

GB 0440 PM

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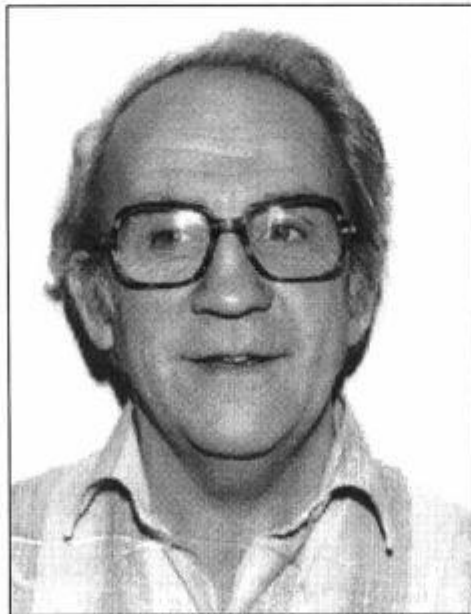
The National Archives

John Innes Foundation Historical Collections

GB 440 PM

Peter Matthews Collection

1951-1998



Contents:Peter Matthews Collection

PM 1 Genetics Dept.

PM 1/1 Incompatibility systemsPM 1/2 DrosophilaPM 1/3 Minor projects

PM 2 Applied Genetics

PM 2/1 CherryPM 2/1/1 Cherry breedingPM 2/1/2 Pseudomonas and bacteriocinsPM 2/2 PisumPM 2/2/1 RoguePM 2/2/2 PathologyPM 2/2/3 IsozymesPM 2/2/4 ProteinsPM 2/2/5 General/ misc.PM 2/3 CarnationPM 3 Slides and NegativesPM 4 Reprints

Reference: GB 440 PM

Title: Peter Matthews Collection

Dates: c.1952-1997

Extent: 5 shelves (33 boxes, 23 volumes, 11 binders)

Description Level: Fonds

Creator

Peter Matthews.
Also AE Arthur, AJ Bateman, KS Dodds, BJ Harrison.

Biography

Perhaps more than anyone else, Peter Matthews has had a life-long association with the John Innes Centre, having grown up near the JIHI at its original home at Merton in south London. After leaving school, he obtained a summer job in the Pomology department (1947), before being called up for National Service. He studied Genetics under Kenneth Mather (formerly head of the Genetics department at JIHI) at Birmingham University, being one of the first to take a degree in the subject. On graduation in 1952, he obtained a post in the Genetics department at the John Innes, by then at Bayfordbury, transferring to the Department of Plant Breeding (later Applied Genetics) in 1958. He moved with the Institute to Colney in 1966, and remained at JI until his retirement in 1988, since when he has maintained ties with the Centre.

Peter Matthews' early work in the Genetics department was mainly on incompatibility systems (specifically pollen tube growth) in *Solanum* and *Nolana*. He also worked with Brian Harrison on *Drosophila*, and took over several long-term experiments started by Dr A.J. Bateman (AR 1953).

On transfer to the Plant Breeding Department he took over the then-unused cherry seedling and variety collections resulting from the incompatibility and breeding work of M.B. Crane and D Lewis, and started a programme of breeding for resistance to bacterial canker in cherries. This resulted in the 'second generation' of John Innes cherry varieties, notably 'Merchant', 'Hertford' and 'Colney'. Alongside breeding, he studied the causative agents *Pseudomonas morsprunorum* and *Ps. syringae*. The cherry breeding programme also included work on dwarfing rootstocks, and incorporated the self-fertile mutation produced by D Lewis in the 1950s.

His other main area of interest was in the genetics and pathogens of *Pisum*. He studied proteins, isoenzyme variation, pathology, and rogue. This last was the subject of his PhD thesis in 1973, and continued a line of study at JI started by Bateson and Pellew, and continued by KS Dodds. From the late 1960s he brought together the *Pisum* Germplasm Collection from stocks held at JI and elsewhere, and was curator of the collection until his retirement. Work on resistance to *Fusarium* wilt in peas also led to collaboration with Dr AE

Arthur on breeding for resistance to *Fusarium* wilt in carnations.

Peter Matthews was awarded the Jones-Bateman cup in 1973 for his work on cherry breeding.

Source

Deposited by Peter Matthews.

The majority of the collection was received as a single accession in October-November 1990, with a few subsequent additions from Peter Matthews and former colleagues, 1990-2000.

Content

The collection comprises notebooks, files and ring binders, reprints and an extensive collection of 35mm slides and glass plate negatives, mainly re work on cherry breeding (including self fertility), *Pseudomonas morsprunorum* and *Pisum*, with a few files on carnation breeding. A substantial series of notes relates to partially unpublished work on *Drosophila* and there are notebooks on Matthews' early work on pollen tube growth and incompatibility systems.

The collection does **not** contain records relating to the *Pisum* germplasm collection, which were passed by the creator to Mike Ambrose, present curator of the collection.

Appraisal

Pisum sowing records, a few files on isoenzymes, and indexes of bibliographic references have been destroyed on the advice and authority of the creator.

Accruals

The collection as described constitutes the majority of Matthews' working papers, however further minor accruals are possible. Two files of computer data on cherries, not found during cataloguing, are to be accessioned if relocated by the creator or by JIC computing section.

System of Arrangement

The collection falls into natural subject groupings by research topic, which have been arranged in broadly chronological order. Some of the photographic series slightly overlap these divisions, so they have been kept distinct as a separate sub-fonds.

Physical Characteristics

Most of the material is in reasonable or good condition. Ring binders have in general been discarded on conservation grounds.

Related materials

Earlier records of cherry breeding at JII are in the A Gavin Brown Collection (AGB 1/3), and MB Crane/ Pomology Dept. records.

Records relating to the Pisum Germplasm Collection are held by the curator of the JIC *Pisum* germplasm collection.

PhD thesis: *Genetic studies on spontaneous and induced rogues in Pisum sativum*, 1973 (JIC Main Library).

Brian Harrison's notes on *Drosophila* (temperature data, poison tolerance) and controlled environment studies in tomato and antirrhinum, on which Peter Matthews collaborated, are also in JIFHC.

Recording of a series of Oral History interviews is in progress.

Archivists note

Catalogue completed October 2000, by Rachel Gill, Assistant Archivist

Reference: PM 1

Title: Peter Matthews Collection: Genetics Department

Dates: 1950-1959, 1974

Extent: 26 files and notebooks

Description level: sub-fonds

Content

Notes, etc. on work in Genetics Department, predominantly on pollen tube growth and compatibility, and on *Drosophila*. Also records of Dr A J Bateman's experiments continued by Peter Matthews.

Reference: PM 1/1
Title: *Incompatibility systems*
Date: 1952-1959 and 1974
Extent: 8 notebooks, 1 file
Description level: sub-sub fonds

Reference: PM 1/1/1
Title: Annual Reports
Date: 1953-1959, c.1974
Extent: 1 file with 2 sub-files
Content: Draft reports (mostly unpublished) with notes and photographs: incompatibility in *Linaria*, *Salpiglossis* (1959). Rye (1953). Natural crossing in *Melandrium. Drosophila* (1956). Tomato. Draft project outline and notes: rooting in *impatiens* [c.1974]. Incompatibility in *Linaria* and *Nolana*. [2 sub-files] (1958)
Note: Work on *Impatiens* by JE Bradshaw (visiting worker) is mentioned in JII Annual Reports 1973, 1974. Peter Matthews was presumably his supervisor.

Reference: PM 1/1/2
Title: *Salpiglossis I*
Date: 1953
Extent: 1 notebook
Content: Pollen tube growth study: notes on families. Includes a dried specimen.

Reference: PM 1/1/3
Title: *Salpiglossis II*
Date: 1953-1956
Extent: 1 notebook
Content: Pollen tube growth and self-incompatibility: detailed notes on families.

Reference: PM 1/1/4
Title: *Melandrium*
Date: 1952-1956
Extent: 1 notebook and loose notes
Creator: Peter Matthews, AJ Bateman
Content: Pollen tube growth and breeding systems: experimental data, notes, sketches.

Reference: PM 1/1/5
Title: Nolana
 Date: 1957-1958
 Extent: 1 notebook
 Content: Pollen tube growth and interspecific crosses: notes, tables, sketches.
 Physical condition: Front board loose

Reference: PM 1/1/6
Title: Controlled temperature rooms: Nolana
 Date: 1957-1958
 Extent: 1 notebook
 Content: Pollen tube growth study: notes on plants raised at different temperatures.

Reference: PM 1/1/7
Title: Solanaceae: Pollen tube studies
 Date: 1957-1958
 Extent: 1 notebook
 Content: Notes.

Reference: PM 1/1/8
Title: Nolanaceae and Solanaceae: cytology
 Date: n.d. [c.1957-1958]
 Extent: 1 notebook
 Content: Notes and drawings (species and families).

Reference: PM 1/1/9
Title: Miscellaneous
 Date: 1954-1957
 Extent: 1 notebook
 Content: Notes, experimental results and summaries of short-lived experiments in self-sterility study: ?Biophytum, Salvia, Nolana.

Reference: *PM 1/2*

Title: *Drosophila*

Date: 1952-1957

Extent: 14 files and notebooks

Description level: sub-sub fonds

Creator: Peter Matthews, BJ Harrison

Content: Notes, tables and draft papers: effects of temperature and other environmental factors on *Drosophila* populations; sex-linked semi-lethal factor in *D. melanogaster*.

Related materials: BJ Harrison (with Peter Matthews, K Mather), notes on chaetae numbers, temperature and HCN resistance in *Drosophila*. (JIFHC)

Publication note: Much of this research is unpublished.

Reference: **PM 1/2/1**

Title: **Drosophila**

Date: 1953-1957

Extent: 1 notebook

Content: Notes on procedures, general observations on *Drosophila* experiments.

Reference: **PM 1/2/2**

Title: **Drosophila Temperature Experiments**

Date: n.d. [c.1953 x 1956]

Extent: 1 file

Content: Unpublished typescript papers: "Misclassification of Cy and L⁴ mutants", "Emergence patterns in two *D. melanogaster* populations", "Environmental effects upon expression" (major report on temperature experiments).

Reference: **PM 1/2/3**

Title: **Drosophila: Temperature Data and Calculations**

Date: 1955-1956

Extent: 1 box

Content: Draft papers, notes, data tables and calculations (temperature experiments): "Natural selection within SxT and TxS lines", "Patterns of Emergence in two populations of *D. Melanogaster*". Also: "A sex-linked semi-lethal in *D.*

Melanogaster".

- Reference:** PM 1/2/4
Title: **Drosophila: Heat Experiments. X-ray Phemocopies. Low Pressure**
 Date: 1952
 Extent: 1 file
 Content: Notes and experimental data.
- Reference:** PM 1/2/5
Title: **Drosophila: Temp. 80° F and 65° F**
 Date: 1953-1956
 Extent: 1 file
 Content: Calculations: 1. Single pair x's; 2. Abdom[inal chaetae] [ratios] at 80 and 65 – same parents; 3. Emergence ratios 80 F and 65 F.
- Reference:** PM 1/2/6
Title: **Drosophila: Sternopleural selections, varying sample size, etc.**
 Date: 1953-1954
 Extent: 1 file
 Content: Data tables, calculations, graphs.
- Reference:** PM 1/2/7
Title: **Drosophila [temperature experiments]**
 Date: 1954-1955
 Extent: 1 file
 Content: Notes, graphs and data tables: sternopleural and abdominal chaetae counts for stocks raised at different temperatures.
 Source: Dr P Young, 13/2/1991
- Reference:** PM 1/2/8
Title: **Drosophila: natural selection**
 Date: 1955
 Extent: 1 file
 Content: Notes, tables, graphs: sternopleural and abdominal chaetae counts for stocks raised at different temperatures.
 Source: Dr P Young, 13/2/1991
- Reference:** PM 1/2/9
Title: **Drosophila: Temperature: Miscellaneous**
 Date: c.1954-1955
 Extent: 1 file
 Content: Data tables, graphs: effects of different temperatures on various *Drosophila* stocks.

- Reference:** PM 1/2/10
Title: [Drosophila: Hampton Hill] Sex ratios v1.
Date: 1955-1956
Extent: 1 file
Content: Data tables, notes on results.
Source: Dr P Young, 13/2/1991
- Reference:** PM 1/2/11
Title: [Drosophila] Hampton Hill
Date: n.d. [c.1956]
Extent: 1 file
Content: Notes, reports, tables and experimental data: work on Hampton Hill stock – sex-linked lethal and sex ratios.
Source: Dr P Young, 13/2/1991
- Reference:** PM 1/2/12
Title: [Drosophila]: Bobbed. fsr. Matings. Refs.
Date: c 1956-1957
Extent: 1 file
Content: references and notes from literature, notes, tables and diagrams: genetics of *Drosophila*, especially sex-linked factors.
Source: Dr P Young, 13/2/1991
- Reference:** PM 1/2/13
Title: Drosophila: Asymmetry: (i) Abdominals (ii) Sternal pleurals
Date: 1954
Extent: 1 file
Content: Notes, graphs, data tables.
- Reference:** PM 1/2/14
Title: Drosophila: Inbreeding
Date: 1953-1955
Extent: 1 file
Content: Graphs, data tables and calculations: effects of inbreeding on various *Drosophila* lines and races.

Reference: *PM 1/3*

Title: *Minor Projects*

Date: *1951-1957*

Extent: *3 items*

Description level: *sub-sub fonds*

Creator: Angus J Bateman, Peter Matthews

Admin. history: AJ Bateman left JI in 1952, and his long-term experiments were carried on by Peter Matthews (JIHI Annual Report, 1953).

Related materials: AJ Bateman's notes on radish, brassica, etc. are also in JIFHC.

Reference: **PM 1/3/1**

Title: **Rye Selection. Radish**

Date: 1951-1957

Extent: 1 notebook

Content: Notes, scoring (yield, etc.): population size and selection experiment. Contains typescript report on earlier stages of experiment (1951).

Reference: **PM 1/3/2**

Title: **Rye: selection: varying selection, varying sample size**

Date: 1953-1955

Extent: 1 file

Content: Data tables: yield, ear length.

Reference: **PM 1/3/3**

Title: **Cabbage: Winter Forage**

Date: 1955

Extent: 1 notebook

Content: Scoring for yield of crosses.

Note: This is probably a continuation of AJ Bateman's study of heterosis and inbreeding depression in brassica (JIHI Annual Report 1952, 1955).

Reference: PM 2

Title: Peter Matthews Collection: Applied Genetics

Date: 1958-1998 (predominant 1958-1988)

Extent: 40 files, 12 notebooks, 7 binders, 1 box

Description Level: sub-fonds

Content

Notes, experimental results, draft papers etc. relating to Peter Matthews work in the Applied Genetics Department at JI, 1958-1988, initially on cherry breeding and *Pseudomonas morsprunorum*, and later on genetics and pathogens of *Pisum*. Also records of work on resistance to *Fusarium* wilt in carnation.

Reference: *PM 2/1*

Title: *Applied Genetics: Sweet Cherry*

Date: *1958-1998 (predominant 1960-1984)*

Extent: *24 files, 12 notebooks, 5 binders*

Description level: *sub-sub fonds*

Arrangement: There are two series: cherry breeding records (PM 2/1/1), and records relating to work on the causative agent *Pseudomonas morsprunorum* (PM 2/2/2).

Reference: **PM 2/1/1**

Title: **Cherry breeding**

Date: **1958-1998 (predominant to 1984)**

Extent: **25 files and notebooks**

Description level: **series**

Related materials: The card file of cherry record cards AGB 1/3/17, started by MB Crane and continued by Gavin Brown, was also used by Peter Matthews.

Reference: PM 2/1/1/1
Title: [Cherry] Variety Collection: seedlings, species
Date: n.d. [c.1960-c.1980]
Extent: 1 binder
Content: Register of descriptions of cherry varieties, with notes on origin, character, genetics, and references.
 Contains separate registers of similar notes on JI selections (in range 4813-14716), also with notes on NFT status and reference to slide collection, and on sources of genetic variation (separate sections on x-ray mutations and self-fertiles). Also lists of varieties with particular characters, including those carrying genetic traits such as dwarf.
Note: This is *primary access point* for records of JI cherry varieties and selections.
Source: re-acquisitioned 17/4/00 from National Fruit Trials per Peter Matthews (original accession 11/3/1991)

Reference: PM 2/1/1/2
Title: Cherry selections
Date: c.1960-1972
Extent: 1 file
Content: Descriptions of canker-resistant selections at National Fruit Trials, with notes, references to slides in PM slide collection. Also descriptions of 'Merton' cherries, with b/w photographs of fruit showing comparison with standard varieties.
Source: Dr P Young, 13/2/1991

Reference: PM 2/1/1/3
Title: Descriptions of seedling cherries: 5592-14716
Date: c.1960-1980 (predominant 1970-1980)
Extent: 1 file
Content: Seedling record sheets: canker resistant seedlings scored for fruit and other characters over multiple seasons, with drawings of fruit, notes (including occasional notes on compatibility). Includes the second-generation JI varieties.
Source: Dr P Young, 13/2/1991

Reference: PM 2/1/1/4
Title: [Descriptions of 'Merton' Cherries and JI selections]
Date: n.d. [c. 1966]
Extent: 13 bundles
Content: Copies of standard descriptions of the 10 'Merton' cherries (some with extra detail), and of MB Crane/ D Lewis selections at NFT and being virus tested.

- Reference:** PM 2/1/1/5
Title: Appendix: Descriptions of new varieties released by JII
 Date: n.d. [c.1978 x 1985]
 Extent: 2 items
 Content: Descriptions of new JI cherries: Merla, Mermat, Merpet, Merchant, Pat, Inge.
- Reference:** PM 2/1/1/6
Title: Cherry. Bacterial Canker. Refs. – variety susceptibility
 Date: 1959-c.1962
 Extent: 1 file
 Content: Notes from literature on cherry varieties resistant and susceptible to bacterial canker. Also initial observations on canker susceptibility of mature trees at Bayfordbury.
 Source: Dr P Young, 13/2/1991
- Reference:** PM 2/1/1/7
Title: Cherry: bacterial canker
 Date: 1958-1960
 Extent: 1 notebook
 Content: Extensive notes and experimental results: cherry stone accessions and sowings, test inoculations using different strains of *Pseudomonas*, leaf washes, early work on bacteriophages and bacteriocins of *Pseudomonas morsprunorum*.
 Related units: Records of work on *Pseudomonas* continue as a separate series: PM 2/1/2
- Reference:** PM 2/1/1/8
Title: Accessions: Cherry stones, wood [and Distribution Book]
 Date: 1962-1975
 Extent: 1 binder
 Content: Register of cherry stones and budwood received, and JI material retained (the latter with record of germination and of mutations observed in resultant seedlings), and of material sent out to other workers in the UK and overseas.
- Reference:** PM 2/1/1/9
Title: Tree and seedling inoculations: Prunus
 Date: 1959-1961
 Extent: 1 notebook
 Content: Record of early testing for bacterial canker susceptibility in cherry seedlings and varieties, *Prunus* species and peach seedlings, with notes on procedures. Experiments with inoculation methods and timing.

- Reference:** PM 2/1/1/10
Title: **Cherry variety inoculations: detached shoots**
Date: 1960
Extent: 1 file
Content: Notes on experimental procedures, etc. and tables of scoring of selected inoculated varieties (including 'Merton' cherries) for infection/ resistance.
Source: Dr P Young, 13/2/1991
- Reference:** PM 2/1/1/11
Title: **Cherry seedling inoculations. Plot 7**
Date: 1959-1960
Extent: 1 file
Content: tables: inoculated seedlings scored for degree of infection.
Source: Dr P Young, 13/2/1991
- Reference:** PM 2/1/1/12
Title: **Bacterial Canker: node inoculations**
Date: 1961-1965 (predominant to 1963)
Extent: 1 file
Content: Notes, data tables, graphs: leaf scar and bark inoculation and scoring of inoculated seedlings for bacterial canker infection.
- Reference:** PM 2/1/1/13
Title: **Bacterial Canker: bark inoculations. Plot 7**
Date: 1962-1963
Extent: 1 file
Content: Inoculated seedlings scored for degree of infection/ resistance.
- Reference:** PM 2/1/1/14
Title: **Pseudomonas: 'Leaf scar inoculation of the Sweet Cherry with Bacterial Canker'**
Date: c.1965
Extent: 1 file
Content: Draft paper, with notes, graphs, photographs.
- Reference:** PM 2/1/1/15
Title: **Cherry: incompatibility groups**
Date: n.d. [c. 1960 – c.1968]
Extent: 1 binder
Content: Lists of varieties and seedlings, alphabetically and by compatibility group. Also compatibility work from other countries assimilated to UK (Crane) groups.
Source: re-accessioned 17/4/00 from NFT per Peter Matthews (original accession 11/3/1991)

- Reference:** PM 2/1/1/16
Title: **Cherry: Self Fertiles**
Date: 1961-1965
Extent: 1 notebook
Content: Notes: incorporation of self-fertility in bacterial canker breeding programme. Includes detailed notes on original (Lewis & Crowe) self-fertile cherry seedlings and origins of the self-fertile mutation, and draft report on nature of self-fertility.
- Related materials:** Scientific Notebook Collection: *Self Fertiles: Cherry Mutations* (LK Crowe, 1945-1955)
- Note:** This notebook and the LK Crowe volume constitute the only primary source material in JIFHC on the origins of the self-fertile sweet cherry.
- Reference:** PM 2/1/1/17
Title: **[Cherry]: Dwarfs**
Date: 1961-1969
Extent: 1 notebook
Content: Notes, graphs and measurements on dwarf cherry seedlings selected as potential rootstocks, and JI dwarf rootstock trial. Genetics of dwarf cherry.
- Reference:** PM 2/1/1/18
Title: **Cytology**
Date: c.1962
Extent: 1 notebook
Content: Photographs, experimental results, notes from literature: examination of meiosis in dwarf seedlings and the original self-fertile cherries.
- Reference:** PM 2/1/1/19
Title: **Cherry: seedling variegation**
Date: 1960-1964
Extent: 1 file
Content: Photographs, notes, correspondence re variegated sports in seedling families.
- Reference:** PM 2/1/1/20
Title: **Cherries - NFT**
Date: 1982-1997
Extent: 1 folder
Content: Minutes of meetings of NFT Cherry and Plum Panel mainly re JI cherry selections on trial, but also plums, with notes, reports of trials, and some correspondence re JI cherry selections. Includes comments on status of JI plum 'Merton Gem' (23/8/1984).

- Reference:** PM 2/1/1/21
Title: Cherries: National Collection: Transfer to East Malling
Date: 1981-1984
Extent: 1 file
Content: Correspondence with RK Tobutt concerning cherry selections; information on cherry breeding at EMRS (1981), transfer of cherry scion breeding from JII to EMRS. Includes notes on JI seedlings made during assessment of selections to be preserved in national collection.
- Reference:** PM 2/1/1/22
Title: Cherries
Date: c.1959-1998
Extent: 1 ring binder, with 2 sub-files
Content: collected papers & publications, correspondence
- Reference:** PM 2/1/1/23
Title: Variety Descriptions (not JII)
Date: n.d. [mid-1960s?]
Extent: 6 items
Content: Descriptions of German cherries ('Heinrich's Riesen', 'Knauf's Kirsche') and new Canadian varieties ('Sam', 'Velvet', 'Vic', 'Vista').
- Reference:** PM 2/1/1/24
Title: [Bayfordbury Cherry Planting]
Date: n.d. [1960s, on probably earlier original plan - 1950s?]
Extent: 1 plan, notes.
Content: Plan of cherry plantings at Bayfordbury.
- Reference:** PM 2/1/1/25
Title: Main Varieties of Sweet Cherry used in Breeding New Varieties
Date: n.d. [1960-1970]
Extent: 1 page
Content: Table of major varieties used in breeding, with genetic information (s-alleles, flesh colour, albino and dwarf characters) and notes on susceptibility to bacterial canker.
Provenance: Peter Matthews, 20 October 2000

Reference: PM 2/1/2
Title: *Pseudomonas* and bacteriocins
Date: 1959-1984
Extent: 16 files and notebooks
Description level: series

Reference: PM 2/1/2/1
Title: **JI Collection:** *Pseudomonas morsprunorum* & *Pseudomonas. Syringae*; Miscellaneous Plant Pathogenic Bacteria; Phages: *Pseudomonas morsprunorum* & *Syringae*
Date: c. 1959-1980
Extent: 1 binder
Content: Accession book, with details of origin, etc. of collection of *Pseudomonas* isolates and bacteriophages used in JI bacterial canker work.

Reference: PM 2/1/2/2
Title: *Pseudomonas* strains
Date: 1959-1961
Extent: 1 notebook
Content: Descriptions and sketches of *Pseudomonas* cultures.

Reference: PM 2/1/2/3
Title: [Pseudomonas culture]
Date: n.d. [c.1959-1960]
Extent: 1 exercise book
Content: Isolation and culture procedures and descriptions of cultures.

Reference: PM 2/1/2/4
Title: **Antibiosis: Leaf Washes, Pseudomonas**
Date: 1959-1960
Extent: 1 notebook
Content: Isolation of *Pseudomonas morsprunorum*, *Pseudomonas syringae*. Includes photographs.

Reference: PM 2/1/2/5
Title: **Leaf Washings etc. (Plant Breeding)**
Date: 1960
Extent: 1 notebook
Content: Notes on *Pseudomonas* culture techniques and experimental results from early studies of behaviour of *Pseudomonas morsprunorum* colonies.

- Reference:** PM 2/1/2/6
Title: Antibiosis I
 Date: 1960-1963
 Extent: 1 notebook
 Content: Study of bacteriocins of *Pseudomonas morsprunorum* and *Pseudomonas syringae*: experimental procedures, notes, photographs of cultures.
- Reference:** PM 2/1/2/7
Title: Antibiosis II
 Date: 1963-1979
 Extent: 1 notebook
 Content: Study of bacteriocins of *Pseudomonas morsprunorum* and *Pseudomonas syringae*: experimental procedures, notes, photographs of cultures.
- Reference:** PM 2/1/2/8
Title: Phage 1
 Date: 1961-1963
 Extent: 1 notebook
 Content: Notes, results and photographs: phage typing of cherry, plum and pear isolates of *Pseudomonas morsprunorum* and *Pseudomonas syringae* from JII and elsewhere.
- Reference:** PM 2/1/2/9
Title: Bacteriocins: General observations. Systematic observations
 Date: 1961-1970
 Extent: 1 file
 Content: Notes, photographs, tables, correspondence, draft and typescript papers: bacteriocinogeny in *Pseudomonas morsprunorum* and *Pseudomonas syringae*. UK and foreign isolates from *Prunus*, pear, apple and citrus.
- Reference:** PM 2/1/2/10
Title: Ps. morsprunorum: recent observations. Race 2. Bacteriocins etc. Colony types
 Date: 1972-1980
 Extent: 1 file
 Content: Tables, correspondence, photographs. Includes sub-file of correspondence etc. with MAFF re licenses to work with non-indigenous bacteria.
- Reference:** PM 2/1/2/11
Title: Bacteriocins of Ps. Syringae and Ps. morsprunorum: Isolates from Greece, Germany, Italy & UK
 Date: 1967-1968
 Extent: 1 file
 Content: Notes, tables, correspondence.

- Reference:** PM 2/1/2/12
Title: **Pseudomonas Papers**
Date: [1960s/ 1970s] – c.1984
Extent: 1 file
Content: Draft and typescript papers, notes: bacteriocinogeny; colony variants; testing of isolates from EMRS, Stanfield, NFT Brogdale; *Ps. morsprunorum* with other plant pathogenic pseudomonads.
- Reference:** PM 2/1/2/13
Title: **Second International Conference on Phytopathogenic Bacteria: final programme**
Date: Jan 1967
Extent: 1 item
Content: conference programme
- Reference:** PM 2/1/2/14
Title: **Lecture notes on bacteriocins for Newcastle AAB/ BSPP**
Date: 1984
Extent: 1 file
Content: Notes for lecture given by Peter Matthews
- Reference:** PM 2/1/2/15
Title: **[*Pseudomonas* references and notes]**
Date: 1962 - c.1967
Extent: 1 file
Content: Notes from literature: results of others working on *Pseudomonas* and other cherry pathogens. Also (in back) complete list of cherry trees at Bayfordbury, with notes on origin and experimental use, 1962.
- Reference:** PM 2/1/2/16
Title: **Reprints on bacteriocins**
Date: c.1959-1983
Extent: 1 file

Reference: *PM 2/2*

Title: **Pisum**

Date: *c.1966-1988*

Extent: *17 files*

Description level: *sub-sub fonds*

Content: Notes, calculations and photographs of experimental results:
Pisum rogue, pathology, isoenzyme variation, protein content.

Reference: PM 2/2/1
Title: Pisum Rogue
Date: c.1966 – 1973
Extent: 3 files
Description level: series

Admin. History: Continuation of a line of work initiated by Bateson and Pellew, and taken up by KS Dodds. The latter's notes were used extensively by Matthews. These files are working notes for Matthews' PhD thesis.

Related materials: KS Dodds/ Peter Matthews: Rogue specimens and references. PhD thesis: *Genetic studies on spontaneous and induced rogues in Pisum sativum*, 1973 (JIC Main Library).

Reference: PM 2/2/1/1
Title: [Peas: Genetic Stocks]
Date: c.1966-1968
Extent: 1 ring binder
Content: Scoring. Rogues. Genetic descriptions of lines

Reference: PM 2/2/1/2
Title: *Pisum*: linkage/ rogue hybrids. F1 Paramutation
Date: c.1968 – [c.1973]
Extent: 1 ring binder
Content: Notes, scoring and diagrams: genetics and linkage of rogue in *Pisum*. Also copy table (from publication) of known genes and effects.

Reference: PM 2/2/1/3
Title: *Pisum* [Rogue]: EMS DES X-Ray UV
Date: 1968-1970
Extent: 1 file
Content: Notes, procedures, experimental results and photographs: use of chemical mutagens, radiation and environmental factors to induce change between rogue and type.

Reference: PM 2/2/2
Title: Pea Pathology
Date: 1970-1984
Extent: 3 files
Description level: series

Admin. History: A major aspect of Matthews' later work, this was closely linked to his work with the *Pisum* germplasm collection. The study of various pathogens formed the basis of a number of PhD theses under Matthews' supervision.

Reference: PM 2/2/2/1
Title: *Fusarium/ Ascochyta: descriptive notes; photos of isolates*
Date: c.1970-c.1982
Extent: 1 file
Creator: P Matthews, KP Dow
Content: *Jl fusarium* and *ascochyta* culture collections. Notes on origin, etc., with photographs of isolates and effect on peas.

Reference: PM 2/2/2/2
Title: *Pisum: disease evaluations*
Date: n.d. [aft 1976 - 1988]
Extent: 1 ring binder
Content: Notes on genetics of pathogen resistance in *Pisum*, notes from literature, tables of results of screening of pea varieties for resistance to *Fusarium*, *Peronospora*, *Ascochyta* and virus diseases.
Note: C_ numbers are probably germplasm collection accession numbers.

Reference: PM 2/2/2/3
Title: *PSbMV [Pea Seed-borne Mosaic Virus]: Letters etc.*
Date: 1981-1984
Extent: 1 file
Content: Correspondence and notes of telephone conversations with Plant Pathology Lab, Harpenden and others re control of PSbMV in *Jl Pisum* Germplasm Collection and UK generally. Also notes.

Reference: PM 2/2/3
Title: Isoenzyme Variation in *Pisum*
Date: c.1969-c.1975
Extent: 5 files, 1 box
Description level: series

Reference: PM 2/2/3/1
Title: Amylases, Globulins, Starch Grains.
Date: n.d. [1970-1975]
Extent: 1 file
Content: Photographs of electrophoresis runs, with some notes on experimental methods and results: F1-F3 generations.

Reference: PM 2/2/3/2
Title: *Pisum*: isoperoxidases F3-F2
Date: 1972
Extent: 1 file
Content: Experimental results and notes: re-runs of electrophoresis runs for novel F2 phenotypes and F3 families.

Reference: PM 2/2/3/3
Title: Isoenzymes: Neoplastic pod. Mutants fa, ag, cri, tl, af. Globulins; AMP.
Date: n.d. [c.1970]
Extent: 1 file
Content: Notes and photographs of electrophoresis runs: comparison of enzyme systems in normal and mutant peas.
Physical condition: Some highly acidic paper. Photographs also in poor condition.

Reference: PM 2/2/3/4
Title: DSP lines. Beans. Reciprocal F1s. Af. TI
Date: c.1972-1973
Extent: 1 file
Content: Photographs of electrophoresis runs, notes and correspondence: root isoperoxidases in French bean varieties; resistance to *Peronospora viciae* (downy mildew) in DSP [Dark Skinned Perfection] varieties; enzymes from reciprocal F1s and parents; comparison of enzymes in normal, tendril-less and leafless peas.

Reference: PM 2/2/3/5
Title: Electrophoresis: Diploid/ Tetraploid
Date: n.d. [1969-1975]
Extent: 1 file
Content: Reprints, notes, data tables and photographs of results: comparison of peroxidase, esterases, amylase in diploid and tetraploid *Pisum*, *lathyrus*, *antirrhinum*.

Reference: PM 2/2/3/6
Title: Isozymes
Date: c.1969-1974
Extent: 1 box
Content: Reprints, some correspondence and notes on isoenzymes and electrophoresis, peroxidases and amylases, mostly in grains and *Pisum*.

Reference: PM 2/2/4
Title: Pea Proteins
Date: c.1973-c.1979
Extent: 3 files
Description level: series

Reference: PM 2/2/4/1
Title: [Peas and pea proteins: procedures]
Date: n.d. [c.1973-1979]
Extent: 1 file
Content: Notes on procedures for sample analysis, etc.

Reference: PM 2/2/4/2
Title: Pea Protein Experiments. Quality.
Date: c.1973-1976
Extent: 1 file
Content: Notes, tables of experimental results, computer printout and graphs.

Reference: PM 2/2/4/3
Title: M2 Diallel. GE P's. F1 F2
Date: 1974-1977
Extent: 1 file
Content: Notes, computer printout of calculations, graphs and data tables: methionine and protein content of peas.

Reference: PM 2/2/5
Title: Peas – Miscellaneous
Date: c.1970-1987
Extent: 2 files
Description level series

Reference: PM 2/2/5/1
Title: JI *Pisum* Germplasm Collection
Date: 1987
Extent: 1 printout (47pp)
Content: Printout of *Pisum* Germplasm Collection database, containing name, donor and donor number for 2,200 accessions.

Reference: PM 2/2/5/2
Title: [Peas: miscellaneous]
Date: n.d. [1970-1988]
Extent: 1 file
Content: Introduction to JI *Pisum* Germplasm Collection
 Typescript paper "Segregational Rogues" [aft. 1970]
 Scoring data tables for α -amino diallels and disease resistance.

Reference: *PM 2/3*

Title: *Applied Genetics: Fusarium wilt in Carnations*

Date: *1976-1981*

Extent: *2 ring binders, 1 box*

Description level: *sub-sub fonds*

Creator: Peter Matthews, AE Arthur

Admin. history: A collaborative project to breed carnations resistant to *Fusarium* wilt, drawing on Matthews parallel work on the same pathogen in peas. Resistant lines were passed to a commercial breeder for further development.

Related materials: A few slides of this work are in PM 3/7. Dr Arthur has the main slide collection (still in occasional use at October 2000) and additional records.

Reference: **PM 2/3/1**

Title: **Carnation: *Fusarium***

Date: 1976-1981

Extent: 1 ring binder

Content: Overhead transparencies, notes, tables, photographs: breeding for resistance to *Fusarium* wilt in carnations.

Reference: **PM 2/3/2**

Title: **Carnation: *Fusarium***

Date: 1976-1981

Extent: 1 ring binder

Content: Typescripts, notes, published papers and annual reports: breeding for resistance to *Fusarium* wilt in carnations.

Reference: **PM 2/3/3**

Title: **Carnations: *Fusarium***

Date: 1977-1979

Extent: 1 box

Content: Reprints on fusarium wilt in carnations; with photographs, correspondence, notes on breeding for resistance to *Fusarium* wilt.

Language: A few items in Italian, Dutch, French.

Reference: PM 3

Title: Slides and negatives

Date: c.1953-1983

Extent: c.340 glass plate negatives, c.960 35mm slides, 1 index.

Description level: sub fonds

Content

Glass plate negatives, 35mm colour and b/w slides, mainly on cherry breeding and *Pseudomonas morsprunorum*. Also *Nolana*, *Drosophila* and tomatoes, pea proteins and isoenzymes, and negatives of Bayfordbury and Colney.

Related material

Pea slides were separated from the series when the *Pisum* work became more important: these slides are held by the curator of the *Pisum* Germplasm Collection.

Most slides on the carnation work were also extracted and their present location is unknown. Dr AE Arthur has slides on the carnation work, which may be copies of Matthews' set.

- Reference:** PM 3/1
Title: **Nolana: negatives**
 Date: [c.1957-1958]
 Extent: 34 glass plate negatives (11 3x4in, 23 4x5in.)
 Level of description: series
 Content: Photographs of whole plants, flowers and pollen: probably interspecific hybrids of *N. Acuminata*, *N. Paradoxa*, *N. Humifusa*.
- Related units: Written notes in PM 1/1/1, 5-9
 Source: Julie Hofer, Applied Genetics, May 1999
- Reference:** PM 3/2
Title: **Drosophila: negatives**
 Date: [c.1953-1956]
 Extent: 6 4x5in. glass plate negatives (b/w)
 Level of description: series
 Content: Graphs of chaetae numbers: temperature experiments and Samarkand x Teddington crosses.
- Related units: Written notes in PM 1/2
 Source: Julie Hofer, Applied Genetics, May 1999
- Reference:** PM 3/3
Title: **Tomatoes: negatives**
 Date: n.d. [c. 1957]
 Extent: 5 4x5in. glass plate negatives
 Level of description: series
 Content: Graphs: comparison of days to flowering, fruit weight and flowers on first truss in tomato varieties and species, and effect of environment on these characters.
- Related units: Reports in PM 1/1/1/1
 Written notes on this research: BJ Harrison & Peter Matthews: controlled environment studies in tomato and antirrhinum (JIFHC)
- Source: Julie Hofer, Applied Genetics, May 1999
- Reference:** PM 3/4
Title: **Index to slides and negatives**
 Date: c.1959-1980
 Extent: 1 hardback notebook
 Content: numeric list of 35mm colour slides C1-C701 (PM 3/7) (front), and glass plate negatives M 1-M181 (PM 3/5-6) (back)
 Note: *Pisum* and carnation slides listed in the index were subsequently removed from both series by Peter Matthews and were not in the collection when received.

Reference: PM 3/5
Title: Glass plate negatives: cherries
Date: c.1959-1979
Extent: 164 glass plate negatives (141 4x5in., 23 3x4in.)
Content: Photographs of and relating to cherries and *Pseudomonas*, numbered M1-M181. Main subjects: trees and fruit of JI selections and varieties, including those of Crane and Lewis, effects of bacterial canker; genetic dwarfs and small tree types in rootstock trials, *Pseudomonas* cultures. Tables and graphs on canker resistance/ breeding, dwarf, juice colour, mutations etc. for 'Genetics of the Sweet Cherry'. Also strip of 35mm film (4 frames) of tables, probably from same series.

Index note: Listed in index volume PM 3/4.
Source: Julie Hofer, Applied Genetics, May 1999

Reference: PM 3/6
Title: Cherry and *pseudomonas* slides
Date: c.1959-1979
Extent: 152 b/w 35mm slides
Content: Slide copies of glass plate negatives in PM 3/5 above, numbered M1-155. Also ten slides numbered 216, 222-230, not corresponding to either series but duplicating material in PM 3/5: tables, graphs and flow charts relating to bacterial canker work.

Reference: PM 3/7
Title: Cherry slides
Date: c.1961-1980
Extent: 601 35mm colour slides
Content: 35mm colour slides predominantly on cherry breeding and *Pseudomonas*, including record photographs of selections, dwarf rootstock trials, x-ray-induced mutation. Also slides on *Fusarium* wilt in carnation (541-9: nos. 550-571 wanting). Numbered C1-C695.

Index note: Listed in index volume PM 3/4. See also more detailed description in file "Archive Collections: Lists". The Varieties Collection book (PM 2/1/1/1) includes references to photographs of JI varieties and selections.

Reference: PM 3/8
Title: [Cherries: advanced selections]
Date: July 1983
Extent: 6 35mm colour slides
Content: Punnett's of fruit of selections 12300 [Inge], 12121, 11287 & 14703, 11170 & 11214, 12418 at NFT.

- Reference:** **PM 3/9**
Title: **Duplicate and unnumbered slides**
Date: c.1959-1988
Extent: c.200 35mm colour slides
Content: Duplicate slides on cherries from C series (PM 3/7). Not sorted. May include some of the lacunae.
- Reference:** **PM 3/10**
Title: ***Pisum* negatives**
Date: c. 1969-c.1975
Extent: c. 130 glass plate negatives (1 box)
Content: Negatives of isoenzyme runs and pea protein work.
Related materials: prints of most or all of these are in PM 2/2/3, with the associated notes etc.
Physical state: not sorted – in original envelopes in acid-free box.
- Reference:** **PM 3/11**
Title: **Bayfordbury and Colney**
Date: c.1965
Extent: 4 strips of 35mm b/w negatives
Content: Photographs of Bayfordbury (library, grounds) and of temporary buildings at Colney.
- Reference:** **PM 3/12**
Title: **Kent Cherry & Soft Fruit Show**
Date: July 1964
Extent: 2 b/w photographs, mounted on paper
Content: Two photographs showing John Innes Institute exhibit on breeding cherries resistant to bacterial canker. Peter Matthews is on extreme right of upper photograph.
- Reference:** **PM 3/13**
Title: **RHS Fruit Group Visit**
Date: September 1965
Extent: 1 b/w photograph, mounted on paper
Content: Photograph of Peter Matthews with visiting group on cherry plot at Bayfordbury.

Reference: PM 4
Title: Reprints
Date: 1926-1979 (predominant 1950-1969)
Extent: 6 boxes
Description level: sub fonds

Reference: PM 4/1
Title: Reprints
Date: 1926-1979 (predominant 1940-1969)
Extent: 4 boxes
Content: Reprints arranged by author. Predominantly on genetics (plant & animal). Also bacteriocins etc.
Language: Some items in French, German, Spanish

Reference: PM 4/2
Title: Reprints on incompatibility
Date: 1942-1978 (predominant 1950-1969)
Extent: 1 box
Content: Reprints on incompatibility systems, including many by D Lewis. Arranged alphabetically by author. Also bibliography.
Language: some items in Italian, German, Spanish.

Reference: PM 4/3
Title: Miscellaneous Reprints: various authors
Date: 1930-1978 (predominant 1950-1969)
Extent: 1 box
Content: Reprints and typescript copies of papers. Main subjects: bacterial genetics; barley and maize, mutagens.
Language: Some items in German, Swedish, French.