

Catalogue of the papers and correspondence of

Neil Ernest Wiseman

(1934-1995)

By Peter Harper and Timothy E. Powell

NCUACS catalogue no.154/4/07

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Title: Catalogue of the papers and correspondence of Neil Ernest Wiseman (1934-1995), computer scientist

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GENERAL INTRODUCTION

PROVENANCE

The papers were received for cataloguing from Cambridge University Library on 18 December 2006.

OUTLINE OF THE CAREER OF NEIL ERNEST WISEMAN

These biographical notes make extensive use of the appreciation given at Wiseman's funeral by his Cambridge colleague and former student Peter Robinson

<<http://www.cl.cam.ac.uk/research/rainbow/people/neilw.html>>

Neil Ernest Wiseman was born in Cowlinge near Newmarket, Suffolk on 19 May 1934. In 1950 he joined the Pye electronics company in Cambridge as an apprentice. He studied for a B.Sc. (Eng) degree in electrical engineering at Queen Mary College, University of London, 1954-1957. During this time he started working for the Mathematical Laboratory, Cambridge during the vacations, for example on the construction of a high speed photo-electric paper tape reader. His ability recognised, arrangements were made for him to spend two years at the University of Illinois, Urbana-Champaign to study for a master's degree in electrical engineering (awarded 1959). Here he worked as a research assistant in the Digital Computer Laboratory on the design of circuits for the new Illinois computer. On his return to Britain his call-up for National Service was deferred to enable him to take employment with Elliott Brothers (London) Ltd at Borehamwood, Hertfordshire - on behalf of the Ministry of Aviation. He worked for two years at Elliott Brothers as research engineer in charge of the advanced circuits and logical techniques group in the Data Processing Laboratory. It was here that he started working with tunnel diodes, which showed great promise as a high-speed technology.

In 1961 after ten years of intermittent contact Wiseman joined the staff of the University Mathematical Laboratory, Cambridge as Chief Engineer. He continued working with tunnel diodes and constructed a prototype store capable of running at 250 megahertz, a phenomenal speed for the time. The arrival of one of the world's first mini-computers, the DEC PDP-7 and its type 340 vector display, presented new challenges. Wiseman designed a high-speed data-link to connect this to the main Titan computer, which probably counts as the world's first distributed system. It proved a valuable research tool for work on computer aided design, both for mechanical components and for his own work on electronic circuits. The Rainbow integrated CAD system combined electronic design, computer graphics, data structures and the control of change in large bodies of data. He also began work on screen editors for text and later a television camera was connected to the PDP-7.

In 1970 Wiseman was approved for a PhD through the submission of published work and was appointed to a University Lectureship. He was immediately seconded to the Cambridge University Press where he employed his experiences with PDP-7 display in a project to design and implement a computerised type-setting system. Returning to the Computer Laboratory in 1973 he resumed his work on the Rainbow integrated CAD system with the new PDP-11 computer and Vector General display. He attracted a great number of PhD students who went on to academic posts around the world and in research laboratories in Britain and especially on the West coast of America. In the 1970s he collaborated with David Kindersley in the exploration of the mathematics underlying the aesthetics of lettering. Towards the end of 1977 he set up a consultancy company Fendragon Ltd with Kindersley and J. Harradine as directors (later joined by M.J. Jordan and P. Robinson), which operated in text processing and related areas.

Research in the Computer Laboratory developed with the Rainbow display project, which combined Wiseman's interests in electronic design and computer graphics. He ran the Diploma course in computer science, looked after general graduate admissions and played a key role in the establishment of the hardware laboratory for undergraduate practical work. He declined offers of chairs at other universities, preferring to remain in Cambridge. In 1983 he became a Fellow of Wolfson College and in 1986 a personal Readership in Computer Graphics was created for him. He died of cancer on 13 June 1995 after a year's illness.

DESCRIPTION

This small archive is principally concerned with two periods of Wiseman's career: the 1960s when he was Chief Engineer in the Mathematical Laboratory, University of Cambridge, and the late 1970s to early 1980s when was involved in a great range of computer consultancy work. It covers the period 1959-2002.

Section A, Biographical, consists solely of material printed from the web: photograph, appreciation by Peter Robinson at Neil Wiseman's funeral on 26 June 1995, bibliography and 'Neil Wiseman Memorial Fund'.

Section B, University Mathematical Laboratory (UML), Cambridge, is the largest in the collection. It documents Wiseman's research and involvement in a range of UML activities including tunnel diode work, Titan computer project, computer stores, data-links, computer aided design, computer graphics, text editors, television camera for the PDP-7 mini-computer and Diploma course. The documentation includes correspondence, notes, drafts, programs, data, specifications, circuit diagrams, technical memoranda, reports, and product literature. Colleagues represented in correspondence and as authors of memoranda and reports include D.W. Barron, W.S. Elliott, D.F. Hartley, G.B. Herzog

'Visiting from R.C.A.', R.M. Needham, C.R. Spooner, H.P.F. Swinnerton-Dyer, D.J. Wheeler and M.V. Wilkes. Companies involved in computer developments are also represented including Elliott Brothers Ltd, Ferranti Ltd and Plessey Company Ltd.

Section C, Lectures and publications, covers a period of just eleven years, 1963-1974 and, including only two publications, is hardly comprehensive in respect of the period covered. There are, however, notes of a small number of research talks given in Cambridge, 1963-1964, and a record of Wiseman's contribution to a course on computer engineering at the Cambridge College of Arts and Technology, 1966-1967.

Section D, Visits and conferences, covers a relatively short period, 1962-1967. Thirteen visits and conferences are documented including four visits to the USA and conferences in the UK organised by the Institution of Electrical Engineers and the Institution of Electronic and Radio Engineers.

Section E, Societies and organisations, is slight, with documentation of just four organisations with which Wiseman was associated. The most substantial body of material, committee papers and reports, relates to the Radio Components Research and Development (RCRD) Sub-committee 15: computer elements, which he joined in 1961, and which was wound up in 1965. The sponsoring ministry appears to have been the Air Ministry while the committee secretary was based at the Royal Radar Establishment, Malvern, Worcestershire.

Section F, Consultancy, has two components. The first provides some documentation, 1973-1978, of Wiseman's association with Graphical Software Ltd run by W.S. Elliott, Professor of Computing at Imperial College and a former Cambridge colleague. The second, much more substantial component, documents Wiseman's own company Fendragon Ltd from its foundation in 1977 to 1983. There are correspondence and papers relating to the founding and running of the company, client files and reports. Among the clients are small computer and electronics companies as well as major national organisations.

Section G, Correspondence, is the contents of an untitled folder, which comprised correspondence relating to career, research, patents, publications, equipment, speaking engagements, etc December 1959-1963 and documents relating to patents 1964 and 1969, found with the earlier correspondence.

Peter Harper
Bath 2007

SECTION A

BIOGRAPHICAL, A.1

2002

Material printed from website
<http://www.cl.cam.ac.uk/research/rainbow/people/neilw.html>
(as last updated 28 November 2002):
photograph, appreciation by Peter Robinson at Wiseman's
funeral on 26 June 1995, bibliography and 'Neil Wiseman
Memorial Fund'.

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Contents of folder so labelled divided into four for ease of reference: correspondence, project report and final report on investigation into tunnel diode computing circuits, patent application, offprints, etc.

B.13 'Tunnel Diode Multiplier Test Unit' 1962, n.d.

Contents of folder so labelled: circuit diagrams, typescript drafts 'Design for a Self-Checking Tunnel Diode Multiplier Device', 17 October 1962, 'A Design Study for a Fast Tunnel Diode Multiplier', 26 July 1962, etc.

B.14-B.15 'Wisp Machine' 1963-1964

Contents of folder so labelled divided into two for ease of reference: correspondence, manuscript working, manuscript and typescript notes.

Includes notes by D.W. Barron, W.S.Elliott, R.M. Needham and Wiseman: 'On making larger tunnel diode stores' (NEW), 20 March 1964, 'Store Prices' (WSE), 4 October 1963, 'Thoughts about a New Machine, (DWB) 11 October 1963, 'List Processing Machine' (NEW), 15 October 1963, 'Hardware and Software' (WSE), 18 October 1963, 'Using Titan as a Test-Bed' (RMN), 21 October 1963, 'Further thoughts about a New Machine' (DWB), 25 October 1963, 'On improving the efficiency of data storage in list processing M V W[ilkes] to see' (NEW), October 1963.

B.16-B.30 Contents of filing cabinet divider 1960-1969

B.16-B.22 'Titan Power Supply' 1960-1969

Contents of folder so inscribed divided into seven for ease of reference: correspondence, duplicated typescripts, specifications, technical drawings, etc.

B.23-B.24 'Titan - Power Supply' 1962-1966

Contents of folder so labelled divided into two for ease of reference: correspondence, notes of meetings, specifications, etc.

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B.25	'Magnetic Tape System (eng + atlas etc)' Contents of folder so labelled: correspondence, papers <i>re</i> layout of Atlas tape and instruction code. The correspondence was passed on to Wiseman from Cambridge colleagues W.S. Elliott and D.J. Wheeler.	1962-1964
B.26-B.28	'Odd Programs' Contents of folder so labelled divided into three for ease of reference: includes Wiseman's manuscript notes.	1963, n.d.
B.29-B.30	Correspondence and papers found loose at front of binder Two folders. Topics include file stores and tape problems.	1963-1966
B.31-B.39	Contents of filing cabinet divider	1960-1970
B.31-B.33	'Micro Program June 1960' Contents of folder so labelled divided into three for ease of reference: program sheets, notes of corrections.	[1960]-1961
B.34-B.35	'Mask Designers Aid' Contents of folder so labelled divided into two for ease of reference: includes manuscript notes, 'initial sketching routines', etc.	1965, 1967
B.36-B.39	'New Circuit Analysis Program' Contents of folder so labelled divided into four for ease of reference: includes correspondence, manuscript notes and diagrams, and earlier offprints.	1968-1970
B.40-B.48	Contents of filing cabinet divider	1961-1962

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B.40-B.42	'd.c. PTN Circuit Programs'	1961, n.d.
	Contents of folder so labelled divided into three for ease of reference: includes manuscript notes.	
B.43-B.45	'Tunnel Diode Balanced Pair Analysis Program'	1961-1962
	Contents of folder so inscribed divided into three for ease of reference: includes manuscript notes and technical memorandum by G.B. Herzog 'Visiting from R.C.A.'	
B.46	'Tunnel Diode Balanced Pair Synthesis Program'	1962, n.d.
	Contents of folder so labelled divided into two for ease of reference: includes manuscript notes.	
B.48	'Herzog's Balanced Pair Program'	1962, n.d.
	Contents of folder so labelled: includes some data on University Mathematical Laboratory, Cambridge EDSAC 2 Program Sheet.	
B.49-B.66	Contents of filing cabinet divider	1961-1964
B.49-B.57	'Data Tunnel Diode'	N.d
	Contents of folder so inscribed divided into nine for ease of reference: numbered data sheets, some headed 'Tunnel Diode Balanced Pair Analysis', graphs, etc.	
B.58	'PTN Circuit Graphs'	1961, n.d.
	Contents of folder so inscribed: includes graphs related to 'Balanced Pair Analysis Program', duplicated figures, etc	
	Most papers undated.	
B.59-B.65	'Titan Programming'	1962-1964
	Contents of folder so inscribed divided into seven for ease of reference: duplicated typescript notes and papers including 'Titan Programming papers 1-4', 'The Titan	

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Supervisor - A Preliminary Description', 'An Operating System for Titan', 'Titan Flexowriters', 'Provisional Report on Titan/Atlas Compatibility', 'Notes on the Titan Software Schedule', etc.

Authors of the notes and papers include D.W. Barron, D.F. Hartley, C.R. Spooner and H.P.F. Swinnerton-Dyer.

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|-----------|---|---------------------|
| B.66 | 'General Board Meetings' | 1963 |
| | Contents of folder so inscribed: agenda and papers for meeting, 10 May 1963, of the Committee of the General Board on the Mathematical Laboratory <i>re</i> progress of Titan computer project. | |
| B.67-B.75 | Contents of a filing cabinet divider | 1961-1969 |
| B.67-B.68 | 'Tunnel Diode Computer' | 1962, 1965,
n.d. |
| | Contents of folder so labelled divided into two for ease of reference: correspondence, 1962, 1965, manuscript notes, typescript notes and drafts including 'Tunnel Diode Large Scale Experiment April - December 1962', '1.5.62'; 'A proposed scheme for the construction of a small fast computer', 28 May 1962; 'Tunnel Diode Project Request for DSIR grant', n.d. and 'Tunnel Diode Computing Circuits 3/9/1238 Annual report on investigation supported by D.S.I.R being conducted at the University Mathematical Laboratory, Cambridge', n.d. | |
| B.69-B.71 | 'EDSAC III' | 1961, 1966-
1969 |
| | Contents of folder so inscribed divided into three for ease of reference: correspondence, 1966-1969, principally <i>re</i> SRC funded project on small tunnel diode computer, programme for SRC Electrical and Systems Engineering Committee Visit to Cambridge University Engineering Department, 19 May 1967, etc. | |
| | 1961 document: 'Preliminary Installation Instructions RQL Memory'. | |
| B.72 | 'Thin Films' | 1961, n.d. |
| | Contents of folder so labelled: manuscript notes and working: 'Stripline analysis', 'Strip Line', 'Driving thin film | |

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elements', etc; letter from supplier, 1 May 1961.

Most papers undated.

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|------------|--|------------|
| B.73 | 'Saturation Logic Circuits' | 1961, n.d |
| | Contents of folder so labelled: manuscript notes, graphs. | |
| | The graphs are dated August - September 1961. | |
| B.74 | 'Glasswork' | 1962-1964 |
| | Contents of folder so labelled: includes correspondence with suppliers. | |
| B.75 | 'Gain Frequency Goto Pair' | 1963, n.d. |
| | Contents of folder so labelled: graphs, manuscript working. | |
| | One sheet dated, 3 September 1963, remaining papers undated. | |
| B.76-B.105 | Contents of a filing cabinet divider | 1961-1970 |
| B.76-B.85 | 'Titan' | 1961-1964 |
| | Contents of folder so inscribed divided into ten for ease of reference: correspondence, manuscript notes, typescript notes for the file, memoranda, minutes of meetings on Titan progress, notes of visits and discussions with Ferranti Ltd, etc. | |
| | Includes notes and memoranda by W.S. Elliott. | |
| B.86-B.105 | 'Titan Move' | 1968-1970 |
| | Contents of folder so inscribed divided into twenty for ease of reference: correspondence and papers <i>re</i> the move of the Titan computer into new premises (New Museums site redevelopment). | |
| | Includes minutes of meetings, duplicated circulars, manuscript notes, architects drawings and specifications. | |

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| B.106-B.115 | Contents of a filing cabinet divider | 1962-1963 |
| B.106-B.114 | 'Titan Planning Meetings'

Contents of folder so inscribed divided into nine for ease of reference: duplicated typescript minutes of planning meetings, workshop meetings, progress meetings (Cambridge and Ferranti people), related papers etc.

The first planning meeting took place on 21 September 1962. There are however notes of earlier informal meetings. | 1962-1963 |
| B.115 | '"Multi-Hit" Survival Curve Fitting Program'

Contents of folder so inscribed: includes manuscript working and graphs. | 1963 |
| B.116-B.118 | Contents of a filing cabinet divider

Contents of folder inscribed 'Disk Logic etc. Bryant Data' divided into three for ease of reference: Includes product specifications, literature, manuscript note, duplicated typescript 'Disc File for Atlas and Titan', etc. | 1962-1963 |
| B.119-B.122 | Contents of filing cabinet divider

Contents of folder labelled: 'Package Assignment Programs' (IMP) divided into four for ease of reference.

Includes printed booklet 'Programming for EDASC 2', University Mathematical Laboratory Cambridge, 3rd edition September 1962, proof of Wiseman's paper 'Application of list-processing methods to the design of interconnections for a fast logic system', <i>Computer Journal</i> , 1963, duplicated typescript 'WISP 2 Programmers' Notes', 'Provisional version 8 April 1963, manuscript working, computer print-outs, 1963-1964, letter from Wiseman to B. Elliott at CERN, 3 March 1964. | 1962-1964 |
| B.123-B.126 | Contents of filing cabinet divider

University Mathematical Laboratory Cambridge technical | 1962-1968 |

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memoranda by Wiseman and publications by others found loose in binder.

The technical memoranda are 'An outline for the design of a fast digital computer' (with H.Schorr), May 1963 inscribed 'Withdrawn' on front cover and 'A Note on Compiling Display File from a data Structure', January 1968.

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| B.127-B.135 | Contents of a filing cabinet divider | 1963-1964 |
| | Contents of folder inscribed 'WISP on [Elliott] 803 [computer]' divided into nine for ease of reference: manuscript and typescript notes, computer print-outs, correspondence with Elliott Brothers, M.V. Wilkes (in the US), etc. | |
| B.136-B.145 | Contents of a filing cabinet divider | 1963-1964 |
| B.136-B.137 | 'Paper Slave' | 1963, n.d. |
| | Contents of folder so labelled divided into two for ease of reference: includes manuscript and typescript notes and drafts including 'The Slave Store of the Titan Computer' by Wiseman and D.J. Wheeler (and J.H. Tucker in respect of a second draft). | |
| | Most papers undated. | |
| B.138-B.140 | 'Slave Store' | 1963-1964 |
| | Contents of folder so inscribed divided into three for ease of reference: includes manuscript working, Ferranti Ltd Computer Department circuit diagrams, correspondence, departmental memorandum and report <i>re</i> slave store packages. | |
| B.141-B.142 | 'Titan on line MRC[Medical Research Council]+' | 1963-1964 |
| | Contents of folder so labelled divided into two for ease of reference: includes notes of 'Meeting at Mathematical Laboratory 20/5/63 between D.W. Barron, D.J. Wheeler, D.M. Blow', specifications for Data Link between MRC Argus and Cambridge Titan, correspondence between MRC LMB [Laboratory of Molecular Biology] (D.M. Blow, T. Gossling) and Mathematical Laboratory and equipment | |

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suppliers.

B.143-B.145 'Plessey - New Store - Specification' 1963-1964

Contents of folder so inscribed divided into three for ease of reference: correspondence and papers exchanged between W.S. Elliott at the Mathematical Laboratory and Plessey-UK Ltd and International Computers and Tabulators Ltd.

File opens with 'Proposal for 16K 50 bit stores for Cambridge', 5 February 1964

B.146-B.153 Contents of filing cabinet divider 1963-1969

Papers found loose in divider: correspondence, duplicated and photocopied typescripts, computer print-outs, offprints, etc. Material seems to cover a range of projects.

Eight folders.

Includes 'Notes on a proposed plan for the D.S.I.R. computer project', 18 July 1963 (B.146), 'Application of list processing methods to the design of interconnections for a fast logic system' by Wiseman, latest bibliographical reference 1963 (B.147) and 'Programming with RSP' by J.S. Grant and Wiseman, October 1967 (B.149).

B.154 Contents of filing cabinet divider 1964-1965

Papers loose in binder: includes correspondence and product literature.

B.155-B.162 Contents of a filing cabinet divider 1964-1970

B.155 'Placement & Layout program' 1964-1970

Contents of folder so labelled: offprint, circuit diagrams, manuscript working etc..

B.156 'Scope Text Editor 1' 1965, n.d.

Contents of folder so labelled: manuscript working and

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drafts, duplicated papers *re* PDP 7 computer, etc.

Most papers undated.

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|-------------|---|---------------------|
| B.157 | 'Scope Text Editor Mk II' | 1965, n.d. |
| | Contents of folder so labelled: computer print-out, manuscript working, etc. | |
| B.158-B.159 | 'Scope Text Editor Mk III' | 1966, 1968,
n.d. |
| | Contents of folder so labelled divided into two for ease of reference: typescript (photocopy) 'Text handling', pp21-65, typescript 'draft' titled 'Ideas for MK V Editor', manuscript working, computer print-outs. | |
| B.160 | 'Sindy Program' | 1966-1967 |
| | Contents of folder so labelled: print-outs, duplicated typescript headed 'University Mathematical Laboratory, Cambridge' and 'Edit: A Context Editing Program'. | |
| B.161-B.162 | 'SLP [Simple List Processing] Package' | N.d. |
| | Contents of folder so labelled divided into two for ease of reference: typescript draft titled 'List Processing in Computers of Short Word Length', computer print-outs, manuscript working, typescript (photocopy) titled 'CUPCAT Project Cambridge University Press computer aided typesetting', etc. | |
| B.163-B.173 | Contents of filing cabinet divider | 1965-1967 |
| | Contents of folder inscribed 'Lineprinter' divided into eleven for ease of reference: correspondence (including telex messages) and papers <i>re</i> Data Products printer for Cambridge Titan computer. | |
| | Includes product literature. | |

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B.174-B.182	Contents of filing cabinet divider	1965-1975
	Contents of folder inscribed 'PDP7 Library Additions' divided into nine for ease of reference: duplicated memoranda and circulars for PDP7 users, papers <i>re</i> PDP-7 T.V. Camera, papers <i>re</i> CAD (including Edinburgh based project), University of Cambridge Computer Laboratory programming exercises, etc.	
B.183-B.187	Contents of filing cabinet divider	1966-1975
B.183	'PCF [Plasticene Curve Fitter]'	1966, n.d.
	Contents of folder so labelled: 'Section 2 Programming' (photocopy), computer print-outs, manuscript working.	
B.184-B.187	'Floating point for Modular One'	1968-1969
	Contents of folder so inscribed divided into four for ease of reference: contract between Computer Technology Limited and Group of Consultants from University Mathematical Laboratory, Cambridge Relating to the Design and Production of Software for the Modular One Computing System ..., Computer Technology Limited Modular One Outline system specification', typescript draft by Wiseman 'Float Point Package for Modular One', manuscript notes, etc.	
B.188-B.195	Contents of filing cabinet divider	1966-1973
B.188	'Titan Store Extension to 128k'	1966-1968
	Contents of folder so labelled: correspondence with Plessey Company Ltd, manuscript notes, duplicated typescript 'Progress on Installation of Extra 64k Words of Memory for Titan' by Wiseman, etc.	
	The proposal to increase the core store of Titan from 64k to 128k was approved in 1964 and an order placed with Plessey.	
B.189-B.190	'Mintech PDP9 [computer] &c'	1968-1969
	Contents of folder so inscribed divided into two for ease of	

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reference: correspondence and papers *re* Ministry of Technology contract with University Mathematical Laboratory, Cambridge

Includes correspondence *re* 'Mintech Atlas Centre', 'Multiplexor / Modem Interfaces for Atlas Centre', 'Mintech Cambridge Atlas II project', Digital Equipment Corporation Field Service Reports, duplicated typescript 'Mintech Atlas Centre - Software progress and related topics A report from the University Mathematical Laboratory' by 'R.M.N[eedham]. 25/1/69', notes of meeting, etc

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|-------------|---|--------------------|
| B.191-B.195 | 'Dipl PDP7 Lectures' | 1968-1973,
n.d. |
| | Contents of folder so inscribed divided into five for ease of reference: undated manuscript notes and drafts includes manuscript beginning 'This course is about machine code programming of two small computers in the laboratory PDP & PDP15 ...', duplicated papers for 'Diploma in Computer Science', programming exercises, etc. | |
| B.196-B.208 | Contents of filing cabinet divider | 1966-1971 |
| B.196-B.199 | 'GPO - Multiplexor Connection' and 'GPO Titan' | 1966-1970 |
| | Contents of folder so inscribed divided into four for ease of reference: correspondence and papers including product literature and circuit diagrams <i>re</i> connecting computer to GPO network. | |
| B.200-B.201 | 'Magnetic Tape PDP7' | 1966-1970 |
| | Contents of folder so inscribed divided into two for ease of reference: typescript and manuscript notes, specifications, correspondence with suppliers, product literature, etc. | |
| | The specifications are for a magnetic tape recorder for the Cambridge PDP7 computer. | |
| B.202-B.206 | 'UML Tablet' | 1966-1970 |
| | Contents of folder so inscribed divided into five for ease of reference: correspondence and papers <i>re</i> 'SRC grant B/SR/4016 (ML.16) - A Stylus Tablet Device', including application (1967) and report, and patent application. | |

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- The application was signed by Wiseman as applicant and M.V. Wilkes as head of department. According to the abstract the proposed research was the 'Design of a novel man-computer communication device based on a pulse emitting stylus coupling electrostatically with a position sensitive tablet, to provide a free style 2-dimensional drawing facility for applications in computer graphics'.
- B.207-B.208 'Mintech C.A.D. [Computer Aided Design] Contract' 1969-1971
- Contents of folder so inscribed divided into two for ease of reference: correspondence and papers including 'final draft' agreement between the Minister of Technology and University of Cambridge for co-operation in computer aided design; also 'Proposal for Implementation of the RAINBOW Integrated Design System on Mintech Atlas' and 'Proposal for CANOTRAN II'.
- The RAINBOW system allowed 'a number of tasks in computer-aided electronics design to be carried out without the need to transcribe the data output by one stage into a different format for input to the next', therefore eliminating 'one of the major opportunities for making errors, and also streaming the design process'.
- CANOTRAN II is described as a 'non-linear transient analysis program'.
- B.209-B.213 Contents of filing cabinet divider 1967, n.d.
- Contents of folder inscribed 'Data Structures 1' divided into five for ease of reference: draft and proof copies of paper (with J.O. Hiles) 'A ring structure processor for the PDP7' (draft) and 'A ring structure processor for a small computer (proof)', manuscript and typescript notes, computer print outs, etc.
- B.214-B.223 Contents of filing cabinet divider 1967-1971
- B.214-B.216 'Pixie I' 1967-1968
- Contents of folder so inscribed divided into three for ease of reference: includes requests for offprints of Wiseman's papers, ('A ring structure processor ...', *Computer Journal*, 10, February 1968 and 'A note on compiling display file from a data structure', *Computer Journal*, 11, August 1968), computer print-outs, manuscript and typescript notes and

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drafts including 'Display File Compiler', 'Ring Structure Entertainer' and 'Notes on RSP [Ring Structure Processor] Data Structures'.

B.217-B.223

'Pixie II'

1968-1971

Contents of folder so inscribed divided into seven for ease of reference: offprint of 'A ring structure processor for a small computer', *Computer Journal*, 10, February 1968, proof copy of 'A note on compiling display file from a data structure', *Computer Journal*, 11, August 1968, correspondence, manuscript and typescript notes and drafts, including 'Rainbow CAD [Computer Aided Design] Project', 'Notes for a lecture about - Use of Data Structures for representing pictorial and topological information' by 'M.E[therton].', and 'Summary of work being done by the computer aided electronics design group at the University Mathematical Laboratory, Cambridge, England', computer print-outs, 'Rainbow' memos, etc.

SECTION C	LECTURES AND PUBLICATIONS, C.1-C.21	1963-1974
C.1-C.6	LECTURES	1963-1967
C.1-C.2	'CUML Colloquium' Contents of folder inscribed.	1963-1964
C.1	'Colloquium 6 June 1963' Manuscript draft so headed beginning 'There is a great deal of work going on in a great many places on fast logic circuits'.	
C.2	'Colloquium 2 January 1964' Manuscript draft so headed reporting on Wiseman's visit to the USA, 12-21 November 1963.	
C.3	'The Electronic Brain Drain' Manuscript drafts of talk to Fitzwilliam Research Club, 14 May.	1964
C.4	'Some Objectives for Design Automation' Manuscript draft so titled, also headed 'Univ. of Newcastle 10 November 1964', and correspondence <i>re</i> arrangements for talk on this topic at Newcastle and University of Leeds, 27 January 1965.	1964-1965
C.5	'CATS 9 & 16 Feb 1966 Lectures' Contents of folder so labelled: manuscript and typescript drafts for lectures ?given at Cambridgeshire College of Arts and Technology. See C.6.	1966
C.6	'Organisation of Computer Storage' Duplicated typescript, manuscript notes etc for lecture of this title which was given as part of computer engineering course, Cambridgeshire College of Arts and Technology, 15	1966-1967

Lectures and publications, C.1-C.21

March 1967.

C.7-C.21

PUBLICATIONS

1968-1974,
n.d.

See also G.5, G.9, G.11, G.12, G.20.

C.7-C.10

'A stored microprogram using tunnel diodes' (with P.C. Wright), *The Radio and Electronic Engineer*, March 1969

1968-1970

Correspondence with Institution of Radio and Electronic Engineers re publication and award of Charles Babbage Award to Wiseman and Wright for the outstanding paper published in the Institution's Journal during 1969 on computers, duplicated typescript and proofs of paper, request for offprints.

4 folders.

C.11

Review of: *Computer Composition using PAGE-1* by John Pierson, Wiley Interscience, New York, 1972

1974

Offprint.

C.12-C.21

Illustrative material for publications

N.d.

Includes photographs of equipment such as circuit boards and monitors.

10 folders.

SECTION D **VISITS AND CONFERENCES, D.1-D.42** **1962-1967**

D.1-D.2 British Institution of Radio Engineers Computer Group Symposium 'Tunnel Diodes and Storage Elements, 23 January 1963 1962-1964

Correspondence *re* arrangements, publication of Wiseman's symposium paper, programme, duplicated typescript of paper, manuscript notes.

2 folders.

Wiseman gave a paper on 'Some Properties of the Tunnel Diode Balanced Pair Circuit'.

D.3-D.8 American Federation of Information Processing Societies Fall Joint Computer Conference, Las Vegas, Nevada, 12-14 November 1963 1963-1964

Correspondence *re* arrangements to visit USA for the conference and to visit colleagues at University of Illinois, Stanford University and RCA Laboratories, Princeton, New Jersey; correspondence arising; conference paper; report on visit to William Waldorf Astor Foundation, etc.

6 folders.

At D.3 is a copy of the paper Wiseman submitted to the conference organisers to be considered for presentation but which was not accepted 'Application of list processing methods to the design of interconnections for a fast logic system'.

D.9-D.16 Joint Computer Conference 'The Impact of Users' needs on the design of data processing systems', Edinburgh, 31 March - 3 April 1964 1963-1964

Correspondence *re* arrangements, abstract and typescript of Wiseman's paper, programme, list of registrants, ?transcript of part of proceedings, notes by M.V. Wilkes on 'demonstration of the compatible time-sharing system' given at Edinburgh, etc.

8 folders.

The meeting was organized by the British Computer Society, The British Institution of Radio Engineers and the Institution of Electrical Engineers under the aegis of the United Kingdom Automation Council.

Wiseman gave a paper 'A Survey of Some Current

Visits and conferences, D.1-D.42

Experiments in Man-Machine Communication'.

- D.17 Visit to Yugoslavia 1964 1964
- Correspondence *re* arrangements and arising, manuscript notes, etc.
- Wiseman visited Yugoslavia (Institut za Automatiku i Telekomunikacije, Belgrade) for a period from 19 September. He offered to prepare two lectures on the 'U.M.L. Tunnel diode project (including the slave store for Titan)'.
- D.18 Joint Colloquium on Design Automation, Institution of Electrical Engineers, London, 26 October 1964
- Programme, letter *re* arrangements, abstracts, manuscript draft of Wiseman's paper.
- The meeting was jointly organised by the Professional Group on Computer Design of the IEE Electronics Division and the IERE Computer Group. Wiseman talked on 'What we really need'.
- He also talked on essentially the same topic at the University of Newcastle, 10 November 1964 and the University of Leeds, 27 January 1965. See C.4.
- D.19-D.21 12th International Solid-State Circuits Conference, Philadelphia, PA, USA, 17-19 February 1965 1964-1965
- Correspondence *re* arrangements and arising, etc.
- 3 folders
- Wiseman's attendance was made possible by the conference organisers who paid his travel costs to the USA. He took the opportunity of the conference to visit a number of laboratories in the Boston, Mass. area.
- D.22-D.23 International Federation of Information Processing Congress, New York City, 24-29 May 1965 1964-1965
- Correspondence *re* arrangements, programme, guide to exhibits, etc.
- 2 folders.

Visits and conferences, D.1-D.42

- D.24 Joint Colloquium on Storage: Future Possibilities', Institution of Electrical Engineers (IEE), 16 December 1965 1965
- Programme, letter *re* arrangements, abstracts and manuscript draft of Wiseman's talk on 'The Slave Store on the Titan Computer'.
- The meeting was organised by the IEE Electronics Division Professional Group on Computer Design and the IERE (Institution of Electronic and Radio Engineers) Computer Group.
- D.25-D.27 Institute of Printing International Computer Typesetting Conference, University of Sussex, 14-18 July 1966 1966-1967
- Correspondence *re* arrangements, manuscript draft of Wiseman's paper, information leaflet, abstracts, etc.
- 3 folders
- Wiseman talked on 'Scope text editing program'.
- D.28 Institution of Electrical Engineers / Institution of Electronic and Radio Engineers on Microprogramming and Fixed Stores, 10 October 1966 1966
- Correspondence *re* arrangements, summary of Wiseman's paper, manuscript notes.
- Wiseman talked on 'A Stored Microprogram Computer'.
- D.29-D.34 Joint Institution of Electronic and Radio Engineers, Institution of Production Engineers and Institution of Electrical Engineers Conference on 'The Integration of Design and Production in the Electronics Industry', University of Nottingham, 10-13 July 1967 1967-1968
- Correspondence *re* arrangements and arising, programme and synopses of papers, manuscript notes, typescript draft of Wiseman's paper etc.
- 6 folders.
- Wiseman gave a paper on 'Some applications of Computers in Electronic Design'.

Visits and conferences, D.1-D.42

- D.35-D.38 Visit to the USA, 27 August - 16 September 1967 1967
- Correspondence and papers *re* arrangements, reports on visit, etc.
- 4 folders.
- Wiseman visited the USA to attend the 20th anniversary conference of the Association for Computing Machinery (ACM) in Washington DC and also visited a number of laboratories carrying out research in computer aided design. Laboratories included RCA Research Laboratories Princeton, New Jersey, MIT Project MAC, Cambridge Mass., Digital Equipment Corporation, Maynard, Mass, Bell Telephone Laboratories, Murray Hill, New Jersey and Data Products Corporation and Rand Corporation, Los Angeles.
- Cambridge University Press met Wiseman's transatlantic fare costs. The visit was also supported by William Waldorf Astor Foundation.
-
- D.39-D.42 Seminar on Computers in Printing and Publishing, London, 7 December 1967. 1967
- Correspondence *re* arrangements, programme, list of delegates, manuscript and typescript drafts of Wiseman's paper, duplicated and printed background material.
- 4 folders.
- The Seminar was organised by The Guardian Business Services Division. Wiseman gave a paper on 'The use of computers in text-editing'.

SECTION E SOCIETIES AND ORGANISATIONS, E.1-E.28 1962-1980

- E.1 CAMBRIDGE COMPUTER
COOPERATIVE/CAMBRIDGE COMPUTER GROUP
- E.2-E.6 INSTITUTE OF ELECTRICAL AND ELECTRONICS
ENGINEERS
- E.7-E.9 INSTITUTION OF ELECTRICAL ENGINEERS
- E.10-E.28 RADIO COMPONENTS RESEARCH AND
DEVELOPMENT SUB-COMMITTEE 15:
COMPUTER ELEMENTS

**E.1 CAMBRIDGE COMPUTER COOPERATIVE / CAMBRIDGE 1979-1980
COMPUTER GROUP**

Correspondence and papers including 'note' of meeting on 26 July 1979 and list of members of the Cambridge Computer Group at January 1980.

The meeting on 26 July 1979 was 'to explore the idea of greater co-operation and mutual support amongst the thirty-odd computer-related companies that exist in and around Cambridge'. Both names are used in the papers.

**E.2-E.6 INSTITUTE OF ELECTRICAL AND ELECTRONICS 1963-1968
ENGINEERS (IEEE)**

Correspondence and papers.

Principally relate to the UK and Ireland section of the IEEE including newsletters and minutes of the AGM. Wiseman resigned his membership in 1968.

At E.2 are papers relating to the publication of a paper by Wiseman and H. Schorr entitled 'System Design of a Small Digital Computer', including biographical notes on the two authors.

Societies and organisations, E.1-E.28

E.7-E.9 INSTITUTION OF ELECTRICAL ENGINEERS (IEE) 1962-1967

Correspondence and papers *re* IEE Professional Group on
Computer Design, meetings, etc.

3 folders.

**E.10-E.28 RADIO COMPONENTS RESEARCH AND 1963-1965
DEVELOPMENT (RCRD) SUB-COMMITTEE 15:
COMPUTER ELEMENTS**

Committee papers and reports.

Wiseman joined the Committee in 1961 (see G.8). The
sponsoring ministry appears to have been the Air Ministry.
Wiseman was informed on joining the Committee that all
members had to be registered with the Ministry of Aviation
Establishment Branch to qualify for 'out of pocket'
expenses. The Committee secretary was K. Sykes of the
Royal Radar Establishment, Malvern, Worcestershire.

At its meeting on 4 May 1965 the RCRD Technical
Committee decided that SubCommittee 15 should be wound
up (see E.24).

E.10-E.16 'SC15 Wiseman' 1963-1964

Contents of folder so inscribed divided into seven for ease
of reference: agenda, minutes, lists of committee members,
etc.

E.17-E.28 Reports 1964-1965

**E.17 'Advanced Computer Techniques Project State of the Art
Report June 1964', Elliott Brothers (London) Ltd, 16
September 1964 1964**

This was a report on work carried out on high-speed tunnel
diode computing techniques - January - June 1964.

Societies and organisations, E.1-E.28

- | | | |
|------|--|------|
| E.18 | <p>'D.S.I.R. [Department of Scientific and Industrial Research] Advanced Computer Techniques State of the Art Report No.1 Status of the work carried out at Standard Telecommunications Laboratories on Spark Machining, 30 June 1964', Standard Telecommunications Laboratories, Harlow, Essex, 25 September 1964</p> <p>Includes photograph.</p> | 1964 |
| E.19 | <p>'M.O.A [Ministry of Aviation] Contract No. KH/C/4776/CB15 (a) 3 Study of Interconnection Problems for RCRD 15 Final Report to the Design Authority', Elliott Brothers (London) Ltd, 3 December 1964</p> | 1964 |
| E.20 | <p>'D.S.I.R. [Department of Scientific and Industrial Research] Advanced Computer Techniques Project Contract No. KH/C/4776/CB15 (a) 3 State of the Art Report No.2 ... 10th June, 1964 to 9 December, 1964', Plessey-UK Limited, December 1964</p> | 1964 |
| E.21 | <p>'D.S.I.R. [Department of Scientific and Industrial Research] Advanced Computer Techniques Project State of the Art Report No.3 Status of the Work Carried Out at Mullard Research Laboratories on Superconducting Devices, 31st December 1964'</p> | 1964 |
| E.22 | <p>'D.S.I.R. [Department of Scientific and Industrial Research] Advanced Computer Techniques Project Fifth Progress Report from the Autonomics Division of the National Physical Laboratory, ... 1st July, 1964 to 31st December 1964'</p> | 1964 |
| E.23 | <p>'Advanced Computer Techniques Research at R.R.E. [Royal Research Establishment] 5th Progress Report to D.S.I.R. [Department of Scientific and Industrial Research] for the period 1st July - 31st December, 1964'</p> <p>The research reported on concerned superconducting and ferromagnetic thin films and computer circuits and systems.</p> | 1964 |

Societies and organisations, E.1-E.28

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|-----------|---|------|
| E.24-E.28 | Letter from SubCommittee Secretary to members, 6 October 1965, informing them of the winding up of the SubCommittee and five reports sent with the letter. | 1965 |
| E.24 | Letter and 'State of the Art Report, December 1964 Advanced Computer Techniques Project', 17 February 1965

The report described the work undertaken by the Data Processing Laboratory of Elliott-Automation during the period July - December 1964 | 1965 |
| E.25 | 'Ministry of Technology Advanced Computer Techniques Project State of the Art Report No. 4', 8 July 1965

The report was concerned with the status of work carried out at Mullard Research Laboratories in superconducting devices, 30 June 1965. | 1965 |
| E.26 | Ministry of Technology Advanced Computer Techniques Project Sixth Progress Report from the Autonomics Division of the National Physical Laboratory, ... 1st January, 1965 to 30th June, 1965' | 1965 |
| E.27 | 'Advanced Computer Techniques Research at R.R.E. [Royal Research Establishment] 5th Progress Report to Ministry of Technology ... 1st January - 30 June 1965'

The research reported on concerned superconducting and ferromagnetic thin films and computer circuits and systems. | 1965 |
| E.28 | Ministry of Technology Advanced Computer Techniques Project Contract No. KH/C/4776/CB15 (a) 3 State of Art Report No. 3 ... 10th December, 1964 to 23rd July, 1965

This was the report of the Automation Group, Plessey Company Ltd. | 1965 |

SECTION F

CONSULTANCY, F.1-F.162

1972-1983

Wiseman was associated for a number of years with Graphical Software Ltd run by W.S. Elliott, Professor of Computing at Imperial College and a former Cambridge colleague.

In due course he set up his own company Fendragon which started business 'in the last few weeks of 1977' operating in the area of text processing and related areas. The first three directors were J. Harradine, D. Kindersley and Wiseman. They were subsequently joined by M.J. Jordan. and P. Robinson.

In a letter of 30 July 1979 in connexion with the establishment of the Cambridge Computer Group (E.1) Wiseman characterised the company as follows:

'For your records, Fendragon was formed about two years ago. It functions as a workers cooperative with five equal shareholder-directors. A few other colleagues are occasionally associated with FD contract work and we can draw on expertise in printing technology, typographical design, computer software and electronics. We have an exclusive agreement with Dr M. Richards to support the official version of BCPL [Basic combined programming language] and we have implementations for several machines which conform to this standard. We produce study reports on subjects such as Computer Graphics, Computer Lettering and Pagination and will build tailor made software systems in these (and other) applications. We also know about Word Processing, Interactive Computing and Microprocessors. Recent contracts have been with

Monotype Corp.
Digital Equipment Ltd
Ministry of Defence
Cambridge University Press
Graphical Software Ltd
Hobsons Press Ltd
Letraset International
Richard Clay (The Chaucer Press)
Miles 33
Building Research Station.'

F.1-F.14 GRAPHICAL SOFTWARE LTD (GSL)

F.15-F.162 FENDRAGON LTD

Consultancy, F.1-F.162

F.1-F.14	GRAPHICAL SOFTWARE LTD (GSL)	1973-1978
F.1-F.10	'GSL SE [Stock Exchange] Project NWiseman' Contents of folder so inscribed divided into ten for ease of reference: correspondence and papers <i>re</i> review for the Directorate of Information Systems and Settlement of the Stock Exchange's method of producing the Daily Official List and of the possibility of producing it by other methods such as computer typesetting. Includes Wiseman's manuscript notes and drafts and transparencies for presentation.	1973-1974
F.11-F.14	'Computer text handling' Contents of folder so inscribed divided into four for ease of reference: principally typescript drafts including 'Very brief description of CUP [Cambridge University Press] computer-aided composition project' by Wiseman, 'Possibilities for text-editing in the International Telecommunications Union', 'A condensed description of the ICON system', 'What is a Memex' and 'Computer based text handling'. Some but not all of these typescripts are identified as Graphical Software Ltd papers.	1974-1978
F.15-F.162	FENDRAGON LTD	1972-1983
F.15-F.138	Correspondence and papers	1972-1983
F.15-F.19	'Fendragon' Contents of folder so inscribed divided into five for ease of reference: includes correspondence and papers <i>re</i> founding of the company, agenda and notes of board meetings and patent application. The correspondents include W.S. Elliott (Graphical Software Ltd).	1977-1980
F.20-F.26	General correspondence	1978-1981

Consultancy, F.1-F.162

F.20-F.24	'For filing'	1978-1981
	Contents of folder so inscribed divided into five for ease of reference: principally carbons of outgoing letters.	
F.25-F.26	'Enquiries'	1980-1981
	Contents of folder so inscribed divided into two for ease of reference: principally carbons of outgoing correspondence.	
	Includes report by Wiseman on 'Improvements in Television' (F.25).	
F.27-F.31	Financial records	1978-1981
	5 folders	
F.32-F.119	Alphabetical sequence of files	1972-1983
	Principally client files.	
	The contents may include agreements, contracts, invoices, notes of meetings, product literature, etc.	
	The file titles are reproduced in the catalogue entries.	
	The sequence is noteworthy for the significant representation there of small computer and electronics companies as well as a number of major national organisations.	
F.32	'Acorn [computers]'	1980
F.33	'Ansamatic [Ltd]'	1979
F.34	'BBC'	1977-1980
F.35	'BCPL [Basic combined programming language] courses'	1980

Consultancy, F.1-F.162

F.36	'BCPL [Basic combined programming language] Kongsberg'	1980, 1982
F.37	'BCPL [Basic combined programming language] Sales'	1979-1980
F.38	'BNOG [British National Oil Corporation]'	1982
F.39- F.40	'Boulton, Wade & Tennant Chartered Patent Agents' 2 folders.	1977-1979
F.41	'Building Research Station'	1979-1980
F.42	'Cambridge Instrument Company Ltd'	1978
F.43	'Cambridge Micro [Computers Ltd]'	1980-1981
F.44	'Cathodeon [Crystals Ltd]'	1978
F.45	'CERN'	1979
F.46	'CIS [Cambridge Interactive Systems Ltd]'	1978
F.47-F.48	'Clay [Richard Clay (The Chaucer Press) Ltd] ' 2 folders.	1978-1980
F.49	'Computer Weekly'	1978-1979
F.50	'Computing'	1978-1979

Consultancy, F.1-F.162

F.51	'Comtext [Services Ltd]'	1981-1982
F.52	'Crosfield [Electronics Ltd]'	1979
F.53	'CUP [Cambridge University Press]'	1978-1979
F.54	'Data General [Ltd]'	1978-1979
F.55	'Datalink'	1979-1980
F.56	'Delta Data [Systems Ltd]'	1979-1980
F.57	'Digital E.C. [Equipment Co. Ltd]'	1978-1980
F.58-F.61	'EMI [Medical Ltd]'	1979-1980
	4 folders.	
F.62	'Fortronic [Ltd]'	1979-1983
F.63	'GEC [Semiconductors Ltd]'	1979
F.64	'Graphic Art [(Cambridge) Ltd]'	1979
F.65-F.66	'GSL [Graphical Software Ltd]'	1978-1980
	2 folders	
F.67	'Harradine'	1981-1982
	John Harradine was a director of Fendragon.	

Consultancy, F.1-F.162

F.68-F.73	'Hays Allan [Chartered Accountants]' 6 folders.	1978-1983
F.74-F.75	'Hobson's [Press]' 2 folders.	1979-1980
F.76	'Honeywell [Information Systems Ltd]'	1983
F.77-F.79	'ICL [International Computers Ltd]' 3 folders.	1980
F.80-F.82	'ICL [International Computers Ltd] Design System' 3 folders.	1979-1980
F.83	'ICS [Informations-Computer Systeme GmbH]' Includes 'note' on 'Computer-Aided Composition for Book Production'	1977
F.84	'Inmos [Ltd]'	1979-1980
F.85	'ITN [Independent Television News Ltd]'	1980
F.86-F.94	'Re David Kindersley' Nine folders. David Kindersley was a Director of Fendragon. At F.91 is the 'first draft' of text of biography (title page and pages 1-28) of 'alphabetician' David Kindersley by 'Harold Lyle Hunter with the collaboration of Lida Lopez Cardozo'.	1972-1982

Consultancy, F.1-F.162

F.95	'Letraset [International Ltd]	1977-1980
F.96	'Lodge / Cheeseman [Productions] Ltd'	1980
F.97	'Miles 33'	1978-1983
F.98	'Miles 33 [Limited] Bugs'	1982
F.99-F.101	'Monotype [Corporation Ltd]' 3 folders.	1977-1980
F.102	National Coal Board	1980
F.103	'Oriol [Computer Services Ltd]'	1979-1980
F.104	'PIRA [The research association for the paper and board, printing and packaging industries]	1978-1979
F.105	'Post Office Research Centre'	1979
F.106	'Pye Unicam [Ltd]'	1979
F.107-F.108	'RAE [Royal Aircraft Establishment]' 2 folders.	1979-1980
F.109-F.111	'RAE [Royal Aircraft Establishment] Bedford I' 3 folders.	1978-1981

Consultancy, F.1-F.162

F.112-F.113	'RAE [Royal Aircraft Establishment Bedford] II' 2 folders	1979-1980
F.114	'Redifon [Computers Ltd]'	1978-1980
F.115	'Systems Reliability [Ltd]'	1979-1982
F.116-F.119	'Triad [Computing Systems Ltd]' 4 folders	1978-1982
F.120-F.129	'Small Files' Contents of two folders so inscribed: correspondence and papers arranged alphabetically by company	1977-1980
F.120	A	1978-1979
F.121-F.124	'BCPL - Appledore' - 'BCPL - RAE' 4 folders.	1979-1980
F.125	B, C	1977-1980
F.126	F, H	1978, 1980
F.127	M	1977-1980
F.128	P - S	1977-1980
F.129	T - W	1977-1980

Consultancy, F.1-F.162

F.130-F.138	'BCPL [Basic combined programming language] Contracts' Contents of folder so inscribed divided into nine for ease of reference	1979-1982
F.139-F.162	Reports	1978-1983
F.139-F.140	'Character Founts in Digital Form' Unbound copy of report for Letraset International, February 1978. 2 folders.	1978
F.141	'Computer Designs for Filled-Area Computer Graphics' Unbound copy of report for Digital Equipment Co., May 1978	1978
F.142	'Office Computing at the Cambridge University Press' Bound copy of report for Cambridge University Press, September 1978.	1978
F.143	'Communication Aspects of Multicom A Pre-study Report' Unbound copy of report for Graphical Software Ltd, January 1979.	1979
F.144	'Graph Plotting at RAE Bedford' Bound copy of report for Royal Aircraft Establishment, April 1979, with manuscript inscription on front cover 'Draft Copy 3'.	1979
F.145	BCPL [Basic combined programming language] User Manual Bound copy	1979

Consultancy, F.1-F.162

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|-------|--|------|
| F.146 | 'Digital Character Representation' | 1980 |
| | Bound copy of report for Monotype Ltd, January 1980. | |
| F.147 | 'Real-Time Programming' | 1980 |
| | Bound copy of report by Andrew Herbert, January 1980. | |
| F.148 | 'Addendum to Real-Time Programming' | 1980 |
| | Unbound copy, January 1980. | |
| F.149 | 'ICL Design System Note 1' | 1980 |
| | Bound copy of report for ICL (International Computers Ltd), July 1980. | |
| F.150 | 'ICL Design System Note 2. Workstation Hardware' | 1980 |
| | Bound copy, July 1980, with manuscript inscription 'Rough' on front cover. | |
| | See also F.151. | |
| F.151 | Loose papers found at front of ICL Design System Note 2 (F.150). | |
| F.152 | 'ICL Design System Note 3. Software considerations' | 1980 |
| | Bound copy of report for ICL (International Computers Ltd), July 1980. | |
| F.153 | 'BCPL - the basic combined programming language' | 1980 |
| | Bound copy of 'monograph' by Peter Robinson. | |
| F.154 | 'Computing for the Company of Biologists' | 1982 |
| | Bound copy of report for Company of Biologists, March | |

Consultancy, F.1-F.162

1982.

F.155-F.162 Report for British National Oil Corporation (BNOC) / Britoil 1982-[1983]

The study was carried out to review the current and future use of computer graphics at the company.

Britoil was the privatised British oil company formed from the nationalised BNOC in 1982.

F.155 Notebook used for record of work for BNOC

Many loose papers enclosed.

F.156-F.160 Draft copies of report with manuscript annotation, manuscript inserts, etc

5 folders.

F.161, F.162 Two BNOC Computer Services documents *re* computer graphics

Bound copies.

SECTION G

CORRESPONDENCE, G.1-G.22

1959-1969

Contents of untitled folder: correspondence *re* career, research, patents, publications, equipment, speaking engagements, etc December 1959-1963 and documents *re* patents, 1964 and 1969 found with the earlier correspondence.

Wiseman was based in the Computer Division of Elliott Brothers Ltd, moving to the University Mathematical Laboratory, Cambridge in early 1961 as Chief Engineer. He continued to be associated with Elliott Brothers as consultant.

G.1 1959 December

Includes notification of deferment of call-up for national service 'to enable you to take employment with Elliott Bros (London) Ltd, Borehamwood - on behalf of the Ministry of Aviation' and patent application.

G.2 1960 January-February

Includes revised patent application.

G.3 1960 March, May

G.4 1960 June-August

Includes Elliott Brothers internal communications.

G.5 1960 September-December

Includes Elliott Brothers internal communications, short article on developments in computers written by Wiseman for the *Financial Times* and correspondence with M.V. Wilkes, University Mathematical Labaoratory, Cambridge *re* proposed programme of work with tunnel diodes.

G.6 1961 January

Includes 'technical justification' for equipment required for tunnel diode work.

Correspondence, G.1-G.22

- G.7 1961 February

Includes Elliott Brothers internal communications.
- G.8 1961 March-April

Includes letter from Ministry of Aviation, 21 March, *re* Wiseman's membership of 'R.C.R.D. [Radio Components Research and Development] Sub-Committee 15 - Computer Elements'.
- G.9 1961 May-June

Includes Wiseman's review of *Digital Computer & Control Engineering* by Robert S. Ledley.
- G.10 1961 July-August
- G.11 1961 September-October

Includes Wiseman's review of *Boolean Algebra and its Applications* by J. Eldon Whitesitt.
- G.12 1961 November-December

Includes Wiseman's review of *Iterative Arrays of Logical Circuits* by F.C. Hennie.
- G.13 1962 January-February

Includes programme and summary of papers for 'Standard Telephones and Cables Ltd Components Group - Transistor Division London Semiconductor Symposium 1962'.
- G.14 1962 March -April
- G.15 1962 May-June

Correspondence, G.1-G.22

- G.16 1962 July-August
- G.17 1962 September-October
- Includes a 'paper' titled 'Tunnel Diode Logic' by D.W. Davies 'for the advanced computer project'.
- G.18 1962 November-December
- G.19 1963 January-March
- G.20 1963 March-October
- Includes review by Wiseman of *A New Approach to the Design of Switching Circuits* by H. Allen Curtis.
- G.21 1964
- Letter from patent, 10 November, agents enclosing draft patent for high speed switching circuits.
- G.22 1969
- Assignment and agreement, 13 July, between inventors including Wiseman and National Research Development Corporation.

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