



## THE UNIVERSITY OF MELBOURNE ARCHIVES

<b>NAME OF COLLECTION</b>	Dr. James Kenneth Mackenzie
<b>ACCESSION NO</b>	1985.0023
<b>CATEGORY ACTIVITY</b>	University, individuals Physicists
<b>DATE RANGE</b>	1921-1984
<b>SIZE OF COLLECTION</b>	17 boxes, 2 metres
<b>HISTORICAL NOTE</b>	Dr. Mackenzie was born 14 June 1920 in Melbourne, educated at Malvern Church of England Grammar School, Scotch College and the University of Melbourne, where he graduated B.A.(Hons) and B.Sc. He worked at the A.W.A. Research Laboratories in Sydney from 1942 to 1945; with the CSIR Division 1945 to 1947, and then took a Ph.D. at the University of Bristol in 1949. From 1950 Mackenzie worked at CSIRO in the Division of Tribophysics, then in the Division of Chemical Physics, where he was Senior Principal Research Scientist until his retirement in 1985.
<b>ACCESS CONDITIONS</b>	Access: Access Not Set

NAME: James Kenneth Mackenzie

ADDRESS: (Home) 15 Ronald Street  
 Box Hill North, 3129  
 Victoria, Australia Tel. (03) 890 7458

(Business) Division of Chemical Physics  
 Commonwealth Scientific & Industrial Research  
 Organization  
 David Rivett Laboratory *retired 10/6/85*  
 Box 160, Clayton, 3168  
 Victoria, Australia Tel. (03) 544 0633

DATE\_of\_BIRTH: 14 - 6 - 20 at Melbourne, Australia

MARITAL\_STATUS: Married Zara (Lennard) 17 - 12 - 48  
 at Bristol, England

CHILDREN 1 daughter;  
 Terri Anne born 16 - 10 - 58 at Melbourne

PARENTS Robert Kenneth Mackenzie (Deceased)  
 Alice Edith Mackenzie (Nee Beavis) (Deceased)

EDUCATION (School) Malvern Church of England Grammar School  
 Melbourne 1925 - 1931  
 Scotch College, Melbourne, 1932 - 1937  
 Dux of school in 1937 (aeq. with C.S.Martin)  
 Senior Government Scholarship  
 Non-resident scholarship to Ormond College

(University) University of Melbourne 1938 - 1941  
 B.A.(Hons), B.Sc.  
 Dixon Research Scholarship in Mathematics 1940  
 CSIR Science and Industry Studentship 1947  
 for study at the University of Bristol  
 University of Bristol, England 1947 - 1949  
 Ph.D. under N.F.Mott with a thesis entitled  
 "A theory of sintering and the theoretical  
 yield strength of solids"

EMPLOYMENT

AWA Research Laboratories Sydney 1942 - 1945  
 CSIR Division of Physics 1945 - 1947  
 CSIRO Division of Tribophysics 1950 - 1962  
 Visiting scientist Research Institute for  
 Advanced Study (RIAS), Baltimore, 1963  
 Honorary "Visiting fellow" Johns Hopkins  
 University, Baltimore, 1963  
 Visiting lecturer MIT, Boston 1963  
 Visiting professor University of Illinois at  
 Urbana, 1963  
 CSIRO Division of Chemical Physics 1964 -  
 (As at 1984, Senior Principal Research  
 Scientist)

PUBLIC\_SERVICE

Honorary Secretary, Australian Branch of the  
 Institute of Physics (Lond) 1958 - 1959  
 Honorary Treasurer, Australian Institute of  
 Physics 1969 - 1976  
 Honorary Treasurer, Victorian Branch of the  
 Statistical Society of Australia 1967 - 1970  
 President, Victorian Branch of the Statistical  
 Society of Australia 1971 - 1972

MEMBERSHIP\_OF  
PROFESSIONAL  
SOCIETIES

Institute of Physics (Fellow)  
 Australian Institute of Physics (Fellow)  
 Australian Mathematical Society  
 Statistical Society of Australia  
 Australian & New Zealand Association for the  
 Advancement of Science (ANZAAS)

RESEARCH  
INTERESTS

The application of mathematics to scientific  
 problems.

The geometrical relations arising when a  
 crystalline solid undergoes a change of phase  
 from one crystal structure to another such as  
 in a martensite transformation in steels.

The theoretical yield strength of solids.

The theory of sintering.

Geometrical probability

The crystallography of surfaces.

Data analysis of X-ray intensities.

Design of methods for testing precision  
 optical components during manufacture.

## PUBLICATIONS

1. Healy, R.H. and Mackenzie, J.K. (1943).  
"A note on the evaluation of Riemann's Zeta function".  
A.W.A. Tech. Rev. 6, 125-141.
2. Mackenzie, J.K. (1945).  
"The design of isolating pads".  
A.W.A. Tech. Rev. 6, 351-368.
3. Mackenzie, J.K. and Shuttleworth, R. (1949).  
"A phenomenological theory of sintering".  
Proc. Phys. Soc. 62B, 833-852.
4. Mackenzie, J.K. (1950).  
"The elastic constants of a solid containing holes".  
Proc. Phys. Soc. 63B, 2-11.
5. Mackenzie, J.K. and Mott, N.F. (1950).  
"A note on the theory of melting".  
Proc. Phys. Soc. 63A, 411-412.
6. Mackenzie, J.K. and Sondheimer, E.H. (1950).  
"The theory of the change in the conductivity of metals  
produced by cold work".  
Phys. Rev. 77, 264-270.
7. Mackenzie, J.K. (1950).  
"The stresses and energies associated with inter-crystalline  
boundaries".  
Proc. Phys. Soc. 63A, 1370.
8. Boas, W. and Mackenzie, J.K. (1950).  
"Anisotropy in metals".  
Chap. 3 in "Progress in Metal Physics" 2, 90-120.  
Edited by Bruce Chalmers. Butterworth: London.
9. Bowles, J.S. and Mackenzie, J.K. (1952).  
"Discussion on 'Habit phenomenon in martensitic  
transformation' by E.S. Machlin & Morris Cohen".  
J. Metals 4, 1201-1203.
10. Bowles, J.S. and Mackenzie, J.K. (1954).  
"The crystallography of martensitic transformations I".  
Acta Met. 2, 129-137.
11. Mackenzie, J.K. and Bowles, J.S. (1954).  
"The crystallography of martensitic transformations II".  
Acta Met. 2, 138-147.
12. Bowles, J.S. and Mackenzie, J.K. (1954).  
"The crystallography of martensitic transformations  
III Face-centred cubic to body-centred tetragonal  
transformations".  
Acta Met. 2, 224-234.

13. Mackenzie, J.K. and Bowles, J.S. (1957).  
"The crystallography of martensitic transformations  
IV Body-centred cubic to orthorhombic transformations".  
Acta Met. 5, 137-149.
14. Mackenzie, J.K. (1957).  
"A least squares solution of linear equations with  
coefficients subject to a special type of error".  
Aust. J. Phys. 10, 103-109.
15. Mackenzie, J.K. (1957).  
"General relation between lattice sums".  
J. Chem. Phys. 26, 1769.
16. Mackenzie, J.K. (1957).  
"A simple formula for evaluating the Madelung constant of an  
NaCl-type crystal".  
Can. J. Phys. 35, 500-501.
17. Mackenzie, J.K. (1957).  
"The estimation of an orientation relationship".  
Acta Cryst. 10, 61-62.
18. Mackenzie, J.K. and Thomson, M.J. (1957).  
"Some statistics associated with the random disorientation  
of cubes".  
Biometrika 44, 205-210.
19. Mackenzie, J.K. (1958).  
"Second paper on statistics associated with the random  
disorientation of cubes".  
Biometrika 45, 229-240.
20. Mackenzie, J.K. (1960).  
"The crystallography of martensitic transformations".  
J. Aust. Inst. Metals 5, 90-105.
21. Bowles, J.S. and Mackenzie, J.K. (1962).  
"The crystallography of the (225) -transformation in steels".  
Acta Met. 10, 625-636.
22. Mackenzie, J.K., Moore, J.W. and Nicholas, J.F. (1962).  
"Bonds broken at atomically flat crystal surfaces  
I - Face-centred and body-centred cubic crystals".  
J. Phys. Chem. Solids 23, 185-196.
23. Mackenzie, J.K. and Nicholas, J.F. (1962).  
"Bonds broken at atomically flat crystal surfaces  
II - Crystals containing many atoms in a primitive  
unit-cell".  
J. Phys. Chem Solids 23, 197-205.

24. Mackenzie, J.K. (1962).  
"Sequential filling of a line by intervals placed at random  
and its application to linear adsorption".  
J. Chem. Phys. 37, 723-728.
25. Mackenzie, J.K. (1962).  
"The estimation of an orientation relationship from traces  
of known planes".  
Acta Cryst. 15, 979-982.
26. Mackenzie, J.K. (1964).  
"The distribution of rotation axes in a random aggregate of  
cubic crystals".  
Acta Met. 12, 223-225.
27. Mackenzie, J.K. (1967).  
"Evaluation of a Fourier transform".  
SIAM Review 9, 219-222.
28. Mackenzie, J.K. and Maslen, V.W. (1968).  
"Reproducibility of intensity measurements by X-ray  
diffractometers.  
A new assessment of data from the single-crystal project of  
the American Crystallographic Association".  
Acta Cryst. A24, 628-639.
29. Mackenzie, J.K. (1971).  
"Comparison of data as a problem in two-way classification".  
Presented to 'The Australian Statistical Conference'  
24-26 August 1971 in Sydney.
30. Mackenzie, J.K. and Williams, E.J. (1973).  
"The optimum distribution of counting times for determining  
integrated intensities with a diffractometer".  
Acta Cryst. A29, 201-204.
31. Mackenzie, J.K. (1974).  
"Systematic intensity-dependent differences in structure  
factors derived from the single crystal intensity  
measurement project of the International Union of  
Crystallography".  
Acta Cryst. A30, 607-616.
32. Mackenzie, J.K. (1978/1979).  
"Partitions of sets of integers"  
Mathematical Spectrum 11, 25-26.
33. Mackenzie, J.K. and Mathieson, A. McL. (1979).  
"The absolute measured value of  $f(220)$  for Cu--  
The importance of extrapolation to zero extinction".  
Acta Cryst. A35, 45-50.

34. Mackenzie, J.K. (1980).  
"Materializing ghosts from random noise".  
Micron 11, 391-392.
35. Humble, P., Olsen, A. and Mackenzie, J.K. (1983).  
"Platelet defects in natural diamonds".  
Inst. Phys. Conf. Ser. No. 68: Chapter 11, 445-447.  
Paper presented at EMAG, Guildford, 30 Aug. - 2 Sept. 1983.
36. Mackenzie, J.K. and Mair, S.L. (1985)  
"Anharmonic temperature factors:  
The limitations of perturbation-theory expressions".  
Acta Cryst. 41, 81-85.
37. Mackenzie, J.K. and Mathieson, A. McL. (1984)  
"The experimental value of  $f(220)$  for Copper".  
Aust. J. Phys. 37A, 651-6.
38. Brown, T.C. and Mackenzie, J.K. (1985)  
"Dead time correction for a position sensitive detector".  
Aust. J. Phys. In the press.
39. Humble, P., Olsen, A. and Mackenzie, J.K. (1985).  
"Platelet defects in natural diamond  
1. Measurement of Displacement".  
Phil. Mag. In the press.

Lecture and other Notes

School

1 I attended Scotch College Melbourne from 1932 to 1937. In 1937 I did Leaving Honours (IXth Form) and came under the influence of A.D. ("Stonk") Ross who had a profound influence on my mathematical education. He and F.J.D.Syer at University (Melb?) High School were the premier teachers of mathematics at the time since between them their students took the majority of first places in the final examinations. As a result of his teaching and encouragement I gained first place in Maths III, first class honours in maths I and IV and second class honours in maths II; I was equal (with C.S.Martin) dux of the school.

The note books in the collection are as follows.

Unit 1

Mathematics I. (Algebra) 3 vols  
Text book: C.Smith "Algebra"  
Mathematics II. (Geometry) 2 vols  
Text books: Loney "Coordinate Geometry" I  
Todhunter's "Plane Trigonometry"  
Godfrey & Siddons "Modern Geometry"  
Mathematics III. (Calculus) Vol I is missing Vol II present  
Mathematics IV. (Mechanics) 2 vols

To counter the cultural bias of a diet of unadulterated mathematics I was made, in the previous year (1936), to attend the class (but not do the exam) in European History conducted by R.G. ("Forty five") Clayton. The text book was "History of Modern Europe" by S.H.Roberts.

1 vol of notes

With the help of my cousin Bob Kidgell I constructed several radio sets and decided that I would embark on a career of radio engineering. As a beginning I read extensively in the Public Library and made notes.

1 vol of notes

1 vol of notes on various matters

- (a) Lecture by E.H.S.Burhop 18/5/37 "Atomic Nuclei"
- (b) 3 Lectures by H.S.W.Massey Aug '37 "Atomic Theory?"
- (c) Lecture by T.M.Cherry Nov '37 "Relativity"

Unidentified

- (d) Existence of Heavy Electrons
- (f) Determination of Electronic Charge
- (g) Reflection of Waves from Ionosphere
- (h) Systems of Units
- (i) High Frequency Measurements (R.C.Boswell)
- (j) Radio Fade Outs (Berkner & Wells)



## Melbourne University

My interest in radio engineering determined that I should enrol as an Engineering student. At the end of first year it became apparent that there was no viable course in communication engineering at Melbourne University and that the only such course was the combined BSc-BE degree at Sydney University. Investigation at Sydney University revealed that I would lose some credit for what I had already done at Melbourne and I was advised by Prof J.P.V.Madsen and Dr D.M.Myers that a course in mathematics and physics at Melbourne would be a very suitable substitute. This advice together with my success in mathematics determined that I should change over to a combined honours arts and science course at Melbourne

### Unit 2 First Year (1938)

Box  
2 Pure I      Lecturer M.H.Belz  
                Calculus      1 vol of notes  
                Algebra        2 vols of notes 1 set of example sheets  
                Analytical Conics    1 vol of notes

Mixed I      Lecturer T.M.Cherry  
                Vector algebra, Dynamics of systems of particles,  
                Rigid bodies, Gyroscopes, Impulsive motion,  
                Small oscillations, Statics, Flexible systems  
                3 vols of notes

Graphics      Engineering History      Lecturer A.F.Burstall  
                Graphical Construction      Lecturer G.Alexander  
                2 vols of notes

Chem. I      Lecturer E.J.Hartung    No notes extant  
                Chemistry was a vehicle for Hartung's showmanship

### Unit 3

Box  
3 Natural Philosophy I  
                Departmental lecture notes    1 set  
                General Physics              Lecturer E.H.S.Burhop    2 vols  
                2nd vol contains notes on Wave Motion lecturer unknown  
                Practical Work    Departmental Text + 2 lab note books

Sundry Lecture Notes    (Not for a degree)  
                Quantum Theory of Radiation      Lecturer E.H.S.Burhop  
                High Frequency Transmission Line Characteristics  
                Lecturer R.C.Boswell    (PMG Research Labs)

### Second Year (1939)

Natural Philosophy II  
                General Physics              Lecturer E.O.Hercus    1 vol  
                Electricity                  Lecturer E.O.Hercus?    1 vol  
                Optics                        Lecturer E.O.Hercus?    1 vol  
                Modern Physics              Lecturer T.H.Laby        1 vol  
                Practical Work              Departmental text + 1 Lab Notebook

Honours Mathematics: Like Part II of the Cambridge Tripos the course was spread over two years and there was no formal exam at the end of the first year. At this point in time (1985) I have some difficulty in assigning series of lectures to their correct year and it seems certain that some of the sets of notes have been rearranged roughly into like subject groupings rather than continuous lecture series

Unit 4

- 4
- Pure II    Lecturer T.M.Cherry  
Mathematical Analysis (Real Variable)  
    1 set of Departmental Notes with addenda #1-8 pp1-64  
Functions of a Complex Variable  
    1 set of Notes. Departmental Notes #9 pp65-67  
Linear Differential Equations & Differential Geometry  
    1 set of notes  
Problems set for solution for Analysis course    1 vol
- Mixed II    Lecturer M.L.Urquhart  
    Vols 1-3 covering Calculus of Variations, General Dynamics including Lagrange's Equations, Vector Calculus Hamilton's Equations, Small Vibrations, Electro- and Magnetostatics, Electromagnetic Fields

Third Year    (1940)

- Units 4 & 5 Pure III    Lecturer T.M.Cherry  
30%  
5  
Function Transforms with application to D.E.'s    1 vol  
Projective Geometry + Departmental Notes pp1-49    1 vol  
Series Solution of Linear Differential Equations  
    1 set of Departmental Notes with addenda #10 pp69-77  
    This probably relates to 1939. The volume also has Linear Differential Equations with applications to Legendre and Bessel functions    Lecturer E.R.love

- Unit 5 Mixed III    Lecturer M.L.Urquhart  
    Vols 3,4 contain Electromagnetic & Radiation Theory  
Electromagnetic Theory of Mass. Hamilton-Jacobi Theory and in vol 5 Stackels Method  
Vol 5 also has K.E.Bullen's lectures on Hydrodynamics

Practical Mathematics  
Departmental Notes + Worked examples

Theory of Statistics I    (Not for a degree)  
Lecturer M.H.Belz    My original notes were used as a basis for the Departmental Notes which are of later date <1950 + original practice examples + Engineering Statistics Examples dating sometime in the 50's

Unit6 Fourth Year (1941)

303  
6  
Natural Philosophy III

Modern Physics

Lecturer T.H.Laby?

Thermodynamics

Lecturer E.O.Hercus

The concurrent course in Physical Chemistry also made extensive use of thermodynamics and I tried to consolidate the two versions. This lead to outside reading and in particular the material on pp19-33 on the conditions for equilibrium. Included also is the version due to K.E.Bullen which of about the same date

Optics

Lecturer E.O.Hercus

By this time during world war II it was painfully apparent that Australia had to develop its own expertise in optical design and manufacture (The Optical Munitions Panel was set up to consider such matters) As a result my third year physics course was seriously biased towards optical design. I did not like the traditional approach to the Seidel aberration and so learned the material from J.L.Synge's Cambridge Tract

1 vol of notes

Practical work

1 lab note book

In the usual fourth year of a BA(Hons)-BSc course students did Nat. Phil. II and either Logic or Theory of Statistics I. I was not attracted towards Logic and had already attended the lectures on Statistics so on the advice of a family friend Mr Holden who worked at the Walter and Eliza Hall Institute I took Chemistry II His final comment was that some knowledge of Chemistry would never go amiss and if I did not learn it now I probably never would

303  
2  
Unit7 Chemistry II

Physical Chemistry

Lecturer E.Heymann

1 vol of notes

Organic Chemistry

Lecturer D.E.White

1 vol of notes

Record of passes and honours obtained

- 1937 I gained a Senior Scholarship to attend Melbourne University and also a Non-resident Scholarship to Ormond College
- 1938 Exhibition in Pure I  
First class honours in Mixed I & Nat. Phil. I  
Pass in Chemistry I & Graphics
- 1939 Exhibitions in Nat. Phil. II, (shared) Pure & Mixed II
- 1940 Exhibition in Pure & Mixed III (2nd Class Honours)  
Dixon Research Scholarship (Never proceeded with because of the war)
- 1941 First class honours in Nat. Phil. II Pass in Chem II

Lectures and Exams set at Melbourne University

Applied Mathematics I (Standard Grade) 1951

Vector Analysis  
Particle Dynamics  
Particle Systems: Rigid Dynamics  
Bullen Examples  
Misc. Ex.: Progress of Lectures  
Exam Papers

Unit 8  
80X8

Tutorials and Practice Classes 1950-c1960

Applied I, II 1950  
Pure I Examples  
Pure I Practice Class: Examples and Notes

Engineering Mathematics III 1954; I-IV 1955. Exam<sup>n</sup> Papers.  
College Scholarship Exams

Ormond	Calculus; & Applied	1952
Newman	Calculus & Applied, Pure	1954
		1955
		1956
		1957

Miscellaneous Scholarship Questions

University of Melbourne Faculty of Science Handbook 1941

University of Melbourne Union Handbook 1941

University of Melbourne Faculty of Arts Handbook 1941

University of Melbourne Faculty of Arts Handbook 1951

Miscellaneous Pamphlets

Unit

9

"Handbook of Symposium on Radar" Presented by members of the Division of Radiophysics CSIR on 5th, 6th and 7th December 1945 Copy No. 34. Four volumes of cyclostyled notes

"Concerning Establishment of The Groth Institute for the revision of Groth's Chemische Krystallographie" by Ray Pepinsky X-Ray and Crystal Structure Laboratory, Penn. State Uni. 15/11/57.

Unit

10

Melbourne University Student Publications

1. "Cranks and Nuts" (Engineering Students Club)  
1938  
1939  
1941
2. "The Science Review" (Science Club)  
1937  
1938  
1939  
1941  
1945
3. "MUM" (SRC)  
1947
4. "Dust" (Mildura Branch of the Melbourne University)  
1947

## Examination Papers

### Unit 10

#### 1. Examination Papers for Scholarships and Exhibitions in the Colleges of the University of Cambridge Mathematics and Mechanical Sciences

Dec 1925 - March 1926  
Dec 1927 - March 1928  
Dec 1928 - March 1929  
Dec 1929 - March 1930  
Dec 1931 - March 1931  
Dec 1931 - March 1932

#### 2. Examination papers in Mathematics from various British Universities

University of Bristol 1933 & 1934

University of Glasgow 1934 & 1935

The Scottish Universities Entrance Board 1934 & 1935

The University of Wales 1936

The University College of South Wales & Monmouthshire 1935

#### 3. University of Melbourne

Mathematics papers from 1923 to 1929 in sheets torn from a handbook

All the above examination papers were assembled by M.H.Belz

Engineering Mathematics Parts I, II, III and IV 1956 & 1957

With a greeting from Fred Syer

Engineering Mathematics Part III 1954

Engineering Mathematics Parts I, II, III and IV 1955

Documents Relating to Professional Societies

Unit 11

BOX Australian Mathematical Society

11

General Meetings

1956 15-18/7/56 Inaugural Meeting Melbourne  
1957 Sydney  
1958 Adelaide  
1959 Perth  
1960 Armidale  
1961 Brisbane  
1962 Sydney  
1965 Hobart  
1970 Melbourne  
1971 Treasurer's Report+

Constitution Lists of Members and Publications

Rules, Constitutions of 1965 and 1974

Lists of Members 1972

(See also Gazette 1/4,1974: 3/4,1976: 6/4,1979)

Research Register 1958

Newsletters

1. 1957 Jan  
2. 1957 Dec  
4. 1959 Nov  
5. 1960 Feb  
7. 1960 Aug  
8. 1960 Nov  
9. 1961 May  
10. 1961 Aug  
11. 1962 Mar?  
13. 1963 >Aug  
14. 1963 <May  
15. 1964 <May  
17. 1965 <May  
18. 1965 Oct  
24. 1968 Jan  
25. 1968 April  
30. 1970 Aug

Reports of the Summer Research Institutes

2. 1962 Australian National University  
3. 1963 Australian National University  
4. 1964 University of Sydney  
5. 1965 Australian National University  
6. 1966 University of Melbourne  
7. 1967 Australian National University  
9. 1969 Australian National University  
10. 1970 University of Tasmania  
11. 1971 University of Sydney  
12. 1972 University of New South Wales  
1975 University of New South Wales

# Statistical Society of Australia

## AGM Victorian Branch

2 / 4/64 Inaugural meeting: Constitution  
 27/ 4/65 Council members for 1965  
 21/ 3/67 AGM :JKM elected to Council  
 18/ 4/67 Council members for 1967  
 26/ 3/68 AGM :JKM becomes Hon. Treasurer  
 ? /69 Treasurer's Report only  
 24/ 3/70 Treasurer's Report only  
 23/ 3/71 AGM :JKM becomes President after R.Langley  
 28/ 3/72 AGM :JKM gives Presidential Address  
 "Exploratory Analysis of Data"  
 27/ 3/73 AGM :JKM Immed. Past President to S.Maritz  
 26/ 3/74 AGM :JKM Immediate Past President  
 1975 - 1984 AGM meetings

## Victorian Branch Council Minutes

1967	27: 16/3	28: 4/4	29: 23/5	30: 4/7	31: 25/7
	32: 15/8	33: 12/9	34: 24/10	35: 28/11	
1968	36: 27/2	37: 21/3			
1970	58: 12/8	59: 1/9		61: 27/10	62: 24/11
1971	63: 16/2	64: 23/3	65: 1/4	66: 15/4	67: 1/6
	68: 22/6	69: 27/7	70: 28/9	71: 12/10	72: 26/10
1972	73: 22/2	74: 2/5	75: 9/5	76: 30/5	77: 27/6
	78: 18/7	79: 1/8	Extraordinary Meeting 3/8		
	80: 26/9	81: 24/10	82: 5/12		
1973	83: 13/2		85: 17/4	86: 29/5	87: 26/6
	88: 24/7	89: 31/7	89: 4/9	90: 25/9	
	92: 30/10				
1974	93: 5/3	94: 26/3	95: 30/4		97: 25/6
	98: 30/7	99: 27/8			102: 25/3/75

## Membership List for 1971

## File on National Statistics Conferences

## File on the aborted course for accountants

## Central Council

## Minutes & Annual Reports

1968	19/2/68	x
1969	11/2/69*	x
	27/8/69	
1970	3/3/70*	x
	26/8/70	
1971	25/2/71	x
	25/8/71*	
1972	18/2/72*	x
1973	23/2/73*	x
1974	1/3/74*	x



## Unit 12

M. H. Belz Lectures

(Correspondence &amp; notices re - not tests)

- |      |          |   |
|------|----------|---|
| 1.   |          | No record   |
| 2.   | 24/11/70 | P.A.F. Moran      Maximum Likelihood Estimates under Anomalous Conditions |
| *3.  | 23/11/71 | E.J. Williams      Whither Statistical Principles                         |
| *4.  | 28/11/72 | J.B. Douglas      Contagion isn't Catching (MHB present)                  |
| 5.   | 28/11/73 | C.R. Heathcote      The Statistician & Nuclear Proliferation              |
| *6.  | 26/11/74 | P.J. Brockwell      Probability: Past and Present                         |
| 7.   | 9/12/75  | J. Gani      Some Aspects of the Development of Statistics in Australia   |
| 8.   | 23/11/76 | P.D. Finch      On the Crude Analysis of Survivorship Data                |
| 9.   | 22/11/77 | N.G. Becker      Models and Designs for Experiments with Mixtures         |
| 10.  | 28/11/78 | G.A. Watterson      Testing for Selection in Genetic Evolution            |
| *11. | 27/11/79 | J.S. Maritz      Standard Errors: Some Thoughts on an Old Problem         |
| *12. | 25/11/80 | C.C. Heyde      Trends in the Statistical Sciences                        |
| *13. | 24/11/81 | E.J. Hanan      Is Theory Practically Useless                             |
| 14.  | 22/ 6/82 | G.S. Watson      Statistical Problems in the Earth Sciences               |
| *15. | 22/11/83 | D.J. Daley      Ranking Individuals                                       |
| 16.  | /11/84   |   |

BOX13

## The Institute of Physics (London)

Proceedings of the Inaugural Meeting 27/4/1921

Formation of the Australian Branch 27/ 8/24

Notes on the Amalgamation of The Institute of Physics and  
The Physical Society 1/12/59

## The Institute of Physics (Australian Branch)

General Meetings (Xerox of originals in Bassett Library)

8: 18/ 8/33 9: 22/ 1/35 10: 28/ 5/36

11: 22/ 8/39 This meeting was adjourned to 24/8 and  
again to 26/8 to draft a letter to the  
Prime Minister concerning the International situation  
and offering the co-operation of the Branch in  
directing physicists. Though not a member I believe  
I was present. In any case, Laby was a patriot and  
very emotional about it. On several occasions he  
exhorted us during lectures to support the war effort

12: 26/ 2/41 13: 25/ 2/42 14: 12/ 2/43 15: 8/ 2/44

16: 5/ 7/44 17: 30/ 5/45 18: 7/11/45 19: 22/ 8/46

20: 25/ 8/47 21: 14/ 1/49 22: 19/ 7/49 23: 24/ 5/51

24: 22/ 8/52 25: 18/ 6/53 26: 16/ 1/54 27: 18/ 8/55

28: 30/ 5/61 29: 12/ 6/62 30: 21/ 8/62 The final AGM

Minutes of the Inaugural Meeting of the Australian  
Institute of Physics 21/ 8/62

## Annual Reports

Branch 1957,1958,1959,1960 &amp; 1961,1962

Vic. Div. for 1958,1959,1960 &amp; 1961 AGM for 1961

## List of Members for 1953

Australian Branch Committee Meetings (Xerox of originals)

30/11/43 8/ 2/44 9/ 5/44 4/ 7/44 6/12/44

29/ 5/45 22/ 8/45 6/11/45 22/ 8/46 12/ 1/47

22/ 8/47 16/ 4/48 9/12/48 Jan 49? 21/ 3/50

21/ 2/51 The first discussion of an Australian body

6/ 4/51 27/ 3/52 6/ 6/52 Opposition from Vic

10/ 3 53 Ballot against independence 15/ 1/54

18/ 3/54 18/ 8/55 4/ 6/ 57 Discussion of AIP again

The Hon. Sec. J.C. Bower died suddenly on 12/ 8/57 and  
was replaced by JKM on 3/10/57

14/11/58 Discussed membership qualifications and  
removal of the Branch to Sydney

10/12/59 Membership qualifications again  
Formal removal to Sydney on 1/ 1/60

1/ 5/61 Membership qualifications unsatisfactory  
for Australian conditions. AIP considered

14/ 6/62 Discussion of the formation of AIP

20/ 8/62 Meeting prior to the formation of AIP 21/8

16/11/62 Winding up meeting

Minutes of the first Council Meeting of AIP 16/11/62

## Unit 13

Working Papers for the Branch Committee Meeting on 1/ 5/61  
Includes files on  
(a) Prohibition of Publication  
(b) A proposed Australian Organization for Physicists  
(c) Employment of Physicists  
Dep. of Labour & National Service Rep. Dec 60  
M.U. Appointments Board "Careers for Graduates  
No. 16 Physics" Oct 60

## Australian Institute of Physics

I was Honorary Treasurer from the AGM on 27/ 2/69 to the  
AGM on 10/ 2/77. The office transferred to Sydney  
later in the year

### Annual Reports and AGM Minutes

Folder containing a complete set of Annual Reports,  
AGM Minutes and published reports of Council Mtgs  
from No.1 1963 to No. 14 1976 inclusive

Index of Meeting Dates to C20 (18/ 5/72), E51 (25/ 7/72)  
Policy & Procedure to C23 ( 1/11/73)

~~XXXXX~~ Unit 13 Executive Minutes (First few pages only) E34 to E81  
~~XX~~  
E34: 12/11/68 My 1st meeting as Treasurer elect  
E37: 16/ 4/69 My 1st meeting as Treasurer  
E81: 30/11/76 My last as Treasurer?  
Arrangements for transfer to Sydney

Unit 14 Council Minutes (C13: 3/10/68 to C29: 25/10/76)  
Extracts relating to (odd numbered) Budget Meetings  
and to subscription levels in general.

Financial Policies and Subscription rises

File relating to move from Melbourne to Sydney

### Reports on the Employment of Physics

See also Working Papers for the IoP Branch Committee  
Meeting on 1/ 5/61  
List of Members for 1974

### Second File on the Employment of Physicists (contains inter alia)

Address by F.Argy (DLNS) to ANZAAS 18/ 8/69  
Dep. of Labour Res. Study Paper No. 9 (July 1973)  
Supply of, demand for and experience of Physicists  
Professional Incomes (1970) by K.Gravell (MU Appts Bd)  
Science and Technology in the Service of Society  
Aust. Govt. White Paper 17/ 1/75  
Physics in Australia (1/3/75) Committee on Overseas  
Professional Qualifications  
National Science Policies Australia (OECD Report 1973)

Unit 14 Also Box 14. CSIRAC input Tape; Output tape in small  
metal canister labelled "12 Hole CSIRAC Tape".  
Martensite <sup>12</sup>Computation.

Addendum to page 4:

Comment on the uncertainties of student life at Melbourne University in 1940

The war was in an uncertain state and it was rumoured first that the University might close and then that courses, particularly Medicine, would be run continuously without vacations so as to maximize output. As far as Honours Mathematics was concerned this meant that the Final Examinations were held with all the other Examinations in November at not as was customary in the following March. This threw all our plans for several months study into disarray and together with the general uncertainties of the times resulted, I believe, in a poorer performance than might otherwise have been expected. In any event, though I topped the year, I only achieved second class honours; I was disappointed in this result and so also, I believe, was my rival R.C.T. Smith

The war also affected my tenure of the Dixon Research Scholarship. There were two components: to do some research and to assist with tutoring in the department. The research component was delayed a year because I had to complete my BSc course. However, I did tutor in the department in 1941 while I was doing this. At the end of 1941 I was "manpowered" to do warwork in industry so the research was put into abeyance. Later in about 1946 I contacted <sup>Prof</sup> Cherry about the research and although he was a little lukewarm he suggested that I might like to think about his current interest in eigenvalue expansions. However, as I was in Sydney while he was in Melbourne, we were somewhat disconnected and it all came to nothing since I took up a CSIR Studentship to study for a PhD at the University of Bristol. My relations with Cherry though in no way strained became thereafter vaguely distant. For example, when I asked him for support in a job application he pointed out that since I had only obtained second class honours he could not make as generous a recommendation as might otherwise be the case. Needless to say I let the matter rest. There were other examples which though trivial in themselves made me feel that I did not have his support.

## Sundry Books and Pamphlets

### Unit 16 Books

- (1) Technological Trends and National Policy 1937 Washington  
Report of the subcommittee on technology to the  
National Resources Committee
- (2) Introduction to the Laplace Transform J.C.Jaeger 1946  
Original cyclostyled notes reproduced by CSIR
- (3) Elastic Creep Properties of Filamentous Materials and other  
High Polymers H.Leaderman 1943 Textile Fondation: DC
- (4) British Universities S.C.Roberts 1947 Collins: London
- (5) The Radio Amateur's Handbook 1933 American Radio Relay  
League: Conn

### Unit 15 Government Reports

- (1) Social Insurance and Allied Services Sir William Beveridge  
HMSO 1942
- (2) Working Conditions in the Civil Service Treasury Study Group  
HMSO 1947
- (3) House Construction Post-War Building Studies No.1 HMSO 1944
- (4) Heating and Ventilation Post-War Building Studies No.19  
HMSO 1945
- (5) Royal Commission on Population Report HMSO 1949
- (6) Post-War Reconstruction: A case for greater Commonwealth  
Powers Prepared for the Constitutional Convention  
at Canberra 1942

### Unit 16 Reports of Conferences

- (1) Abstracts of papers presented at the IUCR conference held  
in Melbourne 19-23 August 1974 "Real Atoms in Crystals
- (2) Handbook for the same
- (3) Abstracts of papers presented at the IUCR conference held  
in Melbourne 16-21 August 1965 "Electron Diffraction
- (4) The Teaching of Physics Melbourne August 1954 Vic Br IoP
- (5) Applications of Isotopes in Scientific Research Melbourne  
August 1950 CSIRO & MU Chemistry Depatment
- (6) Vacuum Physics Symposium held in Birmingham June 1950 by IoP
- (7) Lectures by J.W.Mitchell on The Physics of the Solid State  
at the University of Sydney Oct & Nov 1947

### Unit 16 Professional Matters

- (1) Scientific and Tecnological Manpower: Supply and Demand in  
Australia Academy of Science Canberra 1957
- (2) The Education and Training of Technologists IoP London 1948
- (3) Research in Industry O.W.Humphreys IoP (Aust Br) 1953
- (4) Mathematics in the Australian Universities J. Gani &  
A.L. Blakers Reprint from Universities Quatrterly Feb '59
- (5) Observatories in Australia D.Ia. Martynov ANU 1965  
Report of a Russian exchange visitor to Australia

## Unit 16

### Miscellaneous

- (1) A Report on the International Control of Atomic Energy  
Prepared for the U.S. Secretary of State 1946
- (2) Science and Responsibility Sir David Rivett Delivered at  
the 18th Annual Commencement Ceremony of the Canberra  
University College 25/ 3/47
- (3) The Birth of the Nuclear Atom E.N.daC. Andrade Rutherford  
Memorial Lecture in Melbourne 4/10/57
- (4) Chemical Progress Handbook of an Exhibition held at the  
Science Museum July-September 1947
- (5) Handbook for the National Standards Laboratory Open Day  
3-5 May 1961
  
- (6) Programming Manual for CSIRAC December 1956
- (7) Programming Manual for CSIRAC August 1959
- (8) Description of the Routines Available for use on CSIRAC
- (9) Programming examples from a computing course
- (10) Program tape for CSIRAC

Unit 17      Programming Manuals for the Automatic Electric Computer CSIRAC  
              Programming on CIRAC examples 1956