.A.;

Liam Ó Buachalla, M.Comm., H.Dip. in Ed.;

Liam Ó Domhnaill;

Edward MacLysaght (Éamonn Mac Giolla Iasachta), M.A., M.R.I.A.;

Ernest Gordon Quin (Earnán Ó Cuinn), M.A., F.T.C.D.

(c) Constitution of the Governing Board of the School of Theoretical Physics on the 31st March, 1946.

CHAIRMAN:

Arthur W. Conway, M.A., D.Sc., Sc.D., LL.D., F.R.S.;

SENIOR PROFESSORS:

Erwin Schroedinger, M.A., Ph.D., D.Sc.;

Walter Heitler, Ph.D.

APPOINTED MEMBERS:

Edmund T. Whittaker, Sc.D., LL.D., F.R.S.;

William H. McCrea, M.A., Ph.D.;

Felix E. W. Hackett, M.A., M.Sc., Ph.D.;

Albert J. McConnell, M.A., M.Sc., Sc.D., F.T.C.D.;

Alfred O'Rahilly, M.A., D.Sc., D.Phil., D.Litt.;

George R. Keating, M.Sc.;

Thomas Edwin Nevin, D.Sc.;

Ernest T. S. Walton, M.A., M.Sc., Ph.D., F.T.C.D.;

Thomas S. Wheeler, Ph.D., D.Sc., F.R.C.Sc.I.

2°. Report of the Governing Board of the School of Celtic Studies

(1) PROFESSORS, STAFF AND EXTERN WORKERS.

Professors:

Thomas F. O'Rahilly, Senior Professor and Director of the
School;

Richard I. Best, Senior Professor;

Michael A. O'Brien, Professor. (Resigned 31st Oct. 1945).

Assistant Professors:

Brian Ó Cuív;

Seán Mac Airt;

James P. Carney. (Assistant until 3rd December, 1945,
when he was appointed Assistant Professor);

Reverend Canice Mooney, O.F.M. (Appointed 25th Feb. 1946).

Assistant:

Miss Sheila Falconer.

Scholar:

Miss Máire Mhac an tSaoi. (Resigned 22nd October, 1945).

Extern Workers commissioned to work for the School:

Risteárd B. Breathnach;

Séamus Ó H-Innse;

Liam Price;

Rev. Seán Ó Catháin, S.J.;

Rev. Shán Ó Cuív;

Rev. T. A. Jennings;

Mrs. Mary Ellen Carney;

Dr. Séamus Ó Ceallaigh.

(2) THE WORK OF THE SCHOOL DURING THE YEAR.

Among the branches of Irish learning on which work was done during the year under review may be mentioned the following: the phonetics and vocabulary of the living Irish speech of to-day, the investigation of Irish place-names, the editing of unpublished Irish poems and prose-texts (dating from the fourteenth century onwards), the preparation of a complete edition of the best-known Middle Irish codex, the editing of early Irish genealogies as well as of some later genealogical tracts, the editing and translating of unpublished Irish Annals, and researches into the early history of Ireland.

T. F. O'Rahilly's Early Irish History and Mythology was completed in January 1946, and is now in the hands of the binder.

R. I. Best's edition of the Book of Leinster made further progress.

Of M. A. O'Brien's Corpus of Irish Genealogies the whole of the text is now in page-form, and only the Indexes remain to be set up.

Brian Ó Cuív began work on an edition of a comprehensive Glossary of the Irish of Ballyvourney, Co. Cork, composed by the late Mícheál Ó Briain. Part of this is now in type.

Of Seán Mac Airt's edition of the Annals of Inisfallen most of the text and translation is in type.

James Carney's edition of Poems on the O'Reillys, and of kindred genealogical material in prose, is partly in type.

So also is the text of the Irish version of The Quest of the Holy Grail, which is being prepared by Miss Sheila Falconer.

Miss Máire Mhac an tSaoi's edition of Dhá Sgéal Artúraíochta (viz. 'Eachtra Mhelóra' and 'Céilidhe Iosgaide Léithe') is nearly ready for publication.

R. B. Breathnach's Phonetic Description of the Irish of Ring, Co. Waterford is in type, except for the Index.

Séamus Ó H-Innse's edition of Miscellaneous Annals is all in type, except for a brief Appendix.

The first part of Liam Price's The Place-Names of Co. Wicklow was published in April 1945. Part two of this work has now been sent to press.

CELTICA. It is intended to print editions of shorter Irish texts, as well as articles and notes dealing with any of the Celtic languages, in a periodical publication entitled Celtica. At the end of the year under review the first number was nearly ready for publication, and part of the second number was in type. The contributors to the first number are Rev. Canice Mooney, O.F.M., Dr. Séamus Ó Ceallaigh, James Carney, Miss Máire Mhac an tSaoi, Brian Ó Cuív, and T. F. O'Rahilly.

Little work was done during the year on the collection of materials for a Dictionary of Classical Irish

(approximately, from the fifteenth to the eighteenth century). The great need of such a Dictionary is beyond question. Hitherto the work of excerpting from texts has been done by various members of the staff during odd moments, e.g. while they were awaiting proofs from the printer. But, as could have been foreseen, this method, or rather lack of method, is not only not conducive to rapid progress, but is in other respects unsatisfactory, for the work of excerpting, if it is to be properly done (and unless it is properly done it had better not be done at all), requires such knowledge and aptitude, as well as training and experience, as can hardly be looked for in a succession of casual workers. The experience of four years has confirmed the Director's opinion that the collection of materials for the Dictionary in question would require the exclusive services of at least three workers, namely, a thoroughly competent editor, whose duty would be to devote his whole time to the work, and two full-time trained assistants.

(3) STATUTORY PUBLIC LECTURE:

The Statutory Public Lecture for the year 1945-46 was delivered in the Physics Theatre, University College, Dublin, on Tuesday, 19th March, 1946, by the Reverend Canice Mooney, O.F.M. The subject of the lecture was Sgríbhneóirí Gaeilge d'Órd San Froinsias.

(4) PUBLICATIONS FROM THE SCHOOL:

During the year under review the following books were published from the School:-

		Date of Publication
21	<u>The Place-Names of Co. Wicklow. I. The Barony of Ballinacor North.</u> By Liam Price. pp. iv + 34. Price 2/-	7/4/45
22	<u>Cath Muighe Tuireadh.</u> Edited by Brian Ó Cuív. pp. 80. Price 3/-	27/7/45

Certain other works, e.g. Celtica, which ought to have appeared during the year have been unfortunately delayed owing to printing difficulties.

/P.T.O.

3°. Report of the Governing Board of the School of Theoretical Physics.

(1) PROFESSORS AND SCHOLARS.

Professors.

Dr. Erwin Schroedinger, Senior Professor. Director of the School up to 14th December, 1945.

Dr. Walter Heitler, Professor until 24th July, 1945, on which date he was appointed a Senior Professor by the President. On Dr. Schroedinger's resignation of the Directorship of the School on 14th December, 1945, Dr. Heitler was appointed to succeed him as Director.

Dr. Hwan-Wu Peng, Assistant Professor. (Took up duties on 4th July, 1945).

Scholars.

Rev. Dr. James R. McConnell, Scholar. (Left 31st August, 1945).

Dr. Sheila Power, part-time Scholar.

Rev. Dr. Pius Walsh, O.F.M., Scholar.

Mr. Friederich I. Mautner, Scholar.

Mr. Edward F. Fahy, part-time Scholar. (Left 30th September, 1945).

Dr. Ning Hu, Scholar. (Entered 30th January, 1946).

Mlle. Cecile Morette, Scholar. (Entered 25th February, 1946).

(2) SEMINAR.

Professor W. Heitler continued the Seminar lectures on selected topics of Nuclear Physics primarily intended for the Scholars of the Institute.

After the summer break Professor H. W. Peng resumed the Seminar lectures giving an account of his own work on the Perturbation Theory of the continuous spectrum in relation to Field Quantization. The attendance at the Seminar which included Professors and lecturers from the two Universities varied from 10 to 15.

(3) STATUTORY PUBLIC LECTURES.

The Statutory Public Lectures were delivered by Dr. A. W. Conway on February 12th and 19th, 1946, in the Physics Theatre, University College, Dublin. The title of the lectures was: "Quaternions and Geometry of Four Dimensions in Flat Space".

(4) COLLOQUIUM.

The Summer Colloquium was held from July 5th to July 18th, 1945. The attendance was 35. The visiting lecturers were Professor P. A. M. Dirac (Cambridge), Professor Max Born (Edinburgh) and Dr. L. Janossy (Manchester). Dr. Peng, who had just arrived to join the Staff of the School, also delivered three lectures to the Colloquium. Professor Dirac's lectures were on selected topics of Quantum-electrodynamics and also on some new work about Quaternions in relation to the Lorentz-group. Professor Born lectured

on his recent work concerning the theory of solids. Dr. Janossy gave an up-to-date account of Cosmic Radiation from the experimental point of view including his own work on penetrating showers.

(5) VISITING PROFESSOR.

From March 9th to 21st Professor Wolfgang Pauli (from the Institute for Advanced Study, Princeton, U.S.A.) was on a visit to this Institute. He gave three Seminar lectures on the "Meson Theory of Nuclear Forces" and one general lecture on "Elementary Particles and Field Quantization". The attendance at these lectures was excellent, varying from 25 to 30, and included members of University College, Dublin, Trinity College, Dublin and Queen's University, Belfast. Professor Pauli's visit proved most profitable for the work of the School. Through discussions with him a number of points were clarified and new lines of research were opened up.

(6) GENERAL LINES OF RESEARCH WORK.

Professor E. Schroedinger resumed his work on the general unified field theory and affine connections. He has now succeeded in treating the general (non-symmetrical) affine connection. He also published some work on certain probability problems occurring in the theory of nuclear reactions.

Professor W. Heitler (and his pupils) continued their work on Quantum-electrodynamics, the theory of Mesons and

Cosmic Radiation. In particular: Dr. S. Power investigated the question whether the soft component of cosmic radiation can originate as secondaries from mesons. Dr. P. Walsh began calculations on the scattering of fast protons by neutrons. Mlle. Morette started work on the production of mesons by slow protons.

Through Professor Pauli's visit the School learned about some important work, published on the continent during the war, which enables one to calculate the stationary states of a system from the mere knowledge of the collision cross sections. Dr. N. Hu took up this line of work with a view to ascertaining whether a meson can be bound by a proton or neutron.

Professor H. W. Peng completed his work on the Perturbation Theory in the continuous spectrum. He also made various contributions to the mathematical theory of Quantum-electrodynamics and joined in the work of Dr. N. Hu about the stationary states of a nucleon-meson system.

Mr. Mautner continued his work on Mathematical Logics and Group Theory.

(7) PUBLICATIONS FROM THE SCHOOL.

The following papers were published from the School during the year under review:-

No.

37 W. HEITLER and
P. WALSH

Theory of Cosmic Ray Mesons.

Revs. Mod. Phys. Vol. 17, Nos. 2-3,
pp. 252 - 262. Apr.-July, 1945.

- 38 F. MAUTNER and E. SCHROEDINGER. Infinitesimal Affine Connections with twofold Einstein-Bargmann Symmetry.
Proc. R.I.A., 50 A 13. (Read 9th Apr. 1945. Pub. 12th July, 1945).
- 39 P. G. GORMLEY and W. HEITLER. On the Connection of Dirac's Quantum-electrodynamics and the Theory of Radiation Damping. (Correction).
Proc. R.I.A., 50 A 17. (Read 13th Nov. 1945. Pub. 29th Nov. 1945).
40. E. SCHROEDINGER. Probability Problems in Nuclear Chemistry.
Proc. R.I.A., 51 A 1. (Read 12th Nov. 1945. Pub. 31st Dec. 1945).

(8) BOOK PUBLISHED.

E. SCHROEDINGER. Statistical Thermodynamics
(Cambridge University Press).

The book by W. Heitler mentioned in the previous report as being in preparation, namely: Elementary Wave Mechanics (Oxford University Press) has appeared.

D. MacGRIANNA

CLÁRATHÓIR

PÁDRAIG DE BRÚN

CATHAOIRLEACH

14^o Márta, 1946