"Fire in the Belly"

The first fifty years of the pioneer School at the ANU.



"Fire in the Belly"

The first fifty years of the pioneer School at the ANU.

Trevor Ophel and John Jenkin First published in 1996 by Research School of Physical Sciences and Engineering, Institute of Advanced Studies, Australian National University, Canberra 0200 Australia

Telephone +61 6 249 0000 Fax +61 6 249 1884 Email Director.RSPSE@anu.edu.au

National Library of Australia Cataloguing-in-Publishing entry

Ophel, T.R. (Trevor Richard) 1934-, Fire in the belly: the first 50 years of the pioneer school at the ANU.

ISBN 0858000482.

- 1. Australian National University. Research School of Physical Sciences and Engineering History.
- 2. Universities and colleges Australian Capital Territory Canberra History. I. Jenkin, John G. (John Grenfell). II. Australian National University. Research School of Physical Sciences and Engineering. III. Title.

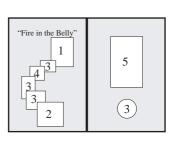
530.07119471.

© The Australian National University, 1996.

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage and retrieval system, without prior permission in writing from the publisher except for small extracts used for the purpose of a book review.

Cover design by Tim Thompson

Cover colour photographs by Gavin Gilmour¹, Stuart Hay & Peter Midegs², Tim Thompson³, Bob Cooper⁴, & Trevor Ophel⁵. Montage images taken from the book illustrations, various photographers (see photo credits). Wax seal graphic, Tim Thompson³.



This work is dedicated to the founder of the School, Sir Mark Oliphant. The title, "Fire in the Belly", embodies the essential drive and optimistic enthusiasm that he needed to pioneer the establishment of an extensive research laboratory in the bush capital.

The Authors

Trevor Ophel has been associated with the School since 1955, when he came to Canberra as a graduate student in the Department of Nuclear Physics. After a short post-doctoral appointment at Harvard during 1958/9, he returned as a staff member in Nuclear Physics and has remained there. His activities have embraced the spectroscopy of light nuclei, accelerator physics, studies of heavy ion reactions and instrumentation.

John Jenkin is also a graduate of the Department of Nuclear Physics, having carried out his thesis research during the early days of the EN tandem accelerator between 1961 and 1964. Thereafter, he held post-doctoral appointments at AERE, Harwell and the University of Minnesota before being appointed to the Department of Physics at La Trobe University in 1968. Some four years ago, as a result of a growing interest and activity in the history of science, he transferred to the Faculty of Humanities where he lectures on both the history and philosophy of science.

Contents

	Introduction	1
Chapter 1	Genesis of a University and a School A Perspective Early Staffing - The ANU at Birmingham 1948-9 The School moves to Acton - 1950 The Later Years 1951-56 The Early Buildings of the School	3 4 7 9 10 15
Chapter 2	The Big Machine	21
Chapter 3	A Changing School "Hatched, Matched and Dispatched" A Shifting Foundation New Schools New Reporting Units The Metamorphosis of Particle Physics	33 34 36 36 37 39
Chapter 4	New Fabric and Facades The Next Two Decades 1957 - 1976 The Final Decade	45 46 52
Departments of the School	Applied Mathematics Astronomy	55 58
Chapter 5	The Underlying Strength An Appreciation Workshop Facilities The Electronics Unit	61 62 62 65
Departments of the School	Atomic and Molecular Physics Laboratory Electronic Materials Engineering	69 73
Chapter 6	An Essential Function Postgraduate Research Training Physics Summer Schools Undergraduate Involvement	77 78 78 78
Departments of the School	Geophysics & Geochemistry Laser Physics Centre	81 85

Chapter 7	Accelerators of Nuclear Physics	89
	The Cockcroft - Waltons 1951-1967	90
	The Electron Synchrotron 1955 - 1962	90
	The EN Tandem Accelerator 1960 - 1980	91
	The 2MV AK Van de Graaff (1962 - present) and the	
	Helium Ion Source	93
	The 26 MeV Cyclotron Injector 1972 - 1980	95
	The 14UD Pelletron Accelerator	95
	The Linac - A Super-Conducting Booster	98
	The Elitae Mouper Conducting Booster	70
Departments of the School	Mathematics	102
	Nuclear Physics	103
Chapter 8	Some Telescopes of MSSSO	109
	The 74"	110
	The 50" - The Great Melbourne Telescope of 1868	111
	The 40"	112
	The 2.3m Advanced Technology Telescope	113
Departments of the School	Optical Sciences Centre	114
	Plasma Research Laboratory	117
	Solid State Physics	121
Chapter 0	The Human Face of the School	123
Chapter 9	Social Life of the Fifties	124
	School Activity	126
	Personalities of the School	126
Departments of the School	Systems Engineering	129
	Theoretical Physics	132
Chapter 10	A Rogues Gallery	135
	Sir Mark Oliphant 1950 - 1963	136
	John Jaeger 1964 - 1965	136
	Sir Ernest Titterton 1966 - 1973	137
	Robert Street 1974 - 1978	138
	John Carver 1978 - 1992	139
	Erich Weigold 1992 -	141
	Ken Le Couteur 1956 - 1985	141
	Ken Le Couleur 1750 - 1765	141
Chapter 11	Epilogue	143
	An Environmental Impact Statement	144
Appendix I	Foundation Members of the School	148
Appendix II	School Structure - 1952	148
Appendix III	School PhD Graduates	149
Appendix IV	Summary of School Records	154
Appendix V	Photograph Sources	155

