

Imperial College Archives

B/GABOR/12

DENNIS GABOR F.R.S: LECTURE NOTES, PUBLICATIONS, BIBLIOGRAPHICAL INFORMATION AND OTHER PAPERS, 1924-1980

Dennis Gabor was an electronic engineer, physicist and humanist. His inventions include holography and the flat television tube and he was awarded the CBE in 1970 and the Nobel Prize for Physics in 1971 for his contribution to the field of physics.

Gabor was born on the 5 June 1900 in Budapest, Hungary to Bertalan Gabor, engineer, and Adrienne Kalman (Gabor), actress. He was the eldest of three sons and in 1915, at the age of 15, Dennis and his brother George built an epidiascope, a Tesla coil and had experimented with x-rays. Despite this precocious talent, Gabor's entrance in to University was delayed by a term of compulsory military service where he was posted to Italy.

When he returned in 1918, he attended Technical University in Budapest to study mechanical engineering and in 1921, he went on to study electrical engineering at the Technische Hochschule in Berlin where he obtained the Diplom-Arbeit. Following the award of a doctorate in Engineering in 1927 for his work on transient waveforms, Gabor gained employment at Siemens and Halske in Berlin.

In 1934, following the election of Hitler, Gabor came to England where he worked for the British Thomson Houston Company and married Marjorie Butler who also worked at BTH. Here he continued with his work on the plasma state as well as on electron beam properties in lamps, television tubes, electron microscopes and 3-D cinema image projection.

Gabor's brother, André, whom Gabor often referred to as Bandi, came to England in 1938, where he remained due to impending War in Europe, and where he and Dennis published mathematics and social science papers together throughout the 1950s. Dennis Gabor became a naturalised British citizen in 1946.

Dennis Gabor was appointed Reader in Electron Physics at Imperial College, London in 1948 and was elected Fellow of the Royal Society (FRS) in 1956. In 1958 he was appointed to personal Chair of Applied Electron Physics at Imperial College where he remained until his retirement in 1967. Gabor continued to work after his retirement from Imperial College, as a part time consultant for CBS Laboratories in Connecticut.

Dennis Gabor died on 9 February 1979 in South Kensington.

Introduction

This deposit has been arranged in chronological order with any undated material listed at the end of the appropriate section with the exception of the publications which are first arranged into alphabetical order by publication. The majority of the deposit is written in English unless stated otherwise and all publications are written by Dennis Gabor unless stated otherwise.

For other papers and correspondence of Dennis Gabor, see separate lists.

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B/GABOR **LECTURE NOTES**
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The lecture notes are arranged in chronological order by the date of the draft or copy and, where this is not given, by the date of the lecture. Where the date or location of the lecture is not given it is unknown.

- 1 'Microwave Techniques and Electron Probes' 22 Mar 1953
Surveying paper written for the Conference on The Physics of Ionized Gases given at Imperial College on 23 Mar 1953. Typescript. 5pp.
- 2 'Collaboration of Biologists and Engineers in Exploring the Nervous System' 4 Jun 1962
Draft of a talk given to the University College National Science Club on 4 Jun 1962. Typescript with annotations. 5pp.
- 3 'The Supreme Importance of Psychology in the Coming World' Jul 1964
Paper written for the Symposium on 'Understanding Human Nature' in Jul 1964. Typescript. 4pp.
- 4 'The Future of Western Civilization' 6 Oct 1966
Photocopy of an address given to the General Studies students of Imperial College on 6 Oct 1966. Typescript with attached diagram. 10pp.
- 5 'The Future Responsibility of Western Civilisation and the Responsibility of the Technologists' 9 Feb 1967
Photocopy of an address given to WINCON 67, the Eighth Winter Convention on Aerospace and Electronic Systems, Los Angeles on 9 Feb 1967. Typescript. 7pp.
- 6 'A Self-Optimizing Non-Linear Filter, Predictor and Simulator' n.d.
Photocopy of a talk written by D. Gabor, Dr. W. Wilby and Dr. R. Woodcock given at the 4th London Symposium on Information Theory. Refers to work in 1959. Typescript. 5pp.
- 7 'Population, Food and Energy in the Next Half Century' n.d.
Copy of an address given to the International Symposium on Science, Technology and the Progress of Mankind in Japan. Typescript. 6pp.

These are arranged alphabetically by publication and chronologically within this.

- 8 **Electrical Engineer Reference Book**
'Electron Optics' and 'Cathode Ray Tubes' Mar 1944
Proofs of the above articles along with correspondence with the publishers, George Newnes Limited, dated 17 Feb 1944 and 28 Mar 1944. Typescript. 10pp.
- 9 **Holographie**
Booklet. Inscribed 'from the author, 15 Apr 1975'. 49pp. 1973
- 10 **Informationsvermittlung mit Hilfe der Photographie**
'Die Holographie Anwendungen und n.d.
Forschungsergebnisse'
Extract of article. In German. 10pp.
- 11 **1st International Conference on Thermionic Generation**
'Inert Gas Filled Controllable Thermionic Generators' 1965
Article by D. Gabor, H. Fatmi and J. Nilson taken from the Proceedings of the 1st International Conference on Thermionic Generation. Inscribed 'To Prof. T. E. Allibone, FRS with the compliments of H. Fatmi'. 12pp.
- 12 'New Electron Emitters for Thermionic Generators' 1965
Article by D. Gabor, M. Albert, M. Atta, H. Fatmi and J. Greensmith taken from the Proceedings of the 1st Conference on Thermionic Generation. Inscribed 'To Prof. T. E. Allibone with the compliments of H. Fatmi'. 9pp.
- 13 **International Symposium on the Physical Problems of Colour Television**
'Un Tube Plat pour la Reproduction d'Images de 2-6 Jul 1957
Télévision, en Noir et Blanc et en Couleurs'
Summary of the Lectures given at the International Symposium on the Physical Problems of Colour Television, Paris from 2-6 Jul 1957. Gabor is lecture No.12. 1pp.
- 14 **Massachusetts Institute of Technology**
'Lectures on Communication Theory' 3 Apr 1952
Selection of lectures, written by Gabor, on the subject of Communication Theory and published as Technical Report No.238 from the Research Laboratory of Electronics, Massachusetts Institute of Technology. 48pp.

- Modern Developments in Thermodynamics**
 B/GABOR /12/15 Draft of the foreword for the book Modern Developments in Thermodynamics published by the Israel Programme for Scientific Translations in Sep 1974. 2pp. 8 Feb 1973
- Nobel Lecture**
 16 'Holography, 1948-1971' Dec 1971
 Copy of the Nobel Lecture given on 11 Dec 1971. Inscribed 'To young engineers as an encouragement! Dennis Gabor, Dec 1972'. 31pp.
- Optical Society**
 17 'Holograms as Optical Elements' 1 Feb 1967
 Draft of an article later published in the Journal of the Optical Society, Volume 57. Typescript. 7pp.
- Optik**
 18 'The Outlook for Holography' Feb 1969
 Article published in Band 28, Heft 5. 5pp.
- Physics in Industry**
 19 Galley proof of Gabor's contribution to Physics in Industry. 1pp. n.d.
- Principles of Optics**
 20 'Appendix II: Light Optics, Electron Optics and Wave Mechanics' 12 Feb 1959
 Proof of chapter from Principles of Optics. Stamped date on cover reads 12 Feb 1959. 9pp.
- Professional Careers for Graduate Scientists and Engineers**
 21 'Frontiers of Knowledge' Jul 1966
 Draft and proof of an article written for the 1968 edition. Attached is a letter from the editor asking Gabor to check for errors dated 25 Jul 1966. 4pp.
- Sapere**
 22 'Gli Ologrammi' Nov 1971
 Article published in Volume LXXII, No.742. In Italian. 13pp.
- Symposium on Quantitative Electron Microscopy**
 23 'Information Theory in Electron Microscopy' Apr 1964
 Draft of the diagrams which accompanied this lecture which was published in the Proceedings of the Symposium on Quantitative Electron Microscopy, Washington in Apr 1964. 3pp.

**Umrestung und neue Strategie bei Gebremstem
Wachstum**

- B/GABOR /12/24 'Der Schwere Weg zur Reifen Gesellschaft' 6-7 Jun 1974
- Abstract of a lecture given at the Forum der Textil-
Wirtschaft in Heidelberg from 6-7 Jun 1974. In German.
12pp.

TYPESCRIPT MATERIAL

This is material presumed to be written by Dennis Gabor
which do not denote their purpose. All available
information has been given.

- 25 'Three Dimensional Moving Pictures for Home
Entertainment, Advertizing and Special Applications'
Typescript photocopy. 8pp. 7 Feb 1953
- 26 Original drawings for a publication with a letter attached
from the North-Holland Publishing dated 1 Dec 1965.
Possibly submitted, but unused, with the article 'Optical
Image Synthesis (Complex Amplitude Addition and
Subtraction) by Holographic Fourier Transformation'
which was published by the North-Holland Publishing
Company in this year. 5pp. 1965
- 27 Photocopied diagrams. n.d.
1. 3D Projection by Holographic Screen
2. Large Radiotelescope
3. Holographic Equivalent of a Schimdt System
4. Reflectance of Multiple Dielectric Sheets
5. Detail of a Large Radioscope
- 28 'Communication Theory: Problems of Speech Analysis'
Draft. 16pp. n.d.
- 29 'Education 2000 AD'
Extract of article. 2pp. n.d.

BIOGRAPHICAL INFORMATION

- 30 'Towards a More Mature Society'
Interview with Dennis Gabor in The Journal of the
Education Association (US). Mar 1974
- 31 Tributes to Dennis Gabor by fellow physicists published
in Laser + Elektro-Optik, 11 Jahrgang, Number 2. In
English, French and German. 4pp. Jun 1979

B/GABOR **PHOTOGRAPHS**
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For other photographs of, and relating to, Dennis Gabor
see separate lists.

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| 32 | Dennis Gabor. | 1924 |
| 33 | Dennis Gabor on the occasion of receiving the honorary degree of Doctor of Science at Columbia University, New York. | 1975 |
| 34-37 | 4 photographs of research apparatus. | n.d. |

RELATED MATERIAL

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|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 38 | Programme for the 66. Conference Deutsche Gesellschaft für angewandte Optik in Berlin-Charlottenburg on 8-12 Jun 1965. Gabor was the first speaker on 8 Jun with a lecture on 'Optimale Ausnutzung des Informationsgehaltes von Photonen mittels Photographie'. | 8-12 Jun 1965 |
| 39 | Tribute to Dennis Gabor by Prof. J. B. le Poole and thank you speech of Gabor on the occasion of the award of a honorary degree of doctor of technical science from Delft University. Published in De Ingenieur, Jahrgang 83, Number 5. | 5 Feb 1971 |
| 40 | Mada (Science)
Hebrew journal. | May 1972 |
| 41 | Folder containing index of contents of the Gabor Library of CBS Laboratories. Last updated 17 Jan 1975. | 17 Jan 1975 |
| 42 | 'Sinclair Flat Screen is 25 Years Old'
Article published in the Electronic Times tracing the development of the flat screen television which mentions Gabor's contribution to it's history. | 19 Jul 1979 |
| 43 | Summary list of papers by Dennis Gabor from 1925-1978. Signed T. E. Allibone, 12 Feb 1980. | 12 Feb 1980 |

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