7 October 2022

Agricultural Virology in Interwar Britain: the Search for Virus-Free Potato Stock

Open University – Oxford – Cambridge AHRC DTP: "From Potato Farming to Pharmaceutical Factories: The Business(es) of Plant Virus Research in Britain, 1920-2020". This is a partnership between the University of Cambridge and the John Innes Centre.

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Outline

General topic:

- **The e**arly development of potato virus research, the creation of a specialised experiment station and its search for virus-free stocks, including the establishment of virus-free seed production schemes.

Chronological and geographical boundaries:

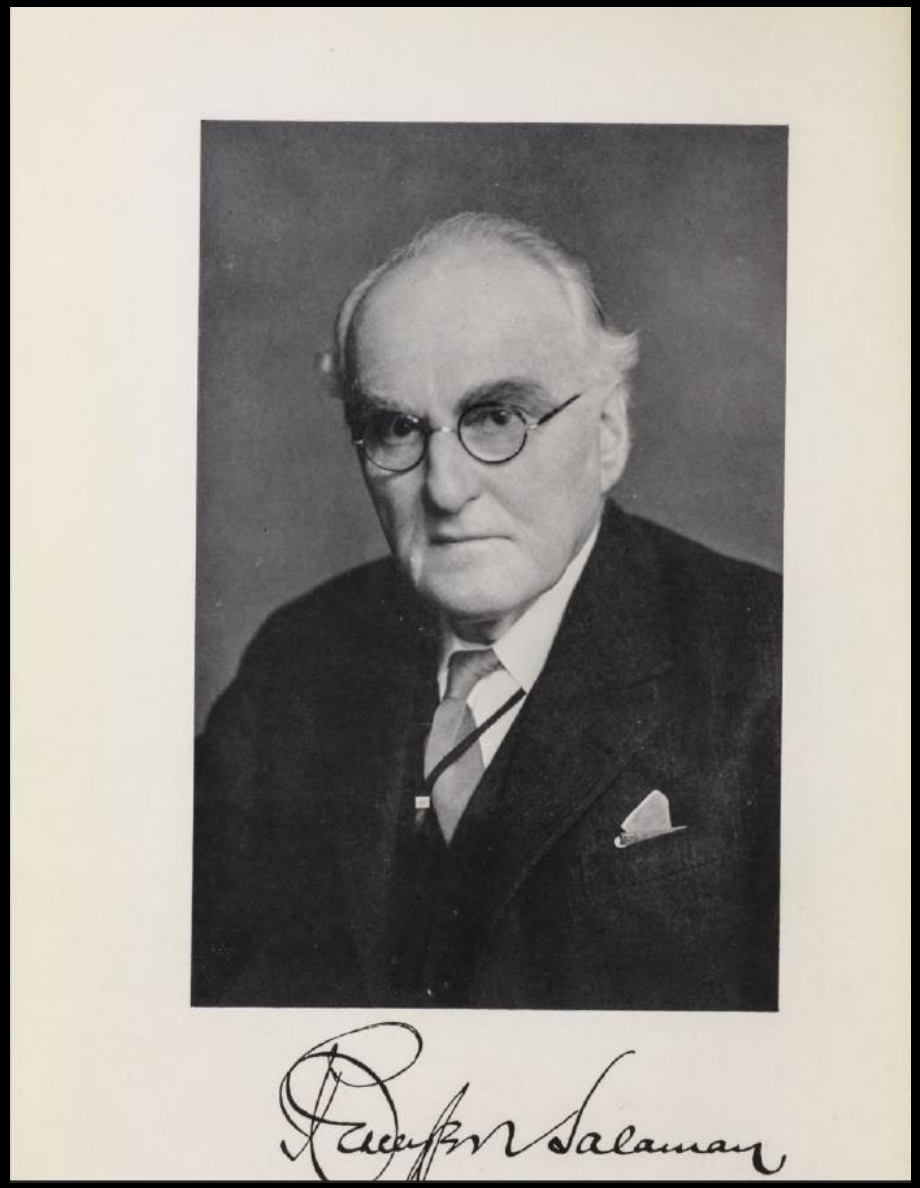
- 1910s – 1930s Britain

Objective:

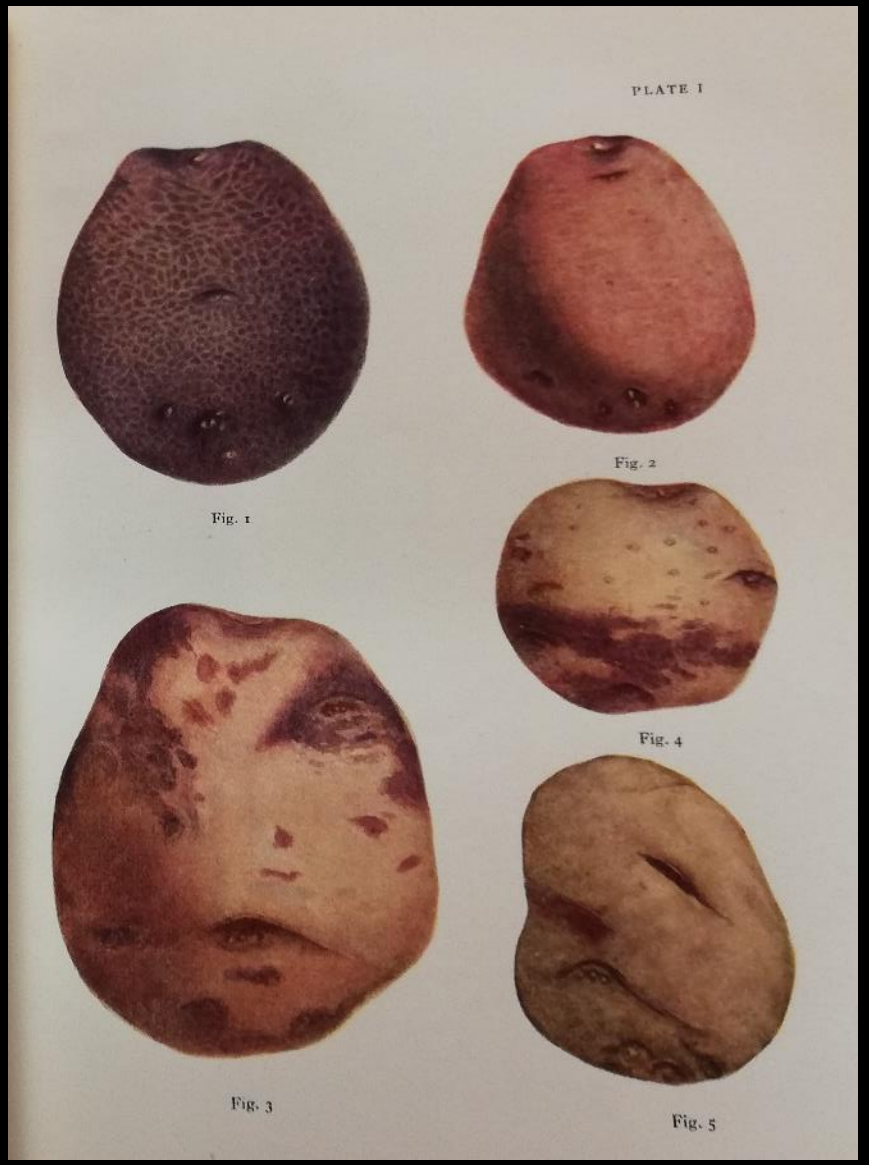
- Understand the dynamics behind the institutionalisation of potato virus research and control in Britain.

Main sections of this presentation:

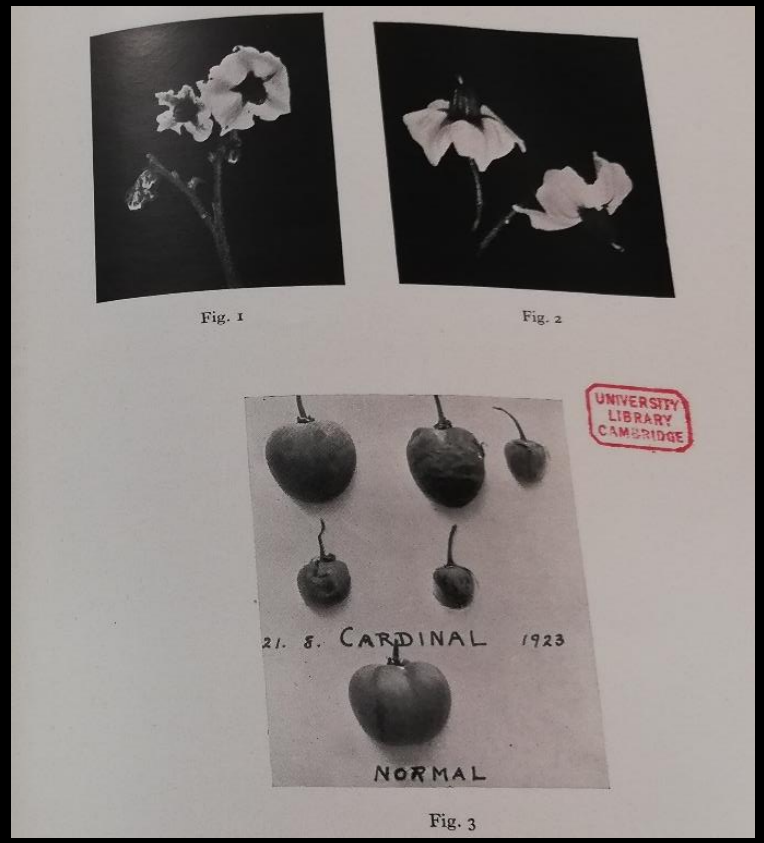
- The three foes to potato growing (blight, wart disease and virus diseases)
- The 1921 Conference and the inception of the Potato Virus Research Station
- The search for virus-free stocks



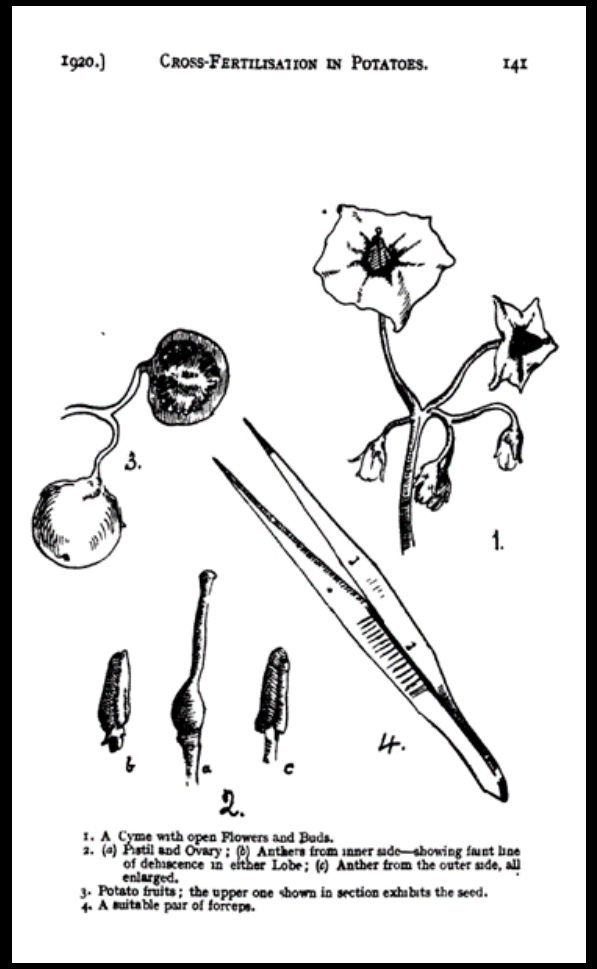
Redcliffe Nathan Salaman
1847-1955 (Smith, 1955)



Salaman, 1926



Salaman, 1926



Salaman, 1920


SUTTON.
JOURN. LINN. SOC. BOT. VOL. XXXVIII. PL. 46.
SOLANUM ETUBEROSUM, Lindl.

Sutton, 1909

A leaf of a Curled Potato Plant from Hermann Schacht's Bericht. Taf VI, fig. 11. Berlin. 1856

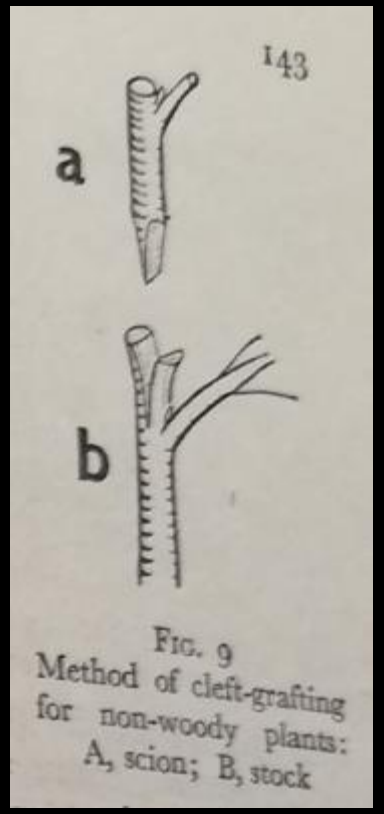
In Salaman, 1949

Plant displaying mosaic-like symptoms

https://blogs.cornell.edu/potatovirus/pvy/pvy-symptoms-and-diagnosis/

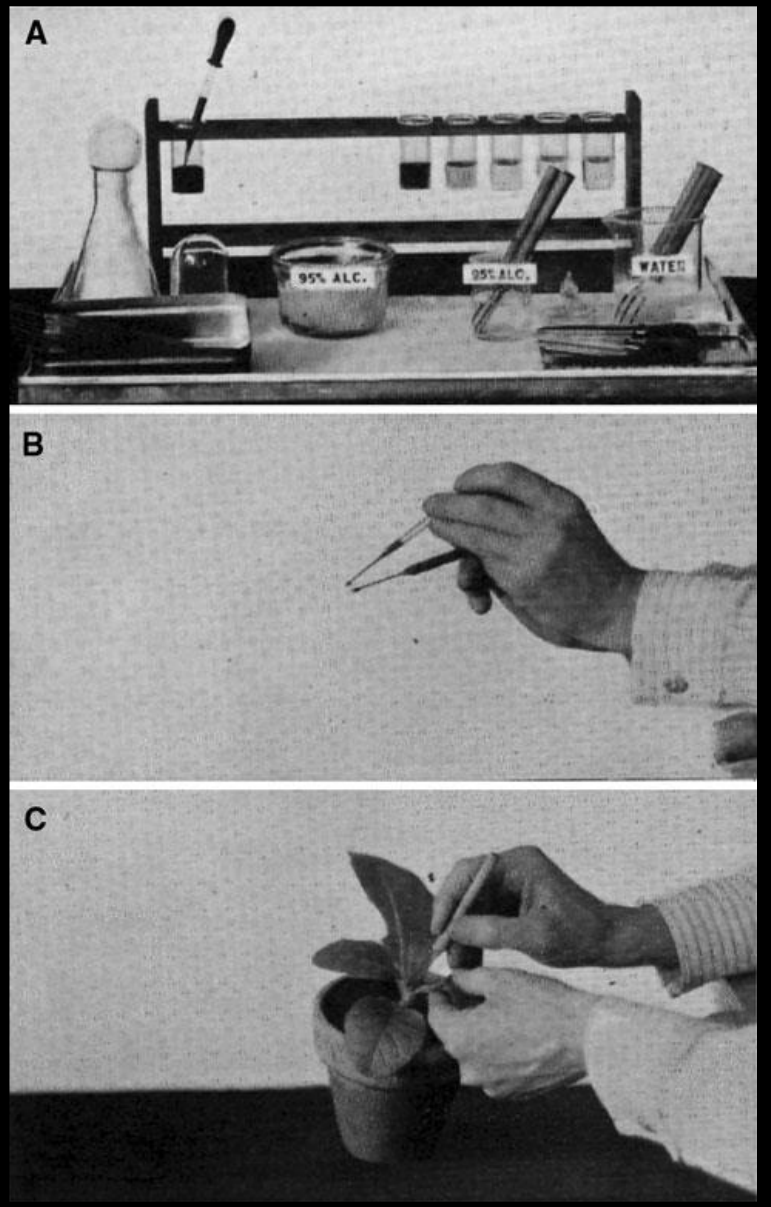
Healthy plant in the centre / Plant displaying leaf-roll symptoms

https://www.forestryimages.org/browse/detail.cfm?imgnum=5360715#



Grafting technique

Markham and Smith, 1954



Needle inoculation

McKinney, 1927 in Scholthof, 2014

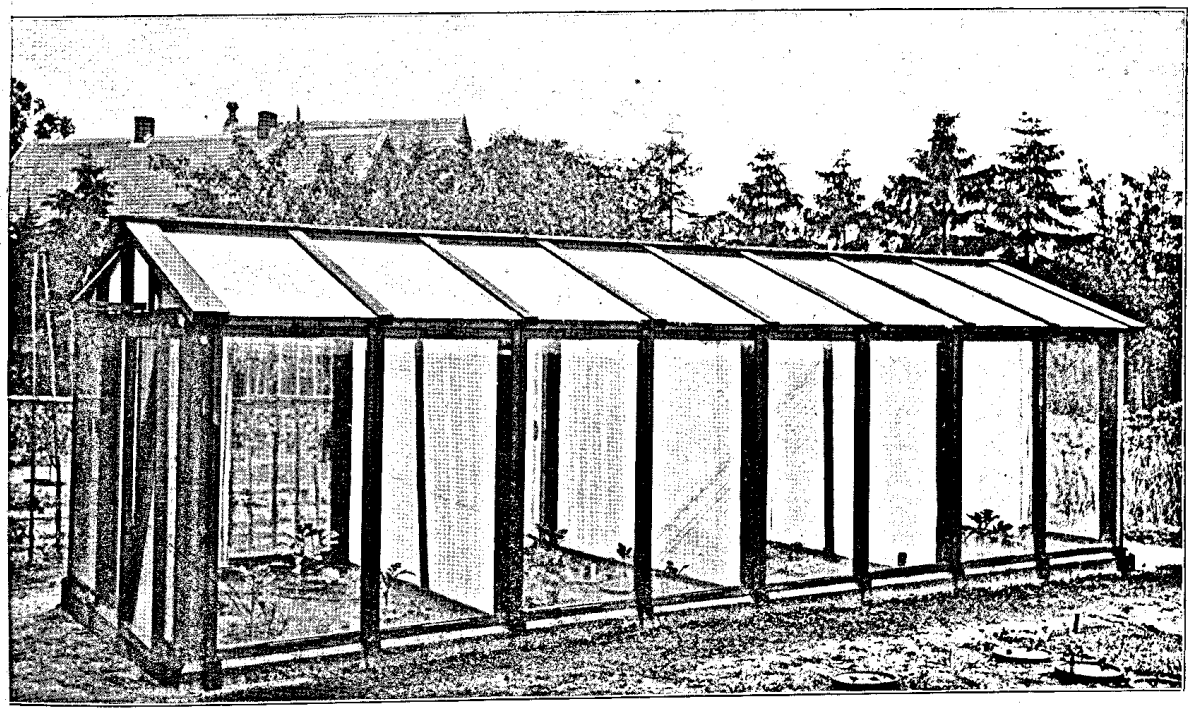


Fig. 10.

Botjes, 1920

Aphid on tomato leaf

https://tomatogeek.com/aphids-on-tomato-plants/

REPORT

OF THE

INTERNATIONAL POTATO CONFERENCE

1921.

Glasshouse, 1940s
JIC archive

“Potato library”, 1940s
JIC archive

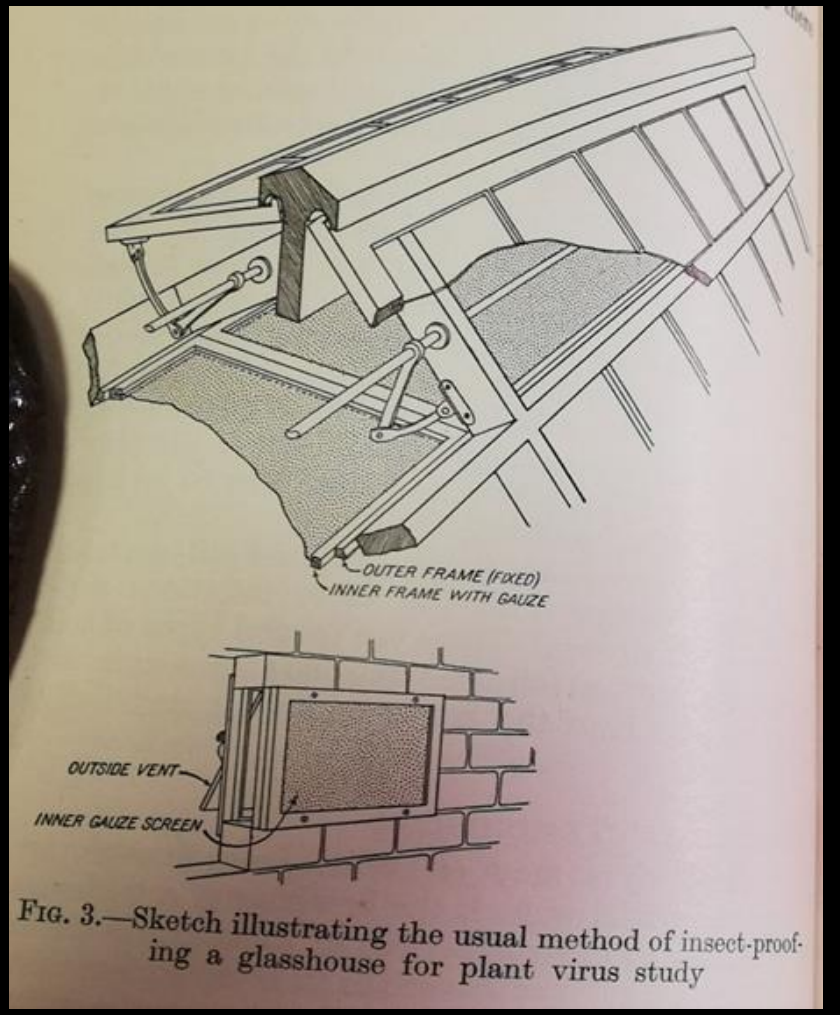
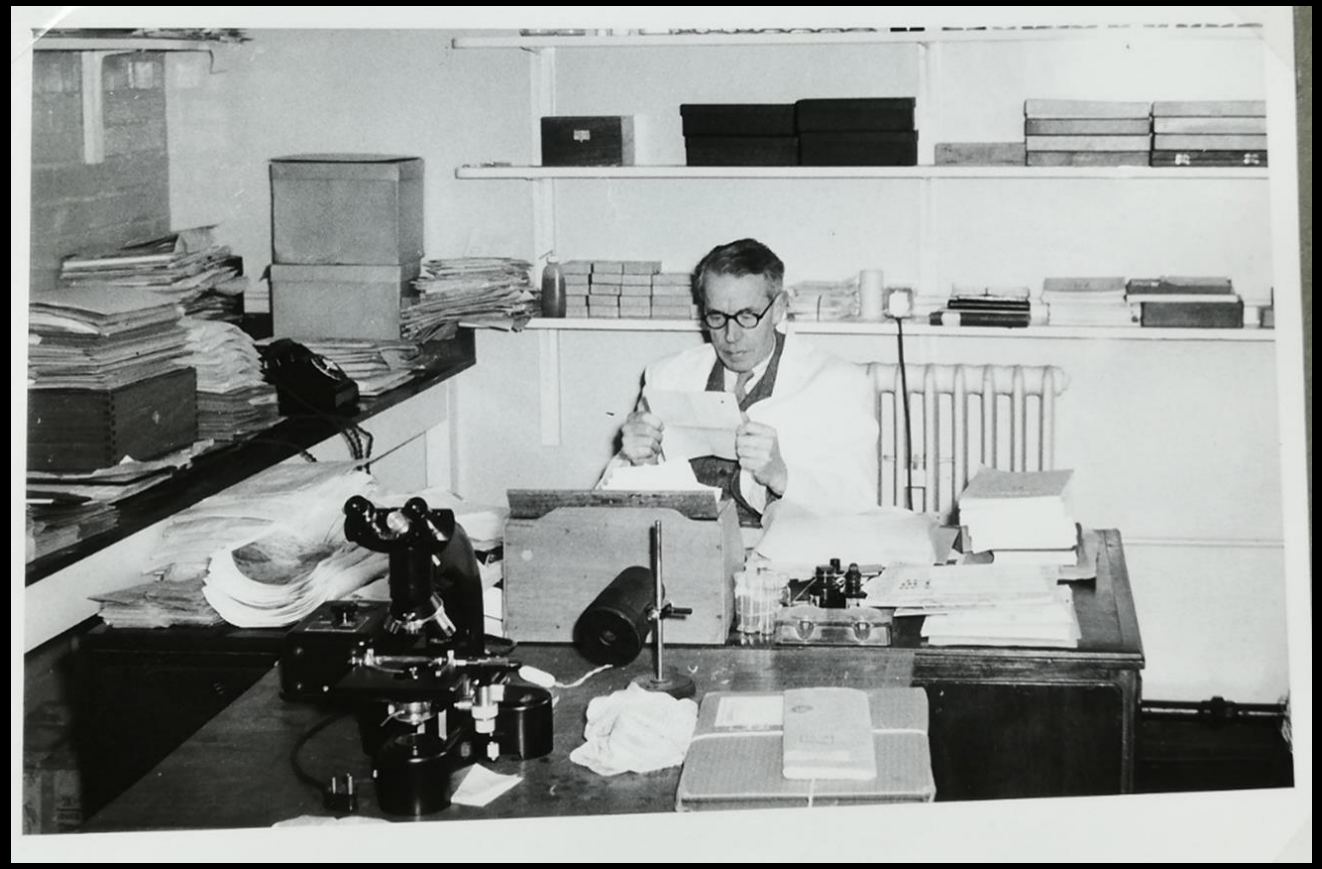


FIG. 3.—Sketch illustrating the usual method of insect-proofing a glasshouse for plant virus study

Wire-gauze trappings
Smith, 1935



Kenneth M. Smith (1892-1981) in his office at the PVRS

JIC archive

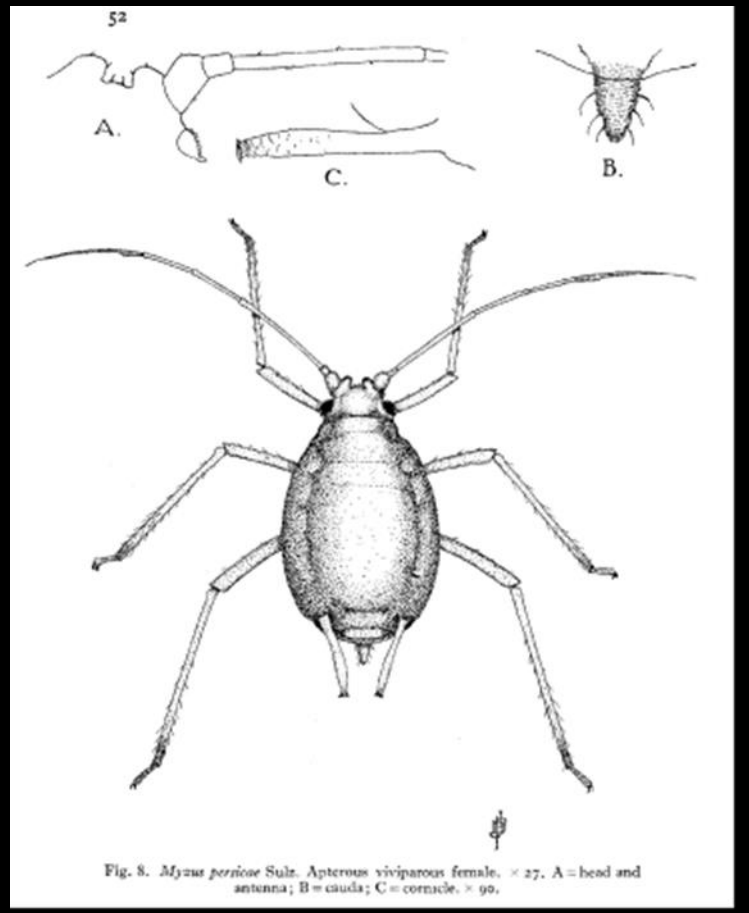


Fig. 8. *Myzus persicae* Sulz. Apterous viviparous female. × 27. A = head and antenna; B = cauda; C = cornicle. × 90.

Myzus persicae

Smith, 1948.

Fig. 1.

Smith, 1927

Station glasshouses, 1940s-1960s (JIC archive)

Field work in the Hebrides (Salaman, 1934)

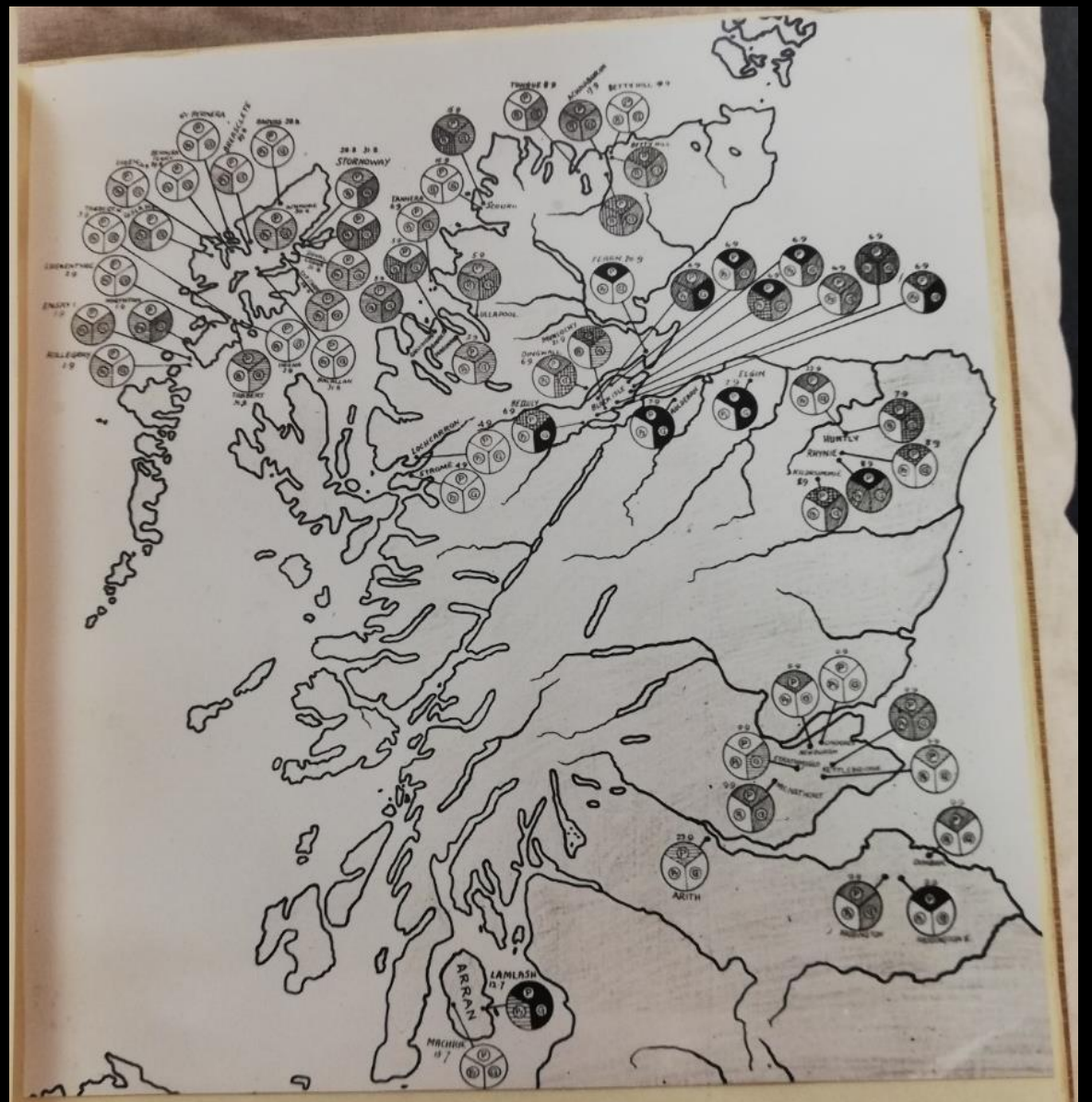
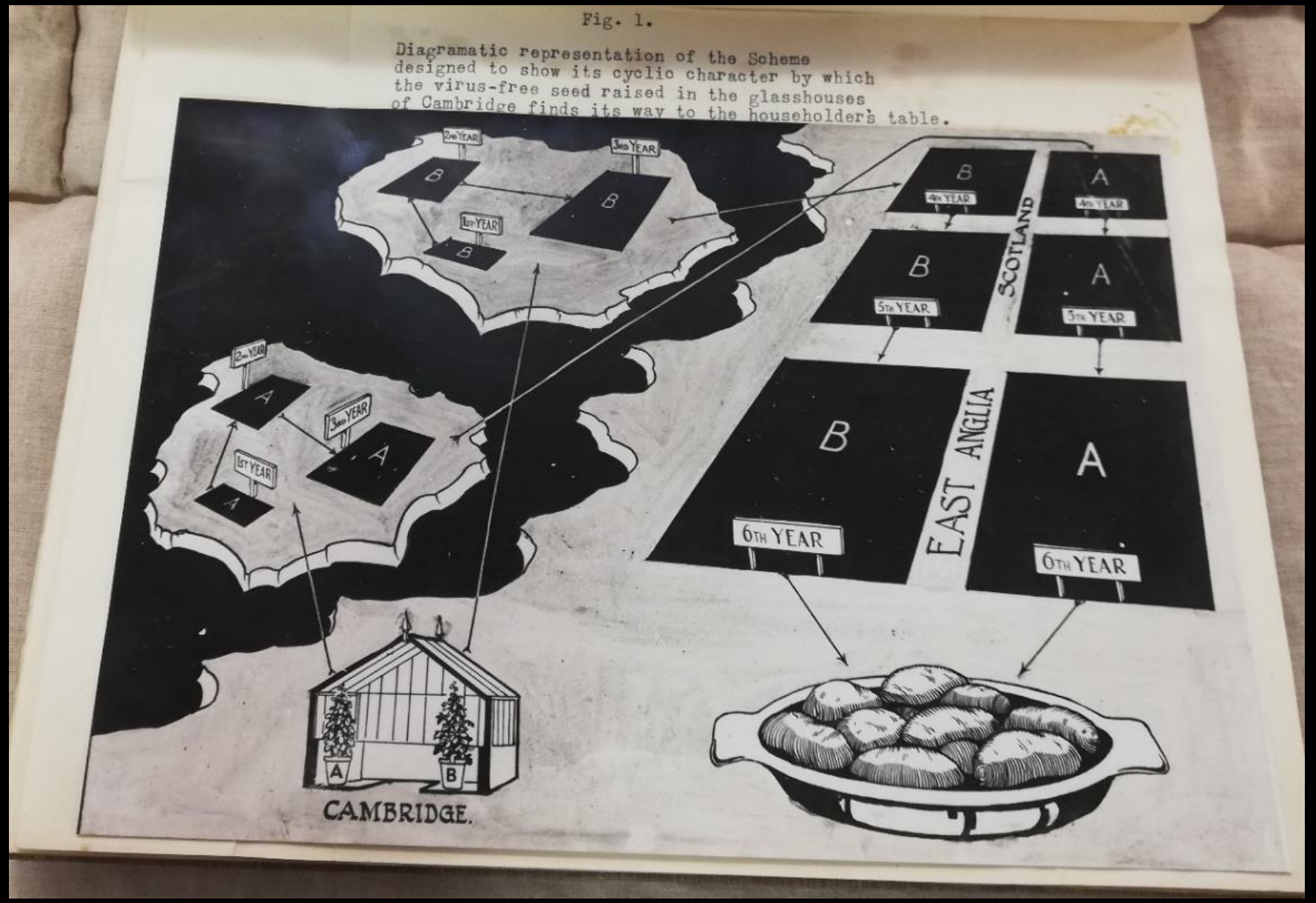


Fig 2: Map showing the incidence of aphids in certain districts of Scotland and the Outer Hebrides on the dates indicated in the year 1934.

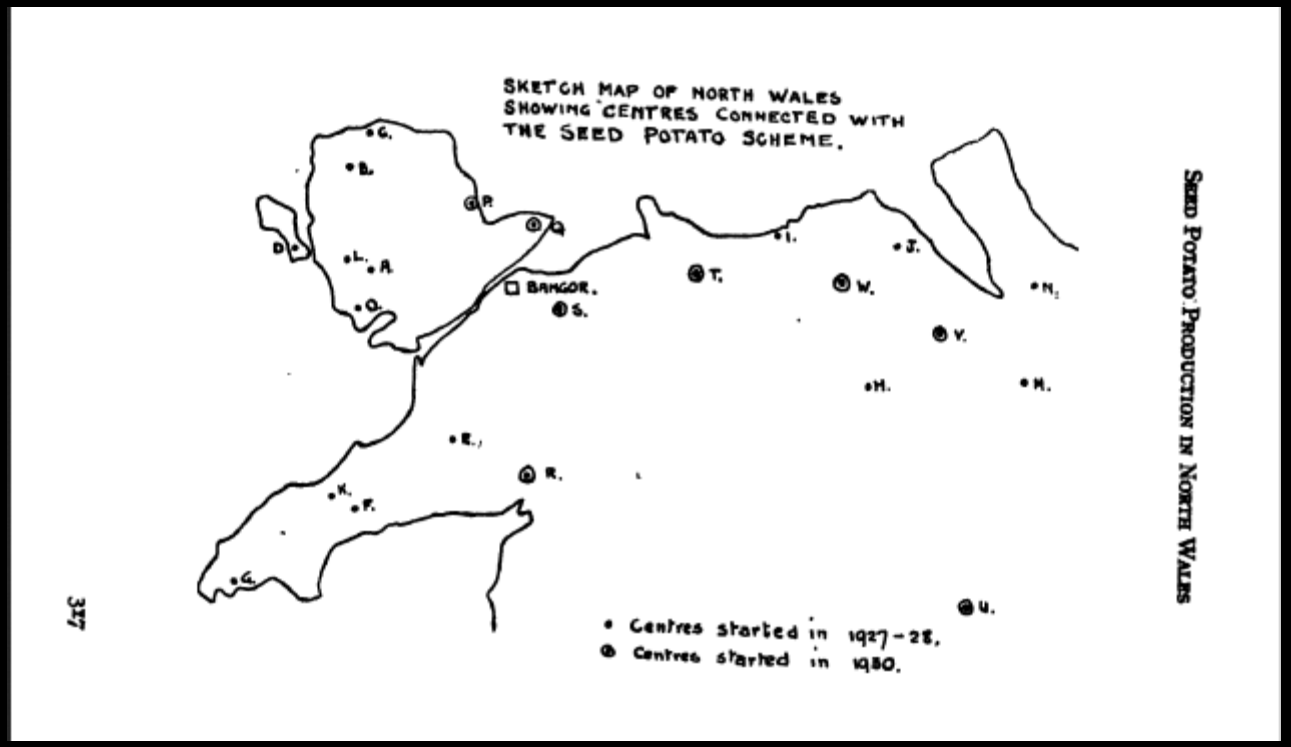
Salaman, 1934

Fig. 1.

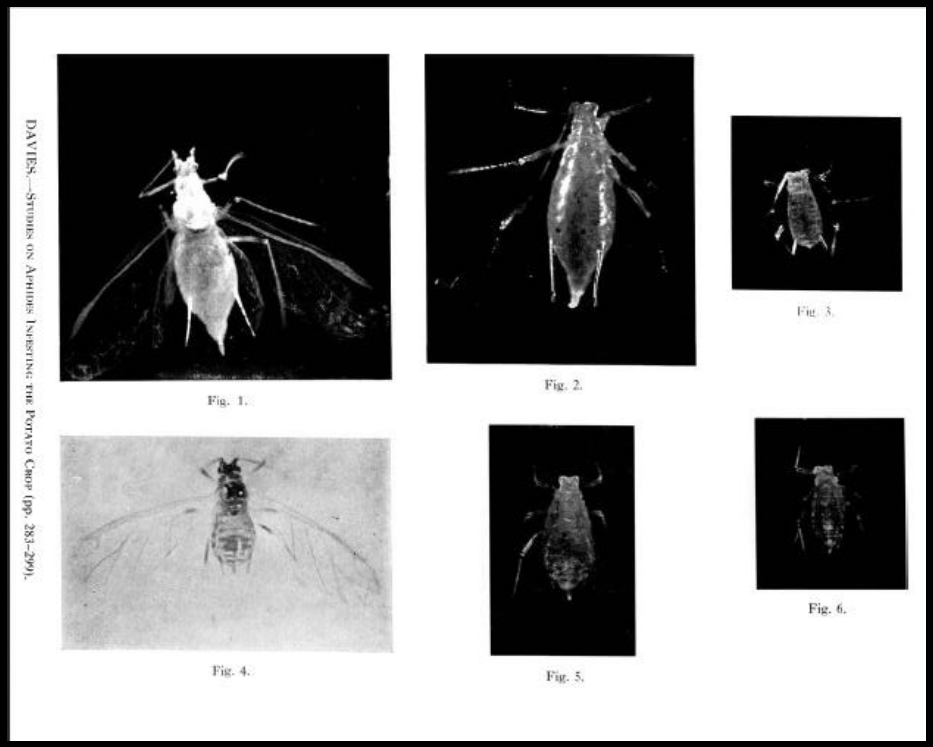
Diagramatic representation of the Scheme designed to show its cyclic character by which the virus-free seed raised in the glasshouses of Cambridge finds its way to the householder's table.



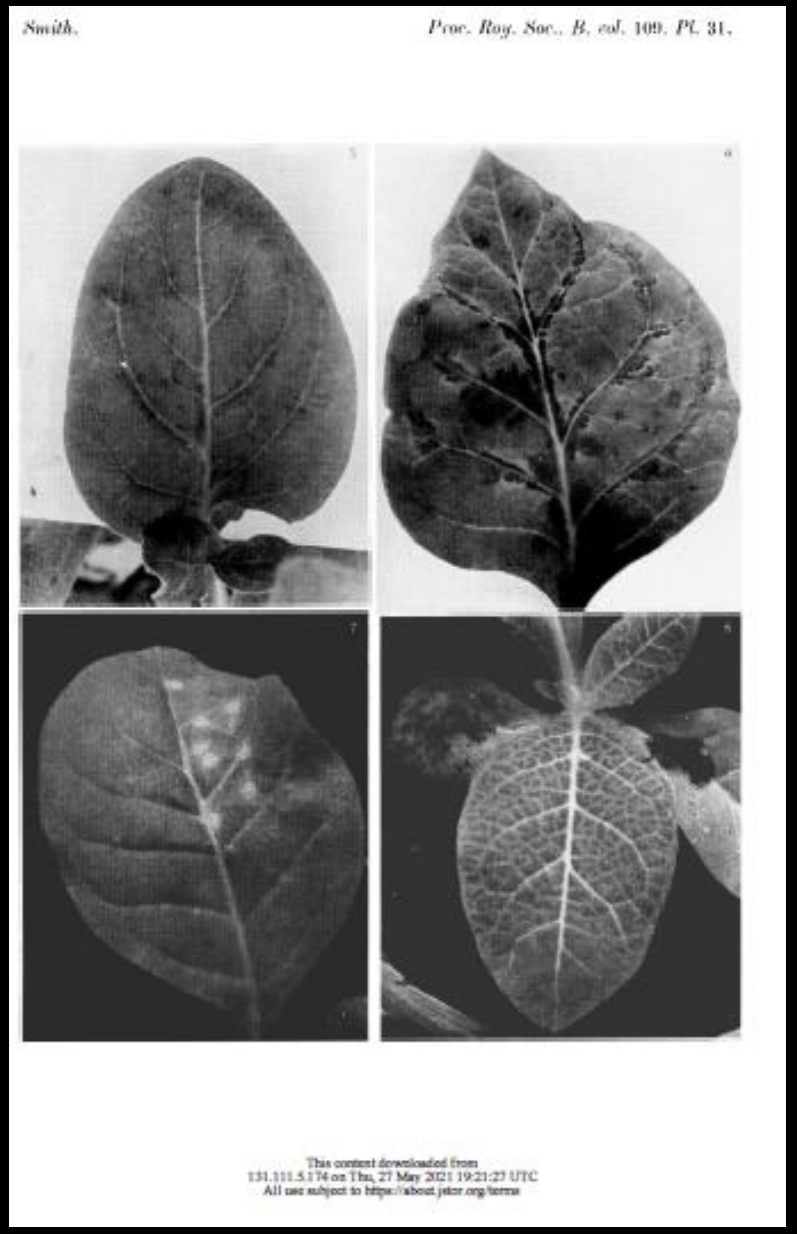
Salaman, 1934

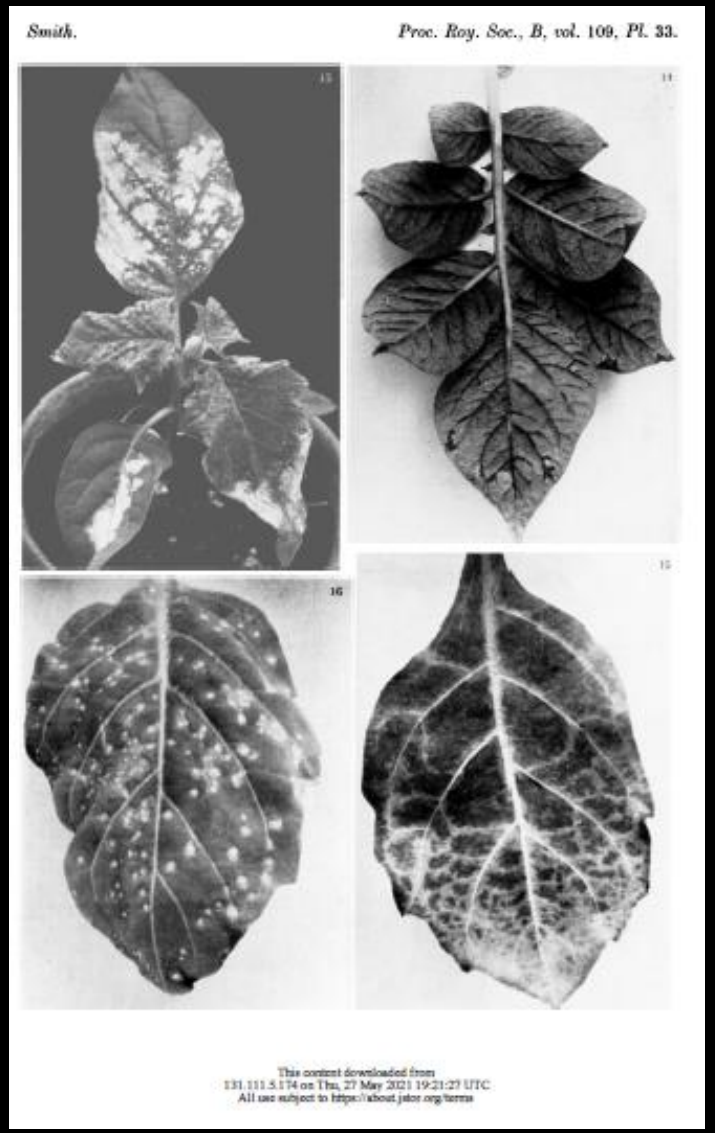


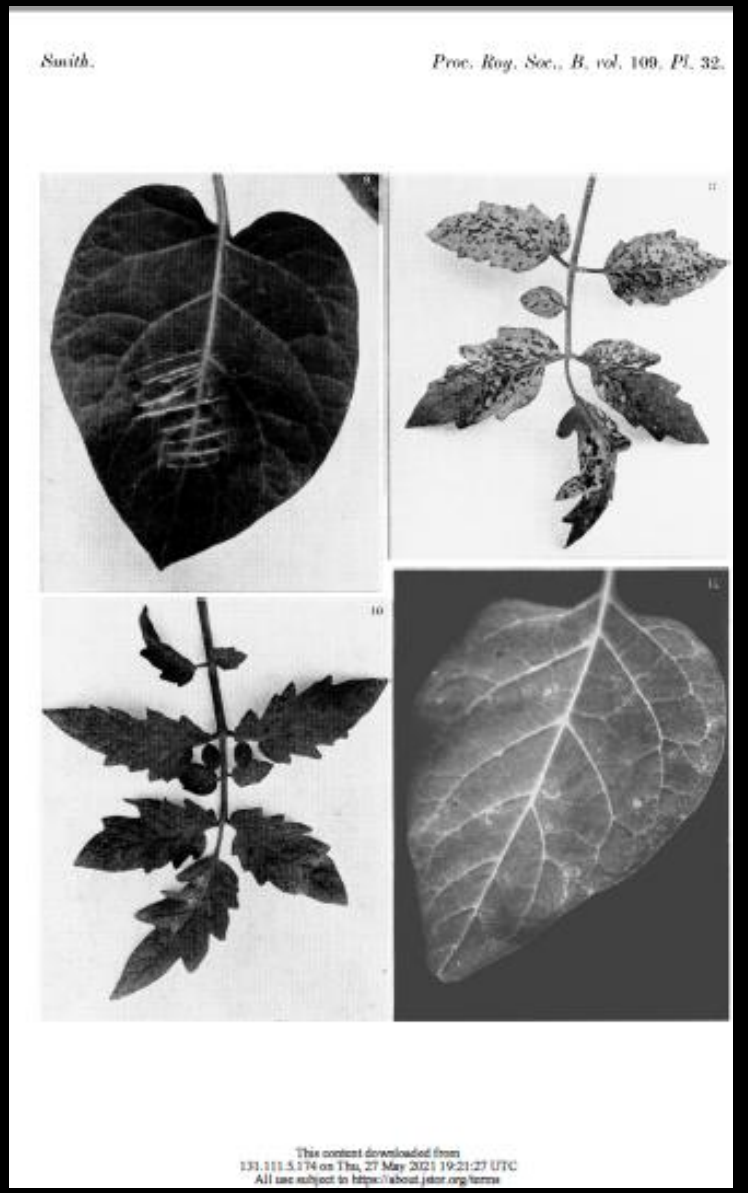
Currie, 1933



Davies, 1934







Tobacco, potato and tomato leaves and plants inoculated with different potato viruses (Smith, 1931)