

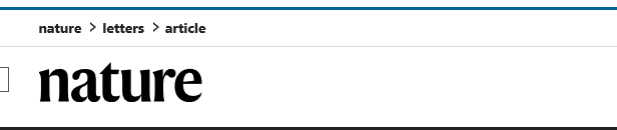
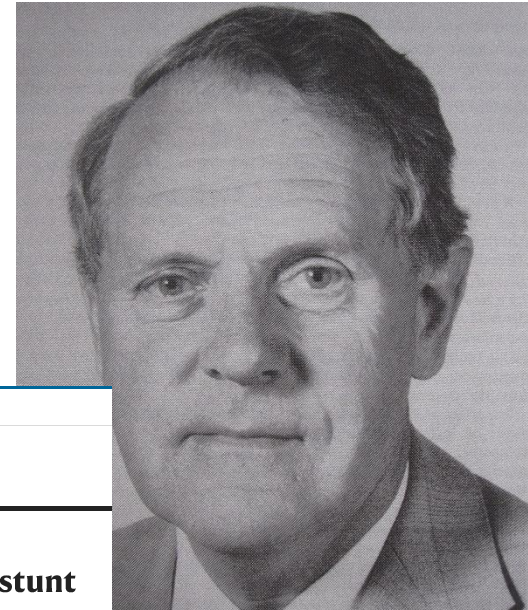
*Plant virus  
research at  
Wellesbourne*

*John A. Walsh*



# Plant virology beginnings at Wellesbourne

- John Tomlinson is appointed as a Plant Pathologist
- Credited with saving the UK watercress industry in 1950s
- Six nature publications



nature > letters > article

Letter | Published: 08 December 1956

## Control of Watercress Crook Root Disease by Zinc-fritted Glass

J. A. TOMLINSON

Nature 178, 1301–1302(1956) | Cite this article

6 Accesses | 6 Citations | 0 Altmetric | Metrics

### Abstract

CROOK root disease of watercress (*Nasturtium officinale* × *N. microphyllum*, Boenn. ex Rchb.) was first reported by officers of the National Agricultural Advisory Service in 1950. The disease was found in all the watercress-growing districts in 1951 and reached such serious proportions that it is a major

nature > letters > article

nature

Letter | Published: 16 December 1982

## Isolation of infective tomato bushy stunt virus after passage through the human alimentary tract

J. A. Tomlinson, Elizabeth Faithfull, T. H. Flewett & G. Beards

Nature 300, 637–638(1982) | Cite this article

11 Accesses | 31 Citations | 1 Altmetric | Metrics

### Abstract

Research on plant virus vectors has shown that almost all types of organisms feeding on or parasitizing infected plants, including sucking and biting insects, mites, nematodes and chytrid fungi, can act as specific vectors. Surprisingly, however, natural vectors have not been found for some of the most infectious of the plant viruses such as tomato bushy stunt virus (TBSV) and tobacco mosaic virus (TMV). Here we report that when purified TBSV was consumed by human volunteers, it subsequently occurred in their faeces and could be detected by mechanical inoculation of faecal extracts to the leaves of an indicator plant (*Chenopodium quinoa*) in which the virus causes countable, discrete lesions. Thus, the virus

nature > articles > article

nature

Article | Published: 21 April 1962

## Role of *Olpidium* in the Traumatic Vein Disease of Lettuce

J. A. TOMLINSON & R. G. GARRETT

Nature 194, 249–250(1962) | Cite this article

4 Accesses | 18 Citations | 0 Altmetric | Metrics

# Plant virology grows at Wellesbourne

- David Walkey is appointed as a Plant Virologist
- Developed meristem tip culture and thermotherapy to rid vegetatively propagated plants of viruses and researched virus resistance in vegetable crops with Dave Pink, ably assisted by Ann Baker and Tina Payne
- Published standard undergraduate text on plant viruses

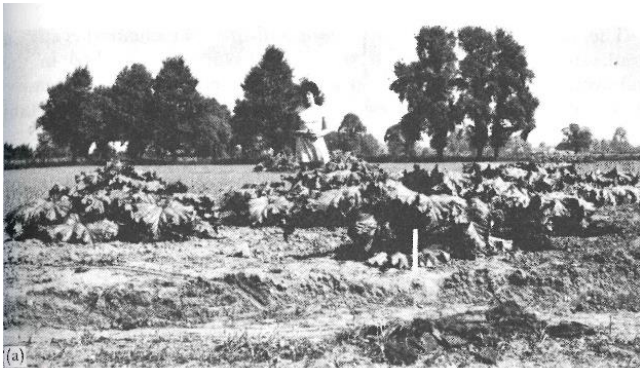
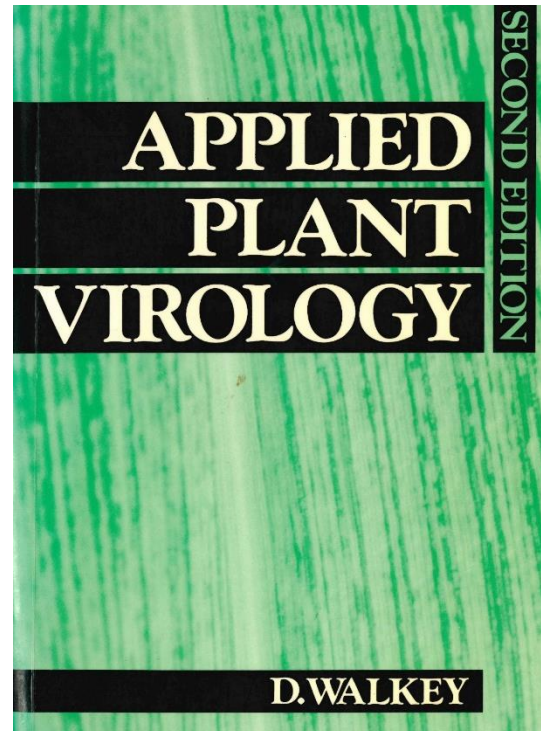


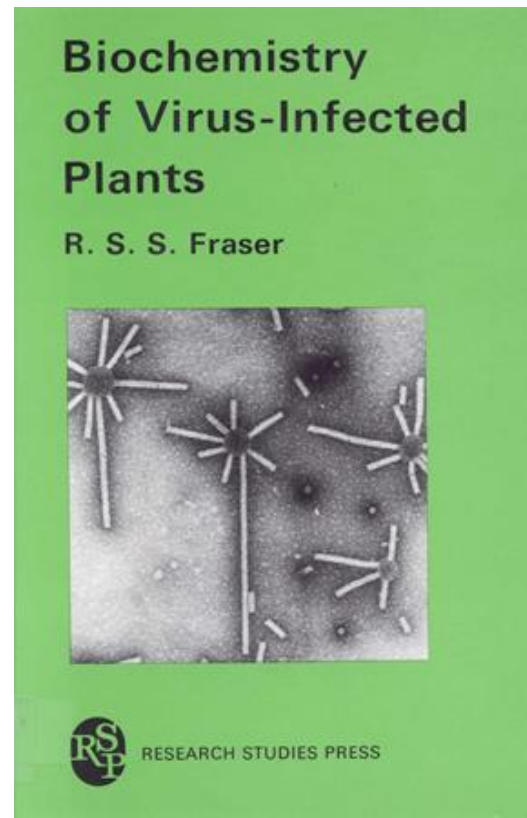
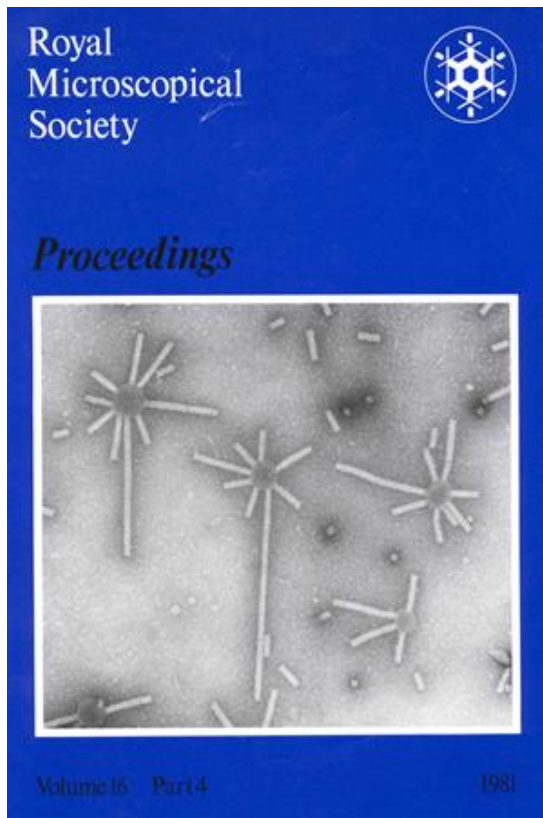
Plate 11.1 Reduction in yield caused by virus infection of a vegetatively-propagated





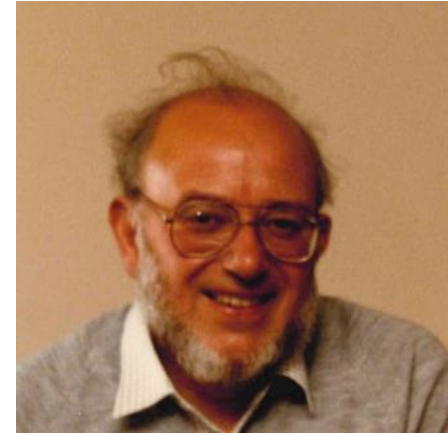
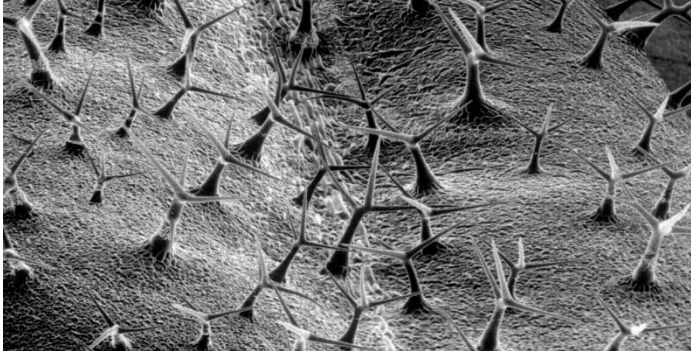
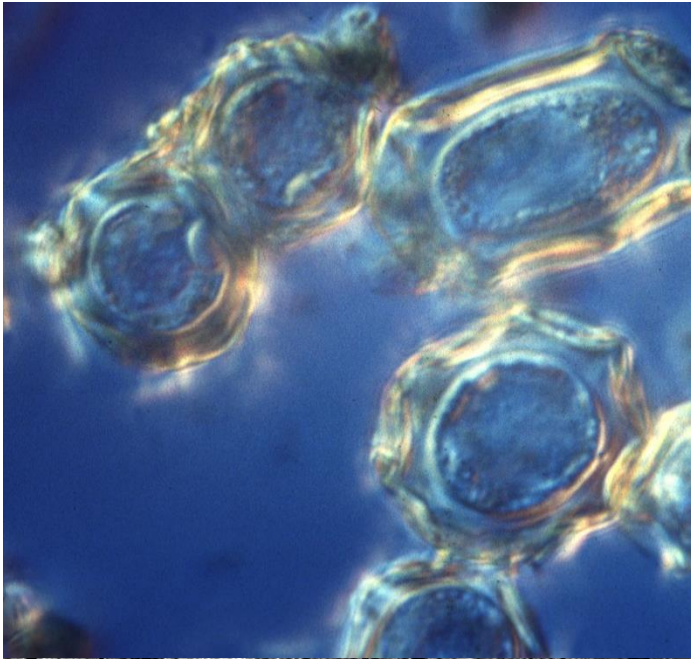
# Plant virology at Wellesbourne enters the 20<sup>th</sup> century

- A Biochemistry Department is established and Ron Fraser is appointed as the first head
- Worked on Tobacco mosaic virus (TMV) as a model system
- Published a number of books on plant viruses



# The unsung heroes

- Mike Webb and Colin Clay, our amazing electron microscopists

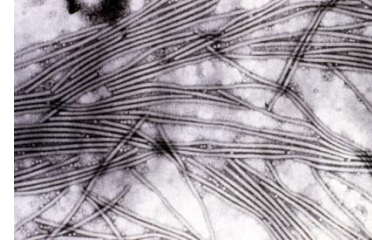


*Plant virology continues at Wellesbourne*



# Broad-spectrum, potentially durable resistance to Turnip mosaic virus (TuMV)

- Broad-spectrum resistance to TuMV was discovered in a range of *Brassica rapa* accessions
- Genes associated with the resistance were mapped in the A genome
- A single recessive gene *retr01* was identified
- The resistance was found to be due to a new mechanism associated with the mis-splicing of one of the copies of the eukaryotic translation initiation factor *eIF(iso)4E* and was patented by Warwick
- The resistance gene is being introgressed in to commercial *B. rapa* varieties using MAS by Syngenta who are pursuing the patent worldwide



Nellist, Jenner, Rusholme, Higgins, Lydiate, Barker, Walsh



Laying foundations / Discovery

Research

Exploitation



# Pantos





# Revues



# Plant Pathology Department 1984





# Plant virology at Wellesbourne now



Hort Services

Thank you!