

University of Melbourne Archives
Professor V.D. Hopper Collection

Accession 86/3

HISTORICAL NOTE:

Victor David Hopper was born in Wales in 1913. He gained a scholarship to attend Neath County School where he remained until 1927. In that year Hopper emigrated to Australia under the "Little Brother Movement", and a year later continued his school studies at Horsham High School in Victoria.

In 1930, Victor Hopper won a teaching scholarship and trained at Melbourne Teaching College. He attended the University of Melbourne on a part-time basis while he taught in a succession of schools. He gained his B.Sc. Degree in 1937 and embarked on a Masters and later D.Sc. Degree. It was in this period that Hopper excelled and was awarded a series of major research scholarships that included the Dixson Scholarship, the David Syme Research Medal and the Nuffield Dominion Research Fellowship.

After completing his Ph.D. Hopper joined the staff at the University of Melbourne on a full-time basis. He also began to acquire an international reputation as a research physicist. With the late Professor T.H. Laby and individually he completed a long series of precision measurements on the electron charge using the oil drip method. Dr. Hopper's interests and qualities found full expression in his work using nuclear emulsion techniques for the study of cosmic ray events at high altitudes. The success in this field was partly due to Hopper's skill in attaining high altitudes in balloon fields for long periods.

In 1961, Dr. Hopper was appointed to the Chair of Physics (RAAF Academy). From 1966 to 1967 he served as Dean of the Science Department. Professor Hopper remained at the University of Melbourne as a inspiring teacher and prolific research physicist until he retired.

GENERAL NOTE:

The collection chronicles Professor Hopper's professional career as a University Professor and research physicist. It largely consists of Hopper's correspondence as Professor of Physics at the RAAF Academy and his intensive research on cosmic ray events, electron charge, astronomy, SST emissions and the environment and balloon flights. There are some surviving notes made by Hopper as an undergraduate and during his postgraduate years. With the exception of this material the collection has no personal or family documents or letters.

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SERIES 1 NOTEBOOKS

BOX 1 VICTOR HOPPER'S NOTEBOOKS

- 1) Black Exercise Book
Notes on electricity 1939, physics revision 1939, optical flats 1939, practical physics 1941
- 2) Brown Exercise book
Notes on physics and equations from various articles and papers, 1948 - 1949
- 3) Blue Notebook
Notes, graphs and equations on cyclotron components, 1949. Also notes from various articles and papers
- 4) Blue Notebook
Notes and photographs on emulsion, 1949
- 5) University of Melbourne Natural Philosophy Laboratory Exercise Book
Notebook No. 3 on physics, 1948
- 6) University of Melbourne Natural Philosophy Laboratory Exercise Book
Notebook No. 1 on cyclotron information, photographic emulsion work, physics, graphs, equations, 1950
- 7) University of Melbourne Natural Philosophy Laboratory Exercise Book
Notebook No. 5 on nuclear emulsion technique, balloons, 1950
- 8) University of Melbourne Natural Philosophy Laboratory Exercise Book
Notebook No. 2 on nuclear disintegration, physics and

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astronomy, 1951

BOX 2 **NOTEBOOKS**

- 1) **Notebook 1957-1965**
Notes on Physics including research on balloons, 1965
- 2) **Research**
Enclosed in a folder, research on transparency
Date Range: 5 June - 6 June 1980
- 3) **Research Report**
Enclosed in a folder research report and photographs
on the upper atmospheric program
Also Hopper, V.D., "Correlation of field mills with
acoustic sounding wind

BOX 3 **NOTEBOOKS**

- 1) **Nuffield Expedition 1957**
Notes taken in South Africa, South America, Greece,
U.K, 1957
- 2) **Notes**
Notes on Physics, 1953
- 3) **Emulsion 1956**
Notes on Emulsion , No.7, 1965
- 4) **Japanese Emulsion Stock 1980**
Notes on Japanese emulsion stock, Electric Fields,
aim of project, 1980

SERIES 2 **CORRESPONDENCE, REPORTS AND NOTES**

BOX 4 **CORRESPONDENCE 1957-1961**

- 1) **Australian Cosmic Ray Projects Correspondence 1957-1959**
Includes correspondence and reports regarding
Professor Hopper's research
Date Range: 1957 1959
- 2) **University Policy 1959-1961**
Correspondence regarding equipment , grants, balloon

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flights
Date Range: 1969 -1961

BOX 5 **CORRESPONDENCE 1975-1979**

- 1) **The Service Academy Plans**
Correspondence and notes regarding the Service Academy Plans, 1975
- 2) **Gamma Ray Astronomy**
Papers by Professor Hopper regarding gamma rays, 1979
- 3) **Work on Electric charges**
Notes and photographs regarding electric charges

BOX 6 **GAMMA RAY EMULSION**

Correspondence, notes and papers regarding Professor Hopper's research

BOX 7 **BALLOON FLYING**

Correspondence, papers, notes and photographs regarding balloon flying. Also draft of Professor Hopper's book, Balloon Flying

BOX 8 **ELECTRONIC CHANGE**

Correspondence, papers, photographs and notes regarding Electronic Change

BOX 9 **JAPAN AND RAY STUDY**

- 1) **Systems for Long Duration of Flight**
Material on long duration flight, Hiroshima and Nishemura
Also paper on nuclear collisions, 1982
- 2) **Balloons 1957-1959**
Correspondence and material on balloons
Date Range: 1957 - 1959

BOX 10 **CORRESPONDENCE 1952-1960**

- 1) **Radiation Hazards 1952**

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Correspondence (letters with Brigadier A.W. Wardell),
notes and papers regarding radiation hazards
Date Range: January - December 1952

- 2) **Nuffield Foundation Correspondence 1953-1958**
Correspondence regarding Professor's research on
cosmic ray particles at high altitudes and liquids,
C.S.I.R.O, Hopper's Nuffield research grant,
financial assistance
Also Professor Hopper's C.V and notes
Date Range: 1953 - 1958

- 3) **Satellites**
Including correspondence, notes and papers regarding
satellites and tracking, space physics and Russian
satellites
Date Range: 1957 - 1960

- 4) **Space Research**
Correspondence, notes and papers on space research
Date Range: 1959

- 5) **Electron Background in Imported G.5. Emissions**
Including correspondence, notes, papers and newspaper
clippings on the physiological effects of cosmic
radiation at high altitudes, radioactive clouds,
radiation sources, electron background of imported
G.5. emissions
Date Range: 1958 - 1960

BOX 11 **RAAF ACADEMY CORRESPONDENCE**

- 1) **RAAF Academy Overseas Visit 1961**
Including correspondence with Jean Laby, G.W. Paton,
A.B. Pittock and J.F Ward, notes, itinerary, Report
on the Overseas Visit 9 May - 21 July 1961
Also paper on "A Plan for Meteorology"
Date Range: January - August 1961

- 2) **RAAF Academy Research 1962-1974**
Including correspondence, staff lists, notes on
research funding, submission on the Academy by
Professor Hopper, University of Melbourne Open Day

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Program 1969, University of Melbourne research and graduate studies in Physics Report, Itinerary for the visit to the RAAF Academy
Date Range: 1962 - 1974

BOX 12 **CORRESPONDENCE 1961-1976**

- 1) **Correspondence regarding Radio Research**
Including telegrams, correspondence regarding Radio Research Board, RAAF, Antarctic Meteorology and Balloon Launching Station, graphs, memorandums, papers, newspaper clippings
Date Range: 1961 - 1963

- 2) **Correspondence regarding Research 1963-1965**
Including correspondence regarding Radio Research Board, Geophysical Institute at the University of Alaska
Also application for Radio Research Grant 1964-1965, material on Radio Research Board, RAAF Academy, Australian Institute of Physics Second Annual Report, Report to Council on Professor Hopper's overseas visit, Research Papers, Articles and Proposals
Date Range: 1963 - 1965

- 3) **Correspondence regarding RAAF Research 1964**
Including correspondence, staff memorandum re. research equipment, notes
Also Research Proposals, Physics Department Grants, academic staff subscriptions, RAAF Academy Nominal Roll
Date Range: 1962 - 1964

- 4) **RAAF Equipment Estimates**
Including the Syllabus of the RAAF Academy 1963, Annual Requirements of Laboratory and Workshop Equipment for Instructional Use RAAF Academy 1966-1967
Date Range: 1963 - 1967

- 5) **Parliamentary Standing Committee on Public Works**
Report relating to the proposed construction of a Science Block at the RAAF Academy, Point Cook 1961

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- 6) **Committee of Inquiry into the operations of the Balloon Launching**
Including Correspondence, draft reports, notes,
Date Range: 1973 - 1976

BOX 13 RAAF CORRESPONDENCE 1954-1980

- 1) **RAAF Correspondence 1963**
Regarding ANZAAS program for 1964, Public Works Committee, general RAAF academic duties, accidents in research work, staff memorandum, education, squadron program, RAAF semi-official correspondence, RAAF science building
Date Range: 1954 - 1963
- 2) **Photographs of Radio Antennas near Laverton, Vic**
Four photographs of collapsed radio antennas destroyed by severe wind on 5 October, 1968
- 3) **RAAF Research Grant Applications 1969-1971**
Including correspondence, notes, financial material, applications
Date Range: 1969 - 1971
- 4) **Correspondence 1972**
Regarding equipment maintenance, RAAF recruiting personnel course, officer's mess accounting
Date Range: 1964 - 1972
- 5) **RAAF Correspondence 1976**
Regarding RAAF research requests, RAAF Academy research program, report on RAAF Academy Research Report, applications for Grants, Financial Statements, Board of Studies for RAAF Academy Minutes
Date Range: 1970 - 1976
- 6) **Professor Hopper's Correspondence 1976**
Regarding ANZAAS Conference, RAAF Academy Nominal Roll, absences from lectures, staff-in-confidence Minute papers
Date Range: January - December 1976
- 7) **Correspondence 1976-1977**
Regarding RAAF financial statements, research grants,

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research requests

Date Range: 1 June 1976 - 1 June 1977

8) **Correspondence 1979**

Including financial statements, notes, A.B.L.S Co-Ordinating Committee and Scientific Advisory Panel Meeting

Date Range: January - December 1979

9) **Correspondence 1980**

Including Astronomy Advisory Committee Agenda, Meetings and Papers

Date Range: January - December 1980

BOX 14 GENERAL CORRESPONDENCE 1978-1981

1) **General Correspondence**

Including Correspondence and material regarding University, meetings, survey of graduates, former students, education, the Antarctic Policy Advisory Committee, C.S.I.R.O. Bureau of Meteorology

Date Range: 1978 - 1981

BOX 15 DEAN OF SCIENCE PAPERS AND CORRESPONDENCE

1) **Correspondence of Professor Hopper (Dean of Science)**

Including letters, notes, memorandums, Science Course Details, Bachelor of Science selection into first year of course

Also report of the C.S.I.R.O Advisory Committee, report for Professor Hopper (Dean of Science), Agreement between University of Melbourne and Education Department, Professorial Board Minutes No.1 - No. 11 (incomplete) and legislation, Staffing and Faculties for Science Courses, B.Sc. Steering Committee Minutes, Chairman of Subject Sub-Committees Minutes, Faculty of Science Executive Committee Minutes, Faculty of Science B.Sc.Ed. Chemistry Committee, Selection Committee material Agreement prepared by Professor Austin, Dean of Education and Professor Hopper, Dean of Science Copy of "Lab Talk"

Date Range: 1966 - 1967

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2) **T.T.C.P. Material**

Including T.T.C.P Panels N4 and N5 Notice of Meeting, T.T.C.P. Sub-Group N Panels N4 - N5 Combined Meeting 1968, Policies, Organisation and Procedures in Non-Atomic Military Research and Development September 1963, American, British, Canadian, Australian Armies Standardisation program Criteria for Protection of Equipment against Nuclear WarfarE Effects 1968

BOX 16 **CORRESPONDENCE AND MATERIAL REGARDING RESEARCH AND RAAF ACADEMY 1958-1968**

1) **Correspondence and material regarding cosmic ray balloon flights 1958-1961**

Including correspondence regarding Hopper's appointment to the Chair of Physics (RAAF Academy), University of Melbourne cosmic ray balloon flights, students, research, RAAF Academy
Also notes on applications of meteorological Balloons, receipts, articles
Date Range: 1958 - 1961

2) **Correspondence with Professor Hopper during his trip to South Africa and South America 1958-1959**

Including correspondence regarding Hopper's trip to South Africa and South America, publication on cosmic radiation, tracking balloon flights, cosmic ray research at high altitudes
Also travel insurance, notes, scientific apparatus taken to South America, report of South Africa and South American visit (M.S.)
Date Range: 1958 - 1959

3) **Correspondence and Material regarding RAAF Academy 1961-1962**

Including correspondence regarding RAAF appointments, creation of RAAF Academy, University Degree Course pursued at RAAF Academy 1963, research grant funds, staff, Minutes of Professorial Board
Also Minutes of Evidence relating to the proposed construction of the RAAF construction at Point Cook,

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Science Block RAAF Academy furniture schedule, paper on cloud photography from constant level balloons, notes, proposed research program for RAAF Academy 1961-1962

Date Range: 1961-1962

4) RAAF Research 1960-1966

Including notes on preparation of applications, Univ. of Melb. Board of Studies for the RAAF Meeting, matriculation statistics 1965 and 1966

Date Range: 1960 - 1966

5) RAAF Academy 1967-1968

Including correspondence and reports on the development of reputation of RAAF Academy, problems of administration, submission on Academy, new developments, arguments for retention, tutorial assistance

Date Range: 1967 - 1968

6) Miscellaneous publications

Including "High Altitude Meteorological Balloon Techniques", by Edwardes, N. (C.S.I.R.O.), copy of The Australian Physicist, July 1966

BOX 17 CORRESPONDENCE AND MATERIAL REGARDING BALLOON STATION
1970-1981

1) Correspondence and material regarding balloon station facility

Including letters, telex, papers, itinerary, tickets, Minutes of Meetings, e.g. Astronomy Advisory Committee, ABLS Scientific Advisory Panel, invitations to conferences, e.g. International Cosmic Ray Conference, notes

Also articles on Melbourne city air, Australian contributions to x-ray and gamma-ray astronomy, very long duration balloon flight, an Australian balloon facility, ABLS flight summaries and development plan,

Date Range: 1980 - 1981

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2) **Correspondence and material regarding SST emissions and the environment**

Including correspondence regarding atmospheric effects of supersonic aircraft, CSIRO, Also report on the effect of the SST on the environment, report on the sub-committee on particulars, report on traffic and emissions, on technisearch - future expansion, global production of SST emissions, report on the sub-committee on particulate, upper atmosphere research in Australia
Date Range: 1970 - 1972

SERIES 3 PUBLICATIONS

BOX 18 Miscellaneous Publications

Including:

- Bushnell, R.H., Glover, V.M., Chou, R.D., "Engineering Report on a Dropsonde for Measuring Vertical Wind Voracity in Thunderstorms." 1973
- Davis, M.H., "The Present Status of Atmospheric Electricity." 1979
- Hopper, V.D., "The Electronic Charge and the Oil Drop Method." 1948
- Laby, Jean and Unthank, E.L., "Stratospheric Wind Over Australia 20 S - 40 S, 1966-1972." 1972
- Pearson, P.H.O. "Measurements of the Basic atmospheric Parameters at Woomera using the Falling Sphere." 1975
- Smith, William and Platt, C.M.R., "A Laser Method of Observing Surface Pressure and Pressure-Altitude and Temperature Profiles of the Troposphere from Satellites." 1977
- I.R.I.G., "Data Report of the Meteorological Rocket Network Firings." 1963
- Miscellaneous Articles

SERIES 4 OTHER MATERIAL

BOX 19 Glass Plates

Including:

- Glass plates documenting Hopper's research

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enclosed in numbered letter envelopes

- Ilford Nuclear Research Plates demonstrating emulsion type and thickness conducted in 1955, 1959 and 1960, 4 boxes

- Kodak Photographic Plates of cosmic ray research conducted in 1960, 9 boxes

Note: Some of the glass plates are broken, handle with care

BOX 20

Glass Plates

Including:

- Glass plates documenting Hopper's research enclosed in numbered letter envelopes

- Ilford Nuclear Research Plates demonstrating emulsion type and thickness conducted in 1957 and 1959, 3 boxes

- Kodak Photographic Plates of research conducted in 1959, 1 box

- Optical fused glass sample, from the Optical Program

Note: Some of the glass plates are broken, handle with care

BOX 21

Photographs and Newspaper clippings

Including

- Photographs of research recovery spot in Central Australia and balloon launch and flight, 1959 (?)

- Photographs of Point Cook RAAF Academy Building, lecture theatre, Common Room, Laboratory, 7 October 1963

- Photographs of the Eclipse, June 1974

- Miscellaneous Photographs

- Newspaper articles documenting the flight of the world's largest balloon launched to study the Milky Way and equipment, February 1969