

FIRST SUPPLEMENT
TO THE
HOST INDEX OF VIRUS DISEASES OF PLANTS*

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This supplement contains many records of host plants that were omitted from the first paper. Some of these records have been published since the publication of the first paper, others were not available to the compiler and others were held for more complete data which is now available. Furthermore, it has been found advisable to insert certain data which it was not intended to include when the first paper was published.

The preparation of the index is much more difficult than was anticipated by the compiler. Some of these difficulties were given in the first paper. Some of the additional difficulties are: (1) the recognition of many strains of viruses which give somewhat different symptoms, (2) the production of different symptoms on different host plants when inoculated with the same virus, (3) the mixture of viruses in a single host plant, (4) the variations of symptoms due to different methods of inoculation and (5) the influence of environmental factors, especially temperature, on the expression of symptoms. All these difficulties and many others of more or less importance have complicated the work of the compiler.

As a result of a study of the literature the compiler is of the opinion that it is impossible to make a satisfactory index until the various viruses have been identified and described. However, the compiler hopes that this index and its supplements may be useful to the students of virus diseases until a more satisfactory index can be made.

Ten families, more than 50 genera and about 150 species have been added to the index. Varieties of host plants have not been including, although it is well known that varieties within a species may react very differently to a single well known virus. No attempt has been made to classify the viruses. It is very evident to students of the subject that some of the diseases recorded under distinct

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names may be due to a single virus and that the number of diseases recorded in the index is greater than the number of viruses recognized at this time.

This supplement makes this index fairly complete and up to date. There are many duplications and much confusion due to different names being applied to a single disease and to our lack of knowledge of the true nature of the viruses and the range of host plants of each virus. The compiler hopes that the index will be helpful for the workers and that it will aid in the making of a usable classification of the viruses.

AMARANTHACEAE

AMARANTHUS BLITOIDES

Mosaic, Doolittle and Walker, Wisconsin, 1925.

AMARANTHUS CAUDATUS

Curly top of sugar beet, Severin and Freitag, California, 1933,
I by *E. tenellus*.

AMARANTHUS DEFLEXUS

Curly top of sugar beet, Severin and Freitag, California, 1933,
I by *E. tenellus*.

AMARANTHUS RETROFLEXUS

Latent virus in potato, Jones and Burnett, Washington, 1934.

Fern Leaf of tomato, Jones and Burnett, Washington, 1935.

Same as cucumber mosaic.

Sugar beet mosaic, Mouravieff, Novinenko, Russia, 1932.

Curly top of sugar beet, Severin, California, 1919, NI.

AMARANTHUS TRICOLOR

Curly top of sugar beet, Severin and Freitag, California, 1933,
I by *E. tenellus*.

CELOSIA ARGENTEA

Curly top of sugar beet, Severin and Freitag, California, 1933,
I by *E. tenellus*. Also the variety *cristata*.

GOMPHRENA GLOBOSA

Curly top of sugar beet, Severin and Freitag, California, 1933,
I by *E. tenellus*.

AMARILIDACEAE

AGAVE CAUTALA

Mosaic, Phillipine Islands, No other data.

AGAVE RIGIDA var. SISALANA

Mosaic, Stanger, Belgian Congo, 1929, N.

AGAVE SISALANA

Mosaic, Phillipine Islands, 1925, No other data.

AMARYLLIS sp.

Spotted wilt of tomato, Gardner, Whipple and Tomkins, California, 1935. I. Reported a little later in England by Ogilvie.

EUPHARIS AMAZONICA

Mosaic. Cook, Puerto Rico, 1931, N. The compiler is of the opinion that this disease is very widely distributed. It may be the same as the stripe disease reported by Bremer in 1926.

HIPPEASTRUM sp.

Spotted wilt of tomato, K. M. Smith, England, 1936.

NARCISSUS sp.

Gray disease in the United States appears to be the same as the stripe disease in England.

NARCISSUS IMCOMPARABILIS

Spike disease, Wolléy Dod, England, 1894, I am not sure that this is the date of the first record. It is mentioned in a paper by Gould in 1935. Some workers class it as a virus disease.

NARCISSUS TAZETTA

Yellow dwarf of onion, Henderson, Iowa, 1935.

APOCYNACEAE**NERIUM OLEANDER**

Chlorosis, F. F. Smith, Missouri, 1924.

VINCA (Lochnera) ROSEA

Spike disease, Varadaraja Iyengar, India, 1935.

ARACEA**HOMALOMENA CORDATA**

Chlorosis, F. F. Smith, Missouri, 1926.

RICHARDIA (CALLA) AFRICANA

Spotted wilt, Ogilvie, England, 1935.

ZANTHEDESCHIA AETHIOPICA

Spotted wilt of tomato, K. M. Smith, England, 1935, N.

BASELLACEAE**BASELLA RUBRA**

Mosaic of beet, Verplancke, Belgium, 1935.
Yellows of beet, Verplancke, Belgium, 1935.

BETULACEAE**CORYLUS AVELLANA**

Mosaic, Atanasoff, Bulgaria, 1935.

BIXACEAE**MAXIMILIANA VITIFOLIA**

Mosaic, Cook, Puerto Rico, 1936.

BORAGINACEAE

MERTENSIA VIRGINICA

Mosaic, Whetzel, New Jersey, 1928.

CAMPANULACEAE

CAMPANULA sp.

Mosaic. No data.

LOBELIA sp.

Spotted wilt of tomato, Holmes Smith, England, 1934.

LOBELIA CARDINALIS

Curly top of sugar beet, Freitag & Severin, California, 1935,
I from sugar beet by *E. tenellus*.

Cucumber virus 1, K. M. Smith, England, 1936.

LOBELIA ERINUS

Curly top of sugar beet, Severin, California, I by *E. tenellus*.
Bigarrure of potato, Verplancke, Belgium, 1935.

CARYOPHYLLACEAE

DIANTHUS BARBATUS

Mosaic, Woods, Washington, D. C., 1919, N.

DIANTHUS CARYOPHYLLUS var. *heddewigii*.

Curly top of sugar beet, Freitag Severin, California, 1933, I
from sugar beet by *E. tenellus*.

MONOLOPIA CHENOPODIODES

Aster yellows, Kunkel, New York, 1911. By *C. sexnotata*.

CHENOPODIACEAE

ATRIPLEX ELEGANS

Curly top of sugar beet. Severin. California. 1919.

ATRIPLEX PATULA

Mosaic of beet, Verplancke, Belgium, 1934.

BETA TRIGINA

Mosaic of beet, Verplancke, Belgium, 1935.

BETA VULGARIS

Cucumber mosaic, Johnson, Kentucky, 1930 Three types of a
new virus, Blattny, Czechoslovakia.

Tupfelmozaik, fleckenmozaik, punktmozaik and kauselmozaik,
Böning, Germany, 1927.

Sprenkel mosaic, nerven mosaic, marmor mosaic and poken mo-
saic, Verplancke, Belgium, 1935.

BLITUM EXSUCCUM

Mosaic of beet, Verplancke, Belgium, 1934

Yellows of beet, Verplancke, Belgium, 1934.

CHENOPODIUM ALBUM

Mosaic of sugar beet, Mouravieff, Novinenko, Russia, 1932.
Yellows of beet, Verplancke, Belgium, 1934.

CHENOPODIUM BONUS-HERICUS

Mosaic of beet, Verplancke, Belgium, 1934.
Yellows of beet, Verplancke, Belgium, 1934.

CHENOPODIUM MURALE

Mosaic of beet, Verplancke, Belgium, 1934.
Yellows of beet, Verplancke, Belgium, 1934.

CHENOPODIUM QUINOA

Mosaic of beet, Verplancke, Belgium, 1934.
Yellows of beet, Verplancke, Belgium, 1934.

SPINACEAE OLERACEAE

Yellow cucumber mosaic, Hoggan, Wisconsin, 1933. I from cucumber.

Fern leaf of tomato, Jones & Burnett, Washington, 1935, Same as cucumber mosaic virus.

NOTE: Severin, California reported curly top of sugar beet on prickly winter spinach, 1934, I.

SPINACEA sp.

Leaf curl, Wille, 1929, N.

SPINACEA OLERACEA

Mosaic of beet, Verplancke, Belgium, 1934.

SUALEA MARITIMA

Mosaic of beet, Verplancke, Belgium, 1934.
Yellows of beet, Verplancke, Belgium, 1934.

COMMELINACEAE**COMMELINA NUDIFLORA**

Mosaic, Kunkel, Hawaii, 1932, N.

COMPOSITAE**ASTER sp.**

New tomato disease, K. M. Smith, England, 1935.

ASTER (CALLISTEPHUS) SINENSIS

Mosaic of beet, Verplancke, Belgium, 1934.

CALENDULA sp.

Spotted wilt of tomato, K. M. Smith, England, 1935, N.
Cucumber virus 1, K. M. Smith, England, 1936.

CALENDULA OFFICINALIS

Virus disease, Bijl, South Africa, 1931, N.

CALLISTEPHUS CHINENSIS

Cucumber virus 1, K. M. Smith, England, 1936.

CENTAUREA CYANUS

Aster yellows, Kunkel, New York, 1928, I by *C. serotata*.

CINERARIA sp.

Spotted wilt of tomato, Ogilvie, England, 1935.

DAHLIA sp.

Stunt, Haskell, Georgia, 1928, N. Weiss reported a stunt the same year.

Virus disease, Brandenburg, Germany, 1928.

DAHLIA IMPERIALIS

Mosaic, Brierly, New York, 1933, I.

DAHLIA MAXONII

Mosaic, Brierly, New York, 1933, I.

DAHLIA VARIABILIS

Ring spot, Cannon, New Jersey, 1929, N.

Yellow ring spot, 1931.

Spotted wilt of tomato, K. M. Smith, England, 1932.

NOTE: Stunt and dwarf may be the same as mosaic.

Bigarrure of potato, Verplancke, Belgium, 1935.

DIMORPHOTHECA AURANTIACA

Tobacco mosaic, Grant, Wisconsin, 1934, I.

EMILIA FLAMMEA

Aster yellows, Kunkel, New York, 1931, L.

HELIANTHUS DEBILIS

Mosaic, Jagger, U. S. 1918, I from *C. sativus*.

HELICHRYSIUM BRACTEATUM

California aster yellow, Freitag & Severin, California, N. I from sugar beet by *E. tenellus*.

LACTUCA SATIVA

Spotted wilt of tomato, K. M. Smith, England, 1936.

Non-hearting, Ogilvie & Mulligan. 1933, Believed to be due to a mosaic virus.

NOTE: Severin, reported aster and celery yellows on prize head lettuce, California, 1934, I.

LACTUCA SCARIOLA

Mosaic, Curtis, Iowa, 1919, N.

MONOLOPIC. CHENOPODIODES

Aster yellows, Kunkel, New York, 1931, I by *C. serotata*.

SONCHUS ARVENSIS

Mosaic of sugar beet, Mouravieff, Novienko, Russia, 1932.

STOKESIA sp.

Mosaic, Curtis, Iowa, 1923.

TAGETES ERECTA

Tobacco mosaic, Grant, Wisconsin, 1934, I.

THELESERMA HYBRIDUM

Yellows, Fukushi, Japan, 1931, I by insects.

TRICHOSANTHES CUCUMEROIDES

Mosaic, Kasai, Japan, 1924.

VERONIA CINEREA

Krul (or curl) & kroepoek (crinkle) of tobacco. Thung, Java, 1934.

VERONIA FASCICULATA

Mosaic, Curtis, Iowa, 1923, N.

ZINNIA sp.

New tomato disease, K. M. Smith, England, 1935.

Spotted wilt of tomato, K. M. Smith, England, 1936.

ZINNIA ELEGANS

Curly top of sugar beet, Severin and Freitag, California, 1933.

Bunchy top of tomato, McClean, South Africa, 1935, I.

Yellows, Severin, California, 1929, Same as aster yellows, celery yellows, lettuce yellows, etc.

Kroepoek, Kerling, Sumatra, 1933, I. May be first record. Also on *Nicotiana tabacum*. A similar disease has been reported by Thung in Java or Sumatra in 1932.

CONVOLVULACEAE

ARGYREIA CUNEATA

Sandal spike. Suspected by Lushington, India, 1918.

CONVOLVULUS ARVENSIS

Virescence (teratology), Ryjkoff, Ukraine, 1934.

Stolbur, Koratshevsky, Russia, 1935.

IPOMOEA LOBATA

Curly top of sugar beet, Freitag and Severin, California, 1933.

I from sugar beet by *E. tenellus*.

CRUCIFERAE

ARABIS sp.

Mosaic (Same as on *Cheiranthus cheiri*), K. M. Smith, England, 1935, N.

BARBAREA BARBAREA

Curly top of sugar beet, Severn, California. 1929, I.

BRASSICA ALBA

NOTE: Clayton (1930) reported mosaic on many cultivated Cruciferae, rutabagas, Brussels sprouts, cauliflower, white and black mustards, Chinese cabbage, turnips, rape, cabbage.

NOTE: K. M. Smith (1935) reported a mosaic on cabbage, Brussels sprouts and broccoli due to a virus from *Cheiranthus cheiri*. He also reported spotted wilt on cauliflower.

BRYONIA DIOICA

Marrow mosaic, Ogilvie, England, 1935.

CHEIRANTHUS CHIERI

Mosaic color changes, K. M. Smith, England, 1935, N. Recorded as wallflower.

HESPERIS MATRONALIS

Mosaic (same as on *Cheiranthus cheiri*), K. M. Smith, England, 1935, N.

LONDON MUSTARD

California aster yellows, Severin, California, 1934, I.

MATHIOLA sp.

Spotted wilt of tomato, K. M. Smith, England, 1935, N.

TURNIP

Mosaic of beet, Verplancke, Belgium, 1934.

ROBINIA PSEUDOACACIA

Rosette or broom, Orton & Rand, U. S. 1914, N.
Mosaic, Dana & McWhorter, Oregon, 1932, N.

CORNACEAE

CORNUS MAS

Mosaic, Atanasoff, Bulgaria, 1935.

CUCURBITACEAE

BENINCASA CERIFERA

Ring spot of tobacco, U. S. 1925, I from *C. cucumis*.

CUCUMIS MELO vars. CATALOUPENSIS, INODORUS, RETICULATUS.

Curly top of sugar beet, Severin & Henderson, California, I.

NOTE: Dana (Oregon 1934) reported curly top of sugar beet on many cultivated varieties, such as melons, squash, cantaloup, etc.

CUCUMIS SATIVUS

Delphinium virus, Valleau, Kentucky, 1932.

Yellow mosaic, Hoggan, Wisconsin, 1935, N.

Mild mosaic, Hoggan, Wisconsin, 1935, N.

NOTE: Ainsworth (England 1934) reported that cucumber mosaic and white pickel mosaic were synonyms of yellow cucumber mosaic.

MOMORDICA CHARANTIA

Mosaic or white pickel, Jagger, U. S. 1910, I from *C. sativus*.

DIOSCORACEAE

DIOSCOREA (Cultivated)

Mosaic, Roque, Puerto Rico, 1936, First published record.

EUPHORBIACEAE

EUPHORBIA PRESII

Mosaic, Curtis, Iowa, 1923, N.

MANIHOT APII

Mosaic, Dade, Gold Coast, 1926, N.

Mosaic, Kufferath & Ghésquiere, Belgium Congo, 1932, N.

NOTE: These mosaics may be different.

MANIHOT UTILISSIMA

Mosaic, Kufferath & Ghésquiere, Belgium Congo, 1932, N.

GERANACEAE**OXALIS STRICTA**Curly top of sugar beet, Starrett, 1929, I by *E. tenellus*.**PELARGONIUM sp.**

Aucuba mosaic, Blattny, Czechoslovakia, 1933.

Interveinal mosaic, Blattny, Czechoslovakia, 1933.

Spotted wilt of tomato, Holmes Smith, England.

PELARGONIUM HEDERACEUM

Leaf curl or mosaic, Verplancke, Belgium, 1932.

PELARGONIUM ZONALE

Periclinal variegations, Funaoka, 1924.

Leaf curl or mosaic, Verplancke, Belgium, 1932.

GESNERIACEAE**DIDYMOCARPUS HORSFIELDII**Aster yellows, Kunkel, New York, 1931, I by *C. sernotata*.**GLOXINIA sp.**

Spotted wilt of tomato, K. M. Smith, England, 1935, N.

GRAMINEAE**AVENA SATIVA**

Streak of sugar cane, Storey, South Africa, 1925, N.

ECHINOCHLOA CRUS GALLI sub sp. colona, var. edulis

Dwarf or rice, Fukushi, 1934, I.

ELEUSINE CORACANA

Streak of sugar cane, Storey, South Africa, 1925, I.

EUCHLAENA MEXICANA

Streak of sugar cane, Storey, South Africa, 1925, I.

HORDEUM sp.

Rosette, Jones, Egypt, 1935, N.

IMPERATA ARUNDINACEAE

Streak of sugar cane, Storey, South Africa, 1925, N.

MISCANTHUS SINENSIS

Sugar cane mosaic, Brandes & Klaphaak, U. S. 1923, I.

ORYZA SATIVA

Dwarf. Takada said that this disease was known as early 1883 and that it was first described in 1890.

PANICUM MILLIACEUM

Streak of sugar cane, Storey, South Africa, 1925, N.

PANICUM SANGUINALE

Sugar cane mosaic, Cottrell-Dormer, Auustralia, 1926.

PASPALUM BOSCIANUM

Sugar cane mosaic, Brandes & Klaphaak, U. S. 1923, I.

PHYLLOSTACHYS PUBESCENS

Sugar cane mosaic, Brandes & Klaphaak, U. S. 1923, N.

SACCHARUM OFFICINARUM

NOTE: Storey and McClean (1930) demonstrated that the viruses of streak of maize and cane were not identical.

NOTE: Storey, 1935 reported a mosaic on Agual cane in Natal, which he believed to be different from the common cane mosaic.

SETARIA AUREA

Sugar cane mosaic, Cottrell-Dormer, Australia, 1926.

SETARIA SULCATA

Streak of sugar cane, Fuller, South Africa, 1901. Not understood. Reported as a virus diseases by Storey & McClean 1930.

SETARIA VERTICILATA

Mosaic, Storey, South Africa, 1924, N.

SORGHUM sp.

Streak of sugar cane, Fuller, 1901, N. Not understood as a virus disease.

Transvaal mosaic, Storey, South Africa, 1929, N.

TRAGUS RACEMOSUS

Streak of sugar cane, South Africa, 1930, N.

VALOTA INSULARIS

Mosaic, Brandes, Hawaii, 1928.

ZEA MAYS

NOTE: Storey (1931) reported a stripe in East Africa. The vector is *Peregrinus maidis*.

NOTE: Ocfemia (1931) reported a disease of corn in the Philippine Islands which resembled the Fiji disease of sugar cane.

NOTE: Storey and McClean, 1930, demonstrated that the viruses of streak disease of maize and cane were not identical.

Transvaal mosaic. Storey, South Africa, 1929, N. I. This dis- does not attack sugar cane but it is transmitted by *Aphis maidis*.

IRIDACEAE

IRIS IMPERATI

Mosaic, Ogilvie, U. S. 1930, N. Observed in greenhouses.

IRIS TINGINGITANA

Mosaic, Ogilvie, U. S. 1930, N. Observed in greenhouses.

Mosaic or stripe, K. M. Smith, England, 1936.

IRIS XIPHIUM

Mosaic or stripe, K. M. Smith, England, 1936.

IRIS XIPHIUM HYBRIDUM

Mosaic or stripe, K. M. Smith, England, 1936.

IRIS XIPHONOIDES

Mosaic or stripe, K. M. Smith, England, 1936.

LABIATAE

COLEUS BLUMEI

NOTE: It has been suggested that some of the variegations in this and other species may be due to a virus but there is no proof.

GLECHOMA HEDERACEA

Periclinal variegations. Funaoka, Japan, 1924.

NEPETA CATARIA

Mosaic from cucumber, Doolittle & Walker, U. S. 1925.

Ring spot of tobacco, Doolittle & Walker, Wisconsin, 1926. I from *C. sativus*.

LEGUMINOSACEAE

ARACHIS HYPOGAEA

NOTE: Hayes reported three types of rosette in Gambia.

Pale dwarf (juvenile disease), Hartley, Java, 1927. Resembles a virus disease but probably due to other causes.

Clump disease, Sundaranaman, India, 1928, N. Similar to the rosette of South Africa.

CANAVALIA ENSIFORMIS

Mosaic, Hopkins, South Rhodesia, N. 1931. N.

CANAVALIA LINEATA (*C. obtusifolia*)

Mosaic, Ogilvie, 1927.

CYTISSUS HIRSUTUS

Chlorosis Baur, Germany, I from *Laburnum vulgare*.

DOLICHUS BIFLORUS

Ring spot of tobacco, Wingard, Virginia, 1928. I from tobacco and back.

DOLICHOS LABLAB

Mosaic, South Rhodosia, 1931, N.

DOLICHOS LUPINIFLORUS

Mosaic, Hopkins, South Rhodosia, 1933, N.

LATHYBUS ODORATUS

Mosaic, Doolittle & Jones, U. S. 1925. I from *Trifolium pratense*.

Sore shin, Chamberlain, Australia, 1935.

LUPIN sp.

Cucumber 1, K. M. Smith, England, 1936.

LUPINUS ANGUSTIFOLIUS

Sore shin, Chamberlain, Australia, 1935. Also attacks sweet pea, garden pea and broad bean.

LUPINUS LUTEUS

Mosaic, Merkel, Germany, 1929.

Chlorosis, Scholz, Germany, 1932. Known for many years. Not proved to be a virus.

NOTE: Sore shin which appears to be the same has been reported in Australia. Also occurs on *L. angustifolius* in Germany, Kohler, 1935.

LUPINUS POLYPHYLLUS

Spotted wilt of tomato. Ogilvie, England, 1935.

MALCONIA MARITIMA

Aster yellows, Kunkel, New York, 1931. I by *C. sexnotata*.

MEDICAGO sp.

Witches' broom, Edwards, Australia, 1935. Commonly known as spindle shoot, mistletoe, bunchy toe and kurrajong.

MEDICAGO LUPULINA

Mosaic, Harrison, New York, 1935. I from *Phaseolus vulgaris* by Aphid.

MELILOTUS sp.

New virus of the ring spot type, Henderson, 1934. It attacks tobacco.

Mosaic, Elliott. Arkansas. 1921. Inoculations from *M. alba* and *T. pratense*.

MELILOTUS ALBA

Ring spot of tobacco. Henderson & Wingard, Virginia, 1931, N.
Mosaic, Harrison, New York, 1935. I from *Phaseolus vulgaris* by *Aphis* sp.

PHASEOLUS ACONITIFOLIUS

Mosaic, Reddick & Stewart, New York, 1919.

PHASEOLUS ATROPURPUREA

Curly top of sugar beet, Severin & Henderson, California, 1928.

PHASEOLUS LUNATUS

Mosaic, McClintock, Virginia, 1917.

NOTE: A bean mosaic of some kind was reported from Russia in 1899. Clinton reported a chlorosis of lima bean from Conn. in 1908.

PHASEOLUS SATIVUS

Mosaic, Severin & Henderson, California, 1928.

PHASEOLUS VILLOSA

Curly top of sugar beet, Severin and Henderson, California, 1928.

PHASEOLUS VULGARIS

Yellows, Smith & Barker, Haiti, 1930. Apparently caused by *Empoasca* sp. but not definitely settled.

Yellow mosaic, Pierce, Wisconsin, 1934, N. He reported that the host range was very nearly that of the common bean mosaic virus.

Sore shin, Chamberlain, Australia, 1935. I from *Lupinus* to broad bean.

NOTE: Zaumeyer (1934) reported that the mosaic of the pea, alsike clover, white sweet clover, alfalfa and sweet pea were transmitted to *P. vulgaris*. Red clover mosaic was not transmitted to these hosts.

Yellow mosaic. Harrison, New York, from alsike clover, red clover, white sweet clover and from black medick, 1935.

Mosaic, Harrison, New York, I from white sweet clover, alfalfa and bean, 1935.

Common bean virus No. 1, tobacco mosaic virus No. 1 and ring spot of tobacco virus, Price, 1934.

Alfalfa mosaic virus No. 2, Price, 1934.

Yellow bean virus No. 2, Price, 1934.

Johnson's tobacco mosaic virus No. 1, Stanley, New Jersey, 1936.

Common bean mosaic virus 1, Pierce, Idaho, 1935.

Yellow bean virus No. 2, Pierce, Idaho, 1935.

Enation pea mosaic virus (pea virus 2), Pierce, Idaho, 1935.

Common pea mosaic virus (pea virus 2), Pierce, Idaho, 1935.

Common soy bean mosaic virus 1, Pierce, Idaho, 1935.

Broad bean local-lesion virus obtained from red clover, Pierce, Idaho, 1935.

PISUM SATIVUM

Mosaic, Blaringham, Canada, 1922. I from *P. sativum* to *T. pratense* *L. odoratus* by Doolittle & Jones, 1925.

Sore shin, Chamberlain, Australia, 1935, I from *Lupinus angustifolius*.

PISUM sp.

Mosaic, McClintock, Virginia, 1917, I from *Arachis hypogea*.

Mosaic, Böning, Germany 1927, I from *Vicia faba*.

RADICULATA SYLVESTRIS

Mosaic, McKinney, Canary Islands, 1928, N.

TRIFOLIUM HYBRIDUM

- Mosaic, Harrison, 1935. I by Aphis from *Phaseolus vulgaris*.
 Mosaic, Dickson, Canada, 1922, I from *T. pratense*. Böning reported a mosaic from Germany, transmitted from *Vicia faba*.
 Harrison of New York (1935) reported transmission of mosaic from *Phaseolus vulgaris* by Aphis.

TRIFOLIUM PRATENSE

- Mosaic, Elliott, Arkansas, 1924, N. Observed first in 1917.
 Transmitted from *T. pratense* by Dickson, Canada, 1922.

TRIFOLIUM REPENS

- Mosaic, Elliott. Arkansas, 1921, I from *M. alba* and *T. pratense*.

VICIA FABA

- Mosaic, Elliott, Arkansas, 1921, I from *M. alba* and *T. pratense*.
 A mosaic which is transmissible to peas, crimson clover and red clover was reported from Germany 1927 by Böning.
 Curly top of sugar beet, Severin, California, 1928, N.

VICIA FABA MAJOR

- Mosaic of beet, Verplancke, Belgium, 1934.

VIGNA SINENSIS

- New virus disease of tomato, K. M. Smith, England, 1935.
 Necrosis disease of tobacco, K. M. Smith & Bald, England, 1935.
 Celery virus, I, Wellman, Florida, 1934.

LILIACEAE

ALLIUM ASCOLONICUM

- Yellow dwarf of onion, Henderson, Iowa, 1935.

LILIUM AURATUM

- A virus disease, Pape, Germany, 1934.
 Rosette, K. M. Smith, England, 1936.

LILIUM CANDIDUM

- Mosaic, Woods, U. S. 1927, N. Cause not known. He also reported Bermuda lily disease on *L. harrisii*, *L. aurantum* and *L. candidum* in 1897.

LILIUM HARRISII

- Mosaic, 3 types, Ogilvie, New York, 1930.

LILIUM LONGIFLORUM var. *eximum*

- Yellow flat, Ogilvie, 1928, N. May better be called rosette.
 Stunt, Pape, Germany, this record included the varieties *erabu* and *formosum*. 1934.

LILIUM LONGIFLORUM var. *giganteum*.

- Rosette, K. M. Smith, England, 1936.

TULIP sp.

- Clotting is an expression of full breaking in certain varieties.
 Mc Kenny Hughes, England, 1934.
 Falling disease, Pinkhof, Holland, Cause unknown.

LOBELIACEAE (See Campanulaceae)

MALVACEAE

ALTHAEA FICIFOLIA

Chlorosis, Lindemuth, Graft from *Abutilon striatum* var. *Thompsonii*.

ALTHAEA NARBONENSIS

Variations, Lindemuth, Germany, 1902. Transmitted from *Abutilon* by grafting.

ALTHAEA ROSEA

Chlorosis, Baur, Germany, from *Abutilon striatum* var. *Thompsonii* by grafting.

ABUTILON ARBOREUM

Mosaic, Baur & Lindemuth, Germany, I by graft.

ABUTILON AVICENNAE

Mosaic, Baur & Lindemuth, Germany, I by graft from *A. striatum* var. *Thompsonii*.

ABUTILON DARWINI

Mosaic, Baur & Lindemuth, Germany. I by graft from *A. striatum* var. *Thompsonii*.

Mosaic, Baur & Lindemuth, Germany. I by graft from *A. striatum* var. *Thompsonii*.

ABUTILON ESCULENTUM

Mosaic, Baur & Lindemuth, Germany. I by graft from *A. striatum* var. *Thompsonii*.

ABUTILON HYBRIDUM

Mosaic, Baur & Lindemuth, Germany. I by graft from *A. striatum* var. *Thompsonii*.

ABUTILON INDICUM

Mosaic, Baur & Lindemuth, Germany. I by graft from *A. striatum* var. *Thompsonii*.

ABUTILON INEQUALE

Mosaic, Baur & Lindemuth, Germany. I by graft from *A. striatum* var. *Thompsonii*.

ABUTILON MEGAPOTOMICUM

Mosaic, Baur & Lindemuth, Germany. I by graft from *A. striatum* var. *Thompsonii*.

ABUTILON SELLOWAINANUM

Mosaic, Baur & Lindemuth, Germany. I by graft.

ABUTILON VENOSUM

Mosaic, Baur & Lindemuth, Germany, I by graft from *A. striatum* var. *Thompsonii*.

GOSSYPIUM sp.

Azerbaijan, Verderevsky. Russia, 1935.

NOTE: Leaf curl of cotton appears to have been reported first from Nigeria in 1912 by Farquarson. It was described in 1926 by Jones & Mason. It is especially prevalent on *G. peruvianum* and *G. vitifolium*.

NOTE: Hertsch (1927) reported two types of infectious chlorosis in *Malvaceae*, A & B.

"A" on *ABUTILON THOMPSONII* var. *Thompsonii*, *A. DWARINI*, *A. TESSETATUM* & *A. STRIATUM*.

"B" appeared spontaneously on *T. DWARINI* & *LAVATERA ARBOREA*.

"A" attacks *A. INDICUM* & *SIDA NAPAEA* very severely. Less severe on *A. SELLOWAIANUM*, *MALVA BOREALIS*, *M. CRISPA*, *ALTHAEA OFFICINALIS* and *A. STRIATUM*.

He also reported an infectious chlorosis on *Euonymus*, *Jasminum*, *Fraxinus*, *Castanes* and *Laburnum*.

Mosaic, Berry, Georgia, 1918, N.

HIBISCUS ESCULENTUS

Leaf curl of cotton, Farquarson, Nigeria, 1912, N.

HIBISCUS SABDARIFFA

Leaf curl of cotton, Kirkpatrick, Sudan, 1931.

MALVA SYLVESTRIS

Chlorosis, Lindemuth, Graft from *Abutilon striatum* var. *Thompsonii*.

SIDA ABUTILON

Variegations, Davis, Missouri, 1929.

SIDA MOLLIS

Chlorosis, Lindemuth, Graft from *Abutilon striatum* var. *Thompsonii*.

SIDALCEA CANDIDA

Chlorosis, Lindemuth, Graft from *Abutilon striatum* var. *Thompsonii*.

MARTYNIACEAE

PROBOSCIDEA LOUSIANA

Mosaic of tobacco, Jones & Burnett, Washington, 1933.

MELIACEAE

CIPADESSA FRUCTICOSA

Sandal spike, Suspected by Lushington, India, 1918. Also mentioned by Iyengar in 1935. Confirmed by Varadaraja Iyengar & Rangaswami (manuscript) 1935.

MORACEAE

FICUS sp.

Mosaic, Condit & Horne, California, 1933.

FICUS PARCELLI

Variegations resembling mosaic. F. F. Smith, Missouri, 1926.

FICUS TSIELA

Spike similar to Sandal, Lushington, India, 1916.

HUMULUS sp.

Squirt mosaic, Blattny, Czechoslovakia, 1927, N.

MUSACEAE

MUSA sp. (banana)

Mosaic, Ogilvie, Bermuda, 1917 and by Roque (not published) in Puerto Rico in 1934.

MUSA BANKSII

Bunchy top, Magee, Australia, 1927. He says that all species are attacked.

MUSA CAVENDISHII

Bunchy top, Magee, Australia, 1927.

MUSA SAPIENTUM

Bunchy top, Jones, Egypt, 1935.

MUSA TEXTILIS

Bunchy top, Ocfemia, Philippine Islands, 1926.

Mosaic (suspected), Calinisan, Philippine Islands, 1934.

NOTE: The bunchy top *M. textilis* and of bananas appear to be due to two distinct viruses.

NYCTAGINACEAE

BOUGAINVILLEA GLABRA

Chlorosis, F. F. Smith, Missouri, 1926.

OLEACEAE

FRAXINUS sp.

Mosaic, Atanasoff, Bulgaria, 1935.

JASMINUM OFFICINALE

Infectious chlorosis, John Lawrence, England, 1715. See Orton in *Phytopathology* 14:198, 199, 1924.

JASMINUM REVOLUTA

Chlorosis from *J. officinale*, Masters, England, 1869.

SYRINGA sp.

Mosaic. Atanasoff. Bulgaria. 1935.

ONAGRACEAE

FUCHSIA MAGELLANICA

Mosaic, McKinney, Canary Islands, 1929, N.

PAPAVERACEAE

ESCHSCHOLZIA CALIFORNICA

Curly top of sugar beet, Severin & Freitag, California, 1934. I.

PAPAVER NUDICAULE

Curly top of sugar beet, Freitag & Severin, California, 1933.

I from sugar beet by *E. tenellus*.

Spotted wilt of tomato, Holmes Smith, England, 1934. N.

PHYTOLACCACEAE

PHYTOLACCA DECANDRA

Cucumber mosaic, Doolittle & Walker, 1923.

Yellow mosaic, Hoggan, Wisconsin, 1935. I from cucumber.

Mild mosaic, Hoggan, Wisconsin, 1935. I from cucumber.

Produces local chlorotic symptoms.

Fern leaf of tomato, Jones & Burnett, Washington, 1935. Same as cucumber mosaic.

PITTOSPORACEAE

PITTOSPORIUM TOBIRA

Variegations, F. F. Smith, Missouri, 1926.

PLANTAGINACEAE

PLANTAGO LANCEOLATA

Mosaic of beet, Verplancke, Belgium, I. 1932.

Yellows of beet, Verplancke, Belgium, I. 1932.

PLANTAGO MAJOR

Celery yellows, Severin, California, 1928, N. Probably same as aster yellows.

California aster yellows, and celery yellows, Severin, California, 1934, I.

PLUMBAGINACEAE

ARMERIA ALPINA

Ring spot of tobacco, Wingard, Virginia, 1928. I from tobacco and back.

LIMONIUM SUWORWI

Ring spot of tobacco, Wingard, Virginia, 1928, I from tobacco and back.

POLYGONACEAE

POLYGONUM HYDROPIPER

Ring spot of tobacco, Wingard, Virginia, 1928, I.

RUMEX ACETOSA

Leaf curl, Willie, Germany, 1929, N.

RUMEX BRITANICA

Mosaic, Fernow, New York, 1923, N.

RUMEX CRISPUS

Potato mosaic, van der Meulen, Holland, 1928.

RUMEX LANCEOLATA

Mosaic, Grainger & Cockerham, England, 1930, N.

Mottling, Green, England, 1930, N.

RUMEX OBTUSIFOLIUS

Chlorosis & mosaic, Grainger & Cockerham, England, 1930, N.

RUMEX SCUTATUS

Mosaic & yellows of beet, Verplancke, Belgium, I.

PORTULACACEAE**CALANDRINA MANZIESII**

Curly top of sugar beet, Carsner & Stahl, California, 1924, I
from sugar beet.

PRIMULACEAE**POLYANTHUS** sp.

Cucumber virus 1, K. M. Smith, England, 1936.

PRIMULA OBCONICA

Cucumber virus 1, K. M. Smith, England, 1936.

PRIMULA SINENSIS

Spotted wilt of tomato, Ogilvie, 1935, I from sugar beet by *E. tenellus*.

Cucumber virus 1, K. M. Smith, England, 1936.

RANUNCULACEAE

(hybrid)

AQUILEGIA ep.

Mosaic, F. F. Smith, Missouri, 1926. I.

DELPHINIUM sp.

A virus disease, Valleau, Kentucky, 1932.

Yellows, Richards. Utah, 1928. Not proved to be a virus disease.

Disease resembling ring spot of tobacco, Valleau, Kentucky, 1928.

Cucumber virus 1, K. M. Smith, England, 1936.

NASTURTIUM OFFICINALE

Curly top of sugar beet, Freitag & Severin, California, 1933,
I from sugar beet by *E. tenellus*.

RANUNCULUS ASIATICUS

Curly top of sugar beet, Severin & Freitag, California, 1934, N.

RHAMNACEAE**SCUTIA INDICA**

Spike of sandal. No data.

ZIZIPHUS OENOPHIA

Spike of Sandal suspected by Lushington, India, 1918. Iyengar reported it in 1935. Confirmed by Varadaraja, Iyengar & Rangaswami (manuscript) 1935.

ROSACEAE**NAPOLEON CHERRY**

Mottle leaf, Zeller, Oregon, 1935. Not definitely proved to be virus disease.

PRUNUS AVIUM

Mosaic, Christoff, Bulgaria, 1934.

PRUNUS CERASUS

Mosaic, Christoff, Bulgaria, 1934.

PRUNUS DIVARICATA

Mosaic, Christoff, Bulgaria, 1934.

PRUNUS INTERSTITIA

Mosaic, Christoff, Bulgaria, 1934.

Mosaic or yellows with green veins, Blattny, Czechoslovakia, 1930, N.

PRUNUS MAHALEB

Mosaic, Christoff, Bulgaria, 1934.

PRUNUS PERSICA

Rosette, E. F. Smith, Georgia, 1888, N. Successfully transmitted by grafting peach plum, cherry and almond, McClintock, 1923.

Spike of peach, similar to spike of Sandal, Howard, India, 1919. Virus from plum, Valleau, Kentucky, 1932. Transmitted from plum to peach by budding.

Ring spot like disease, Valleau, Kentucky, 1932. Transmitted from *P. salicina* by budding.

NOTE: Kunkel (1936) said that Peach yellows and little peach were related but that rosette was due to a very different virus.

PRUNUS SALICINA

Ring spot like disease. Valleau, Kentucky, 1932. Transmitted by budding.

NOTE: Rietsema (1930) reported a virosis on cherry, plum and peach. Holland.

PRUNUS SPINOSA

Mosaic, Christoff, Bulgaria, 1934.

PYRUS MALUS

Crinkle, Robbins, Wisconsin, 1919.

Mosaic, Blodgett, New York, 1923, N.

Ringspot like disease, Valleau, Kentucky, 1932. Virus character not demonstrated.

Bitter pit. This disease has been known in many countries and for many years. Atanastoff (1934) placed in the virus group. The virus character has not been demonstrated to the satisfaction of all students of the subject.

Virus disease of apple, pear and quince. Christoff, Bulgaria, 1934.

ROSA sp.

Mosaic, Weiss & McWhorter, Washington & Oregon, 1930. Christoff, Bulgaria, 1934.

Die back & wilt, Grieve, Australia, 1931.

Mosaic, White, New Jersey, 1928.

ROSA GYMNOCARPA

Mosaic, McWhorter, Oregon, 1931, N.

ROSA MULTIFLORA

Chlorosis, Weiss & McWhorter, Washington & Oregon, 1930.
Transmitted by grafting.

ROSA ODORATA

Chlorosis, Weiss & McWhorter, Washington & Oregon, 1930.

ROSA RUBINOSA

Dwarf of loganberry, Zeller, Oregon, 1925. Same as on Loganberry.

Wilt or die back, Grieve, Australia, 1931, N. I.

RUBUS sp.

Yellows of raspberry was reported by Stewart of New York in 1902.

Mosaic on Loganberry, Zeller, Oregon, 1924.

Fern leaf and Witches' broom, Zundel, Pennsylvania, 1931, N.

English mosaic of red raspberry, Zeller, Oregon, Washington and Idaho, 1936. Imported from England.

RUBUS IDAEUS var. *strigosus*

Mosaic & curl, Zeller, Oregon, 1923.

RUBUS INNOMINATUS

Mosaic, Wilcox, 1926.

RUBUS LACINIATUS

Mosaic, Zeller, Oregon, 1923.

RUBUS NEGLECTUS

Mosaic, Zeller, Oregon, 1923.

RUBUS OCCIDENTALIS var. *leucodermis*

Mosaic, Zeller, Oregon, 1923.

RUBUS PHOENICOLASIUS

Mosaic, Zeller, Oregon, 1923.

SORBUS ACUPARIA

Chlorosis, Davis, Missouri, 1929.

SPIRAEA DOUGLASSII

Virus disease, Zeller, Oregon, 1931, Same as on *Holodiscus discolor*.

RUTACEAE

CITRUS sp.

NOTE: Atanasoff (1935) said that mal seco is same as Tarbut's infectious chlorosis.

NOTE: Bitancourt (1935) of Brazil believes psorosis, leprosis, ring blotch and zonate chlorosis due to viruses.

SALICACEAE**POPULUS BALSAMIFERA**

Mosaic, Atanasoff, Bulgaria, 1934.

SANTALACEAE**SANTALUM ALBUM**

Spike disease, Butler (1903) suggested that this disease was due to a virus. Rao & Gopola Iyengar (1934) reported two strains, rosette or old type and pendulous or new type. K. M. Smith (1935) says that this disease was first reported from Coorg, India, in 1899.

Leaf curl mosaic, Vankata Rao, 1933.

SAPINDACEAE**ACER NEGUNDO**

Periclinal variegations, Funaoka, 1924.

Mosaic, Atanasoff, Bulgaria, 1935.

DODONAEA VISCOSA

Spike of Sandal, Suggested by Lushington, India, 1918. Also mentioned by Iyengar 1935.

SCROPHULARIACEAE**MIMULUS sp.**

New disease of tomato, K. M. Smith, England, 1935.

SOLANACEAE**ATROPA BELLADONNA**

Crinkle, Quanjer, Holland, 1923, I from tobacco.

Virescence (teratology), Ryjkoff, Ukaraine, 1934.

Stolbur, Koratshevsky, Russia, 1935.

BROWALLIA MAJOR

Spotted wilt of tomato, Ogilvie, England, 1935.

BROWALLIA SPECIOSA MAJOR

Spotted wilt of tomato, Ogilvie, England, 1932.

CAPSICUM sp.

Yellow mosaic of tomato, Stover & Vermillion, Ohio, 1932, N.

CAPSICUM ANNUUM

Mosaic, Lewis, Georgia, 1919, N.

Curly top of sugar beet, Severin, California, 1927, N.

Potato mosaic, J. Henderson Smith, England, 1928. I from *L. esculentum*.

Infectious chlorosis, Ikeno, Japan, 1930.

Psyllid yellows, 1930. Not proved to be a virus.

Mosaic, Johnson No. 1. Ainsworth, England, 1933.

Leafroll, Dykstra, 1933, I from potato by *M. Persicae*.

Glasshouse streak (identical with tobacco mosaic), Ainsworth, England, 1933.

Yellow mosaic, Stover & Vermillion, Ohio, 1933, I from tomato.

Curly top of sugar beet, Dana, Oregon, 1934. Slight symptoms.

Potato calico, Porter, California, 1935.

Bunchy top of tomato, McClean, South Africa, 1935. Transmissible by inoculation but not readily.

Bigarrure of potato, Verplancke, Belgium, 1935.

CAPSICUM GROSSUM

Celery virus 1, Wellman, Florida, 1934, I.

CESTRUM PARQUI

Virus disease, Trotter, Italy, 1935.

DATURA sp.

Virescens (teratology), Ryjkoff, Ukraïne, 1934.

DATURA STRAMONIUM

Virus disease, Verplancke, Belgium, 1930, Transmitted from *Araceae*.

Coarse etch, Johnson, Kentucky, 1930, I from tobacco.

Virus disease, Moore, South Africa, 1932, I. May be same as spotted wilt of tomato. Attacks *N. physaloides*, and *Physalis* sp.

Yellows, Verplancke, Belgium, 1932, I.

Spotted wilt of tomato, K. M. Smith, England, 1932.

Interveinal mosaic of potato, Clinch, Ireland, 1933, I.

Simple mosaic of potato, Clinch, Ireland, 1933, I.

Virus A of potato, Clinch, Ireland, 1933.

Streak of potato, Clinch, Ireland, 1933.

Leafroll of tomato, Dykstra, 1933, I from tomato by *M. persicae*.

Necrotic virus disease. Same as on potatoes.

Necrotic, Schultz & Raleigh, 1933. I from British Queen potato.

Mosaic of beet, Verplancke, Belgium, 1934.

Latent virus of potato, Jones & Burnett, Washington, 1934.

Yellow mosaic of cucumber, Ainsworth, England, 1934.

Potato calico, Porter, California, 1935.

New tomato disease, K. M. Smith, England, 1935.

Necrotic disease of tobacco, K. M. Smith & Bald, England, 1935.

Streak from tomato, K. M. Smith, England, 1935. I from tomato.

Yellow variation of same.

Stolbur, Koratshevsky, Russia, 1935.

Bigarrure of potato, Verplancke, Belgium, 1935.

DATURA TATULA

Bigarrure of potato, Verplancke, Belgium, 1935.

HYOSCYAMUS sp.

Yellows or mosaic, Allard, D. C. 1912, I from tobacco.

HYOSCYAMUS NIGER

Crinkle, Holland, 1923, I from *S. tuberosum*.

Virus Y potato, K. M. Smith, England, 1931, I from *S. tuberosum*.

Latent virus of potato, Jones & Burnett, Washington, 1934.

Mosaic of tobacco, Jones & Burnett, Washington, 1934.

Yellow mosaic of cucumber, Ainsworth, England, 1934.

Mosaic of beet, Verplancke, Belgium, 1934.

Yellows of beet, Verplancke, Belgium, 1934.

Streak of tomato, K. M. Smith, England, 1935, I from tomato.

Bigarrure of potato, Verplancke, Belgium, 1935.

LYCOPERSICON ESCULENTUM

Yellows, western yellows, yellow blight etc, R. E. Smith, California, 1906, N. It was reported as due to the virus of curly top of sugar beet by McKay & Dykstra in 1927.

Filiform leaf, C. R. Orton, Pennsylvania, 1918, N. Known much earlier.

Fern leaf, Mogendorff, 1930, Known much earlier. Caused by cucumber virus 1.

Streak which has been reported as due to a combination of tobacco and potato mosaic viruses. Vanderpool published a paper (1926) in which he reported that the disease was due to a mixture of potato and tomato mosaic viruses. In a marginal note on a reprint sent to the compiler he says it was shown to be a latent potato mosaic virus. Jarrett, England, 1930 reported a streak due to a single virus. Valteau & Johnson, Kentucky, 1930 reported streak caused by (1) mixed viruses belonging to the true tobacco mosaic virus group, (2) three strains of true tobacco mosaic viruses plus the healthy potato virus, (3) three strains of cucumber mosaic viruses plus the healthy potato virus and (4) three strains of etch virus plus the healthy potato virus.

Leaf curl, Stephanoff. Astrakhan, 1930.

Streak or die back, Shapovalow, California, 1933. Different from the combination virus streak.

Mosaic, Fernow, New York, 1923, I from tobacco. I (1925) from *N. glutinosum*. Potato mosaic, 1923. Mosaic from apparently healthy potatoes by Fernow, 1925.

Rugose mosaic, Burnett & Jones. Washington, 1931, I from potato.

Mosaic (Johnson's virus No. 1) Ainsworth, England, 1933.

Yellow mosaic of cucumber, Hoggan, Wisconsin, 1935. I from cucumber.

Yellow mosaic of tomato, Stover & Vermillion, Ohio, 1933, I.

Celery mosaic, Doolittle, Florida, 1931. Probably same as cucumber mosaic.

Spot necrosis, Burnett & Jones, Washington, 1931. Is caused by veinbanding and potato latent virus. Same as rugose mosaic of potato.

- Latent virus, Burnett & Jones, Washington, 1931. I from potato.
- Crinkle, Burnett & Jones, Washington, 1931. I from potato.
- Leafroll, Burnett & Jones, Washington, 1931, I from potato.
- Spindle tuber, Burnett & Jones, Washington, 1931, I from potato.
- Delphinium virus, Valleau, Kentucky, 1932, I.
- Veinbanding, Burnett & Jones, Washington, 1931. I from potato. Symptoms similar to symptoms described by Schultz as crinkle in 1929. Dykstra consider it a component of tomato mosaic.
- Yellow spots, Jensen, New Jersey, 1933.
- Big bud, Samuel, Bald & Eardly, Australia, 1933. Probably same as a disease reported by Cobb in 1902. Also known as bunchy top but not the same as the bunchy top of South Africa.
- New virus disease, K. M. Smith, England, 1935. Also attacks *N. tabacum*, *N. glutinosum*, *N. langsdorffii*, *Datura stramonium*, *S. tuberosum*, (Arran Victory), *Vigna sinensis*, *Mimulus* sp. *Aster* sp. and *Zinnia* sp.
- Streak (green), K. M. Smith, England, 1935. Same as tomato stripe of Ainsworth et al, 1934. When this virus was grown on white Burly tobacco, a yellow strain appeared.
- Necrotic virus disease of tobacco, K. M. Smith & Bald, England, 1935.
- New virus disease of tomato and *V. sinensis*, K. M. Smith, England, 1935.
- Virus diseases 1, 2, 3, K. M. Smith, England, 1935, N.
- Virus disease, Moore, South Africa, 1932, May be same as spotted wilt.
- Virescence (teratology), Ryjkoff, Ukaraine, 1933. Also on *N. tabacum*, *Convolvulus arvensis*, *Atropa belladonna* and *Datura* spp.

NOTE: Bunchy top of Australia is different from bunchy top of South Africa. See big bud.

- Necrosis, Schultz & Raleigh. I from British Queen.
- Leafroll, 1923, I from tomato and *D. tatula* by *M. persicae*.
- Calico of potato, Porter, California, 1935.
- Huissen, Van Schreven, Holland, 1935.
- Stolbur, Koratskevsky, Russia, 1935. This disease also attacks *Atropa belladonna*, *Datura stramonium*, *Nicotina tabacum* and *Convolvulus arvensis*. Same as fruit woodiness.

NOTE: A new tomato disease reported by K. M. Smith, June 1935 was proved later by Ainsworth to be due to ordinary tomato virus.

CURRENT TOMATO—Latin name not given.

Bunchy top of tomato, McClean, South Africa, 1935, I.

NICANDRA PHYSALOIDES

Mosaic (potato and tobacco), Fernow, New York, 1923.

Mosaic from apparently healthy potato, Fernow, New York, 1925.

Mosaic from *N. tabacum*, *N. glutinosum*, *N. rustica*, *D. str-*
and L. esculentum.

Crinkle of potato, Clinch, Ireland, 1933. I.

Interveinal mosaic of potato, Clinch, Ireland, 1933, I.

Bunchy top of tomato, McClean, South Africa, 1935, I.

Latent virus of potato, Jones & Burnett, Washington, 1935.

Tobacco mosaic, Jones & Burnett, Washington, 1935.

Bigarrure of potato, Verplancke, Belgium, 1935.

NICOTIANA (many species)

Spotted wilt of tomato, Ogilvie, England, 1935. Also by K. M.
Smith.

NICOTIANA ACUMINATA

Curly top of sugar beet, Freitag & Severin, California, 1933,

I from sugar beet by *E. tenellus*.

NICOTIANA BIGELOVII (*N. multivalis* & *N. quadrivalis* are considered
as varieties.)

Tobacco mosaic, Holmes, New Jersey, 1934.

NICOTIANA CLEVELANDI

Tobacco mosaic, Holmes, New York, 1932.

NICOTIANA FORTGETIANA

Mosaic, Allard, D. C. 1914.

NICOTIANA GLAUCA

Mild yellow mosaic, McKinney, D. C. 1931. Does not attack
L. esculentum.

Severe yellow mosaic, McKinney, D. C. 1931. Attacks *L. escu-*
lentum and *N. tabacum*.

Yellow mosaic, (mild, intense or medium), McKinney, D. C.
1931.

Hy III, Hamilton, England, 1932, I.

Tobacco mosaic, Jones & Burnett, Washington, 1935.

NICOTIANA GLUTINOSA

Glass house streak (identical with tobacco mosaic), Ains-
worth, England, 1933.

Mild cucumber mosaic, Hoggan, Wisconsin, 1935. I from
cucumber.

New tomato disease, K. M. Smith, England, 1935. I.

Necrotic virus disease of tobacco, K. Smith & Bald, England,
1935. I.

Streak of tomato (& yellow strain of same), K. M. Smith &
Bald, England, 1935. I.

Mosaic (same as on *Cheiranthus cheiri*), K. M. Smith, England,
1935. N.

Mosaic, Fernow, New York, 1925, I from apparently healthy potato.

Latent virus of potato, K. M. Smith, England, 1935. Also attacks, *N. tabacum*.

Johnson's tobacco virus No. 1. Stanley, New Jersey, 1936.

NICOTIANA LANGSDORFII

Tobacco mosaic, Holmes, New Jersey, 1932. I from tobacco.

New tomato disease, K. M. Smith, England, 1935.

Tomato streak, K. M. Smith, England, 1935.

Johnson's tobacco virus No. 1. Stanley, New Jersey, 1936.

NICOTIANA LONGIFLORA

Tobacco mosaic, Jones & Burnett, Washington, 1935. I.

NICOTIANA MACROPHILLA

Mosaic, Johnson's virus No. 1. Ainsworth, England, 1933.

NICOTIANA MICRANTHA

Mosaic of beet, Verplancke, Belgium, 1933.

NICOTIANA MULTIVALIS var. of *N. bigelovii*

Tobacco mosaic, Holmes, New York, 1932.

NICOTIANA PALMERI

Tobacco mosaic, Jones & Burnett, Washington, 1935.

NICOTIANA PANICULATA

Tobacco mosaic, Jones & Burnett, Washington, 1935.

NICOTIANA RUSBYI

Tobacco mosaic, Jones & Burnett, Washington, 1935.

NICOTIANA RUSTICA

Latent virus of potato, Jones & Burnett, Washington, 1935.

Bigarrure of potato, Verplancke, Belgium, 1935.

NICOTIANA SUAVEOLENS

Tobacco mosaic, Jones & Burnett, Washington, 1935.

NICOTIANA SYLVESTRIS

Rotterdam B, Jochems, Sumatra, 1928, I.

Yellow mosaic, Jensen, New Jersey, 1933.

NICOTIANA TABACUM

Common mosaic, Woods, U. S. 1899.

Mottle, James Johnson, Wisconsin. I with juice from apparently healthy potato. He reported two viruses, one producing mottle and the other same as virus B.

Speckel mosaic of tobacco, James Johnson, Wisconsin, 1926.

NOTE: Up to 1926 it was supposed that tobacco, tomato and other Solanaceae (not including potato) were attacked by a single mosaic. James Johnson showed that there were five, tobacco mosaic, cucumber mosaic, petunia mosaic, speckled mosaic of tobacco and mild mosaic of tobacco.

Cucumber mosaic (three types), Valleau & Johnson, Kentucky, I from tobacco, melons and milkweed.

- Vein margin, Valleau & Johnson, Kentucky, 1928, N. I from tobacco.
- Latent virus, Johnson, Kentucky, 1930, I from apparently healthy potatoes.
- White & green ring spot, Johnson, Kentucky, 1930.
- Spot necrosis, Valleau & Johnson, Kentucky, 1930. I with mosaic virus from Irish potato. I from rugose mosaic of Green Mountain potatoes. I from interveinal of Irish Cobbler potatoes. I with mixture of veinbanding virus and potato virus.
- Crinkel A of potato, Salaman, England, 1930, I from potato.
- Neerfstreep (vein streak), Jochems, Sumatra, 1930. N.
- Ring mosaic, Johnson, Kentucky, 1930. N.
- Spotted wilt of tomato, Samuel, Bald & Pittman, Australia, 1930. I from tomato. They observe similar symptoms on *Solanum niger* and *Physalis peruviana*.
- Curl or stripe, Böning, Germany, 1931.
- Mosaic, van der Meer, Holland, 1931. I from apparently healthy Green Mountain potatoes.
- Ring spot type, Henderson, Virginia, 1931. I from sweet clover.
- Yellow ring spot, Valleau, Kentucky, 1932. Transmitted by seeds.
- Kroepoek, Thung, Java, 1932. Probably same as faltenzerg of Peters & Schwarze (1912), kroepoek and krekoh of Keuchonius (1915) and Gandrup (1924), gila of Jochems (1926), erinkel of Roberts (1930) and crinkel dwarf of Storey (1931). He divided it into (1) common kroepoek, (2) curl and (3) transparent kroepoek.
- Streak of potato, Schaffnitt & Muller, Germany, 1931, I from potato.
- Yellow spot, Jensen, New Jersey, 1933.
- Simple mosaic of potato, Clinch, Ireland, 1933. I.
- Virus A of potato, Clinch, Ireland, 1933.
- Interveinal mosaic of potato, Clinch, Ireland, 1933. I.
- Yellow mosaic of tomato, Stover & Vermillion, Ohio, 1933. I. Jensen of New Jersey reported several strains.
- Curly top of sugar beet, Dana, Oregon, N. Bennett of California inoculation same year.
- Virescence (teratology), Ryjkoff, Ukaraine, 1934.
- Yellow mosaic of cucumber, Ainsworth, England, 1934.
- Krul (curl) and kroepoek (erinkle), Thung, Java, 1934. Attacks *Ageratum conyzoides*, *Synedrella nodiflora* and *Vernonia cinerea*. Probably transmitted by *Bemisia* sp.
- New tomato disease, K. M. Smith, England, 1935.
- Necrotic virus disease, K. M. Smith & Bald, England, 1935.
- Tomato streak (on white burley), K. M. Smith, England, 1935. Also a yellow strain obtained from white burley.
- Bunchy top of tomato, McClean, South Africa, 1935. By grafting.

Mosaic (same as on *Cheiranthus cheiri*), K. M. Smith, England, 1935.

New virus disease, K. M. Smith, 1935. Occasionally attacks *N. glutinosa*.

Mosaic of sugar beet, Verplancke, Belgium, 1934.

Bigarrure of potato, Verplancke, Belgium, 1935.

Stolbur, Koratshevsky, Russia, 1935.

Streak, J. Johnson, Wisconsin, 1936. This disease is due to rather rare, distinct, sensitive virus.

Yellow mosaic of tobacco, Jensen, New Jersey, 1936. He reported 51 strains derived from common tobacco mosaic.

New disease (probably virus) in Mauritius. Shepherd. 1936. Very similar to kroepoek disease in Java and the leaf curl or crinkle dwarf in Africa.

NOTE: A virus disease of tobacco transmitted by *Thrips tabaci* was reported from South Africa by Moore in 1932. K. M. Smith (1933) suggested that this disease may be due to the same virus as the yellow spot of the pineapple in Hawaii and the spotted wilt of tomato.

NICOTIANA TRICONOPHYLLA

Tobacco mosaic, Jones & Burnett, Washington, 1935.

NICOTIANA TRIPLEX

Mosaic, Kostoff, Russia, 1933.

PETUNIA sp.

Mosaic, Johnson's No. 1, Ainsworth, England, 1933.

Interveinal mosaic of potato, Clinch, Ireland, 1933, I.

Potato calico, Porter, California, 1935.

Streak of tomato, K. M. Smith, England, 1935. I.

PETUNIA HYBRIDA

Veinbanding component of rugose mosaic of tomato. Dykstra, 1933, I by Aphis.

Bunchy top of tomato, McClean, South Africa, 1935. I.

Bigarrure of potato, Verplancke, Belgium, 1935.

PETUNIA NYCTAGINIFOLIA

X virus of potato, Bohme, Germany, 1933. I.

Bigarrure of potato, Verplancke, Belgium, 1935.

PHYSALIS sp.

Mosaic and cucumber mosaic are intertransmissible according to Walker. 1924.

Cucumber mosaic (type 1) Johnson, Kentucky, 1930.

Virus disease, Moore, South Africa, 1932. May be same as spotted wilt.

PHYSALIS ALKENKEGI

Tobacco mosaic, Hoggan, Wisconsin, Gives mottling symptoms.

Previously supposed to be a symptomless carrier.

Mosaic of beet, Verplancke, Belgium, 1934.

Yellows of beet, Verplancke, Belgium, 1934.

Bigarrure of beet, Verplancke, Belgium, 1935.

PHYSALIS ANGULATA

Bunchy top of tomato, South Africa, I. 1935.

PHYSALIS FRANCHETTI

Common tobacco mosaic, Hoggan, Wisconsin, 1927.

PHYSALIS PERUVIANA

Mosaic, Crawford, Iowa, 1921. N.

Bunchy top of tomato, McClean, South Africa, 1935, I.

PHYSALIS PUBESCENS

Cucumber mosaic (three types), Johnson, Kentucky, 1930, I.

Glass house streak. Identical with tobacco mosaic, Ainsworth, England, 1933.

PHYSALIS VISCOSA

Bunchy top of tomato, McClean, South Africa, 1935, I.

PHYSOCHLAENA ORIENTALIS

Mosaic of beet, Verplancke, Belgium, 1934.

Yellows of beet, Verplancke, Belgium, 1934.

SALPIGLOSIS sp.

Spotted wilt of tomato, K. M. Smith, England, 1935, N.

SCHIZANTHUS sp.

Spotted wilt of tomato, K. M. Smith, England, 1935, N.

SOLANUM ACULEASTRUM

Bunchy top of tomato, McClean, South Africa, 1935, I. One case only.

SOLANUM ACULEATISSIMUM

Bunchy top of tomato, McClean, South Africa, I. 1935.

SOLANUM ALIATUM

Bunchy top of tomato, McClean, South Africa, 1935, I.

SOLANUM CABLIENSE

Tobacco mosaic, Hoggan, Wisconsin, 1927.

SOLANUM CALCASHI

Leaf roll, Ducomet, France, 1921, N. Same as on potato.

Curly leaf, Ducomet, France, 1921, N. Same as on potato.

SOLANUM CAPSICASTRUM

Bigarrure, Verplancke, Belgium, 1935.

SOLANUM CILIATUM

Glass house streak, Identical with tobacco mosaic, Ainsworth, England, 1933.

Mosaic (Johnson's No. 1), Ainsworth, England, 1933.

SOLANUM DULCAMARA

Simple mosaic of potato, Clinch, Ireland, 1933, I.

Crinkle of potato, Clinch, Ireland, 1933, I.

Latent virus of potato, Jones & Burnett, Washington, 1935.

SOLANUM DUPLOSINUATUM

Bunchy top of tomato, McClean, South Africa, 1935. One case by inoculation and one case by grafting.

SOLANUM HUMILE

Krausel mosaic (or tomato mosaic), Schaffnitt & Muller, Germany, 1931, I from *L. esculentum* and *S. integrifolium*.

Streak necrosis of tobacco, Schaffnitt & Muller, Germany, 1931, I from *S. tuberosum*.

SOLANUM INCANUM

Bunchy top of tomato, McClean, South Africa, I, 1935.

SOLANUM LYCOPERSICUM

Bigarrure of potato, Verplancke, Belgium, 1935.

SOLANUM MARGINATUM

Tobacco mosaic, Hoggan, Wisconsin, 1927.

SOLANUM MELONGENA

Mosaic which attacks *Hibiscus esculentum*, Park, Ceylon, 1929. Veinbanding, Johnson, Kentucky, 1930. I.

Healthy potato virus, Johnson, Kentucky, 1930, I.

Cucumber mosaic (three types), Johnson, Kentucky, 1930. I.

Tomato mosaic, Ramsey, Minnesota, 1922.

Crinkle of potato, Clinch, Ireland, 1933, I.

Mosaic (Johnson's Virus No. 1), Ainsworth, England, 1933.

Curly top of sugar beet, Oregon, 1934, N.

Potato calico, Porter, California, 1935.

Bunchy top of tomato, McClean, South Africa, 1935, I.

Yellow mosaic of cucumber, Hoggan, Wisconsin, 1935, I from cucumber.

SOLANUM NIGRUM

Y virus of potato, K. M. Smith, England, 1931, I from potato.

Yellow mosaic of tomato, Stover & Vermillion, Ohio, 1933, I from tomato.

Latent virus of potato, Jones & Burnett, Washington, 1934.

Yellow variant of tomato streak, K. M. Smith, 1935.

Bunchy top of tomato, McClean, South Africa, 1935, I.

Yellow mosaic of cucumber, Hoggan, Wisconsin, 1935, I from cucumber.

Bigarrure of potato, Verplancke, Belgium, 1935.

SOLANUM PANDURAEFORME

Bunchy top of tomato, McClean, South Africa, 1935. I. One case.

SOLANUM PYRACANTHUM

Tobacco mosaic, Hoggan, Wisconsin, 1927, I. Some authors referred to this as a symptomless carrier.

SOLANUM SODOMACEUM

Bunchy top of tomato, McClean, South Africa, 1935. I. One case.

SOLANUM TUBEROSUM

- Curl, Maxwell, England, 1757. This appears to be the first record of a virus disease of potatoes but we do not know to what disease it refer. This disease was known on the continent and there may be other records that antedate this one.
- Mosaic, Allard, D. C. 1912. I from *N. tabacum*. I from *L. esculentum* and *S. tuberosum* by Fernow in 1925 and from *C. sativus* by Doolittle & Walker in 1932.
- Crinkle mosaic, Schultz & Folsom, Maine, 1925. Later studies have shown that this is not the same as the crinkle of Europe.
- Mosaic ex, Clinch, 1933 Ireland. Same as reported by Salaman in 1930 as reduced crinkle.
- Mosaic ex C, Clinch & Loughnane, Ireland, 1933. Corresponds to simple mosaic.
- Interveinal mosaic, Quanjer, Holland, 1923. I.
- Aucuba mosaic, Quanjer, Holland, 1923. I.
- Rugose mosaic, Gardner, Kentucky, 1923. Observed. Again by Valteau & Johnson, Kentucky, 1930. They believed it to be the same as spot necrosis of tobacco. It was apparently caused by a combination of a healthy potato virus and veinbanding virus. Koek of Wisconsin, 1930 said it was due to a mottle virus (normally present in apparently healthy potatoes) and veinbanding virus.
- Super mild mosaic, Jones, Anderson & Burnett, Washington, 1934.
- Foliar necrosis (virus D), Bawden, England, 1934. N.
- Simple mosaic, Clinch, Ireland, 1933, N. She says that this was reported by Murphy & McKay (1931 & 32) but the publications are not available for the compiler.
- Mild mosaic, Schultz & Bonde, Maine, 1934. Due to two components, a latent virus of the Green Mountains and some other varieties plus a virus causing light green and slightly rugose leaves.
- Streak, Orton, U. S. 1912, N. Quanjer & Oortwijn, Holland, 1930, reported four types—Stipple streak of Atanasoff, Stipple streak in May Queen, Stipple streak in Noordling and stipple streak disease.
- Streak from tomato (Arran variety), K. M. Smith & Bald, England, 1933.
- Stipple streak, Quanjer, Holland, 1923. N. He believes it to be the same as streak reported by Orton from U. S. Atanasoff reported a stipple streak from Holland, 1925, which he regarded as an intensified form of mosaic.

NOTE: Stipple streak or leaf drop of Orton may be same as Acropetal mosaic, or it may be a reaction in some varieties to K. M. Smith's virus Y, according to Salaman & Bawden, 1932.

Net necrosis, first described by Orton in 1914. Schultz & Folsom (1923) believed that it was a symptom of leaf-roll. Gilbert (1923) believed that it was associated with spindle sprout and

leaf roll. Atanasoff (1926) said that it was a distinct disease and that the leaf symptoms varied according to Quanjer's aucuba (1923) mosaic. Schultz & Folsom, Maine, (1920) produced the disease by inoculation and by graft form apparently healthy potatoes.

NOTE: Atanasoff (1926) said: "Net necrosis is a tuber symptom not of leaf roll, but of aucuba mosaic. Spindle sprout, supposed by some to develop on those potato tubers affected with leaf roll and with net necrosis, has no relation to leafroll."

Acropetal necrosis, pseudonet necrosis and concentric necrosis, Quanjer, Holland, 1931.

Acronecrosis (top-necrosis internal, acropetal necropetal necrosis (leaf drop streak) & phloem necrosis (leaf roll) Bawden, England, 1932.

Top necrosis, Oortwijn & Quanjer, Holland, 1930. Four types as follows,—Yellow dwarf of Barrus & Chupp, top necrosis latent in Green Mountains, top necrosis latent in Duke of York, top necrosis latent in Monocrat and some strains of Red Star.

Top necrosis is same as Quanjer's acronecrosis according to Salaman & Bawden, England, 1932. It is divisible into—(1) top necrosis X due to X virus, (2) top necrosis A due to a complex of X & Y viruses and possibly associated with Z virus, (3) top necrosis B due to complex of Z & Y viruses and (4) top necrosis C due to X & Y viruses and containing necrotic and mosaic symptoms.

Necrosis (on British Queen), Schultz & Raleigh, California, 1933. Inoculated into tobacco, tomato and *D. stramonium*.

Necrotic virus disease, Schultz & Raleigh, California, 1933. N. First found in California in 1929. Has been transmitted to *D. stramonium*.

Necrotic disease of tobacco, K. M. Smith & Bald, England, 1935, I. A letter from Schultz says that necrosis is a symptom of leaf-roll.

Crinkle, K. M. Smith, England, 1930, Due to X and Y viruses. The needle transmits both viruses but *Myzus persicae* transmits Y only. K. M. Smith says that these viruses belong to the crinkle mosaic group.

Crinkle A, Salaman, Redcliff & LePelly, England, 1930, N.

Crinkle, Clinch, Ireland, 1935. She says that this is the same as Murphy's Canadian crinkle (1921), Quanjer (1923) and Salaman (1923) as reduced crinkle.

NOTE: Crinkle is same as frisolee and caused by Z & Y viruses according to K. M. Smith & Dufrenoy, 1934.

Leaf drop mosaic, Murphy, Ireland, 1923. I.
Spindle tuber, Folsom, Maine, 1924.

Latent virus, J. Henderson Smith, England, 1928. He said this virus was known in England as Y and in America as veinbanding.

Top-necrosis = Acronecrosis. Salaman and Bawden. England. 1932.

NOTE: Salaman (1932) said—

“The Z virus acting alone has a very limited pathogenicity but acting in unison with either X or Y or both, it brings about the disease known as crinkle A and para crinkle.

“When certain virus elements X, Y, or Z are brought together experimentally in appropriate groupings, it has proved possible to build up such clinical pictures as Interveinal Mosaic, Crinkle A, and para-crinkle, i. e., virus complexes have been synthesized in the potato.”

Kringerigheid, Klebahn, Holland, 1930, N. Similar to pseudo-net necrosis. Occurs on certain soils.

Veinbanding virus, Valteau & Johnson, Kentucky, 1930. Same as on tobacco.

Interveinal mosaic, K. M. Smith, England. 1930.

Virulent virus, Burnett & Jones, Washington, 1931. Attacks tomato.

Ring spot of tobacco, Henderson, Virginia, 1931. I.

Spotted wilt of tomato, K. M. Smith, England, 1932.

Potato ring spot virus, Kock, Wisconsin, 1933. May have almost the same effect as mottle virus.

Veinbanding component of tomato rugose. Dykstra, 1933. I by aphids.

California aster yellows, Severin & Haasis, 1934, California, I by *C. divisa*.

Bunchy top of tomato, McClean, South Africa, I. Difficult to transmit.

Psyllid yellows, Richardson, Utah, 1927. N. Has the appearance of a virus disease but the evidence indicates that it is due to *Paratriozoa cockerelli*.

Bigarrure or mosaic streak, Verplancke, Belgium, 1935.

Concentric necrosis, Roshalin, Russia, N. 1935. Appears to be due to soil.

Latent virus potato, Jones & Burnett, Washington, 1935. I.

Latent virus of potato, Chester, New Jersey, 1935. Includes many strains.

NOTE: Dykstra (1936) published a paper on comparative studies on European and American potato viruses. He said—

The X virus of Europe is similar to the so-called latent virus of America. The Y virus and vein-banding virus (rugose mosaic without the X component) belong to the same group but are not identical.

Paracrinkle of Europe does not resemble leaf-rolling mosaic or any other American potato virus.

Crinkle A of Europe is not identical with rugose mosaic of America.

Virus C of Europe does not resemble any known virus of potatoes in America.

NOTE: M. A. Watson writes (May 11, 1936) to the compiler as follows: Dr. Kenneth M. Smith's remarks apply only to Hy. II and Hy. IV, which he regards as strains of Potato mosaic. Hy. III is an entirely different virus and does not go into potato at all. Hy. IV may be the same as Potato virus X but neither of these viruses is transmitted by *M. persicae*."

NOTE: Jones, Anderson & Burnett (1934) reported that all commercial American potatoes contained symptomless viruses. Three that have been definitely recognized are known as mottle, ring spot and spot necrosis.

NOTE: K. M. Smith (1935) says that the X virus of England is same as the "healthy potato virus" of the United States.

NOTE: "Wilding" of potatoes appears to be the same as witches' broom.

Folsom & Bonde of Maine published a list of 26 viruses in 1936. They are as follows:

- "(1) Tobacco mottle and/or ringspot of J. Johnson. Usually found together. Masked in most potato varieties. Synonyms: potato mottle and potato ringspot of Koch and Johnson; seedling streak; latent virus; healthy-potato virus; X virus; B virus of Fernow; simple mosaic; acronecrosis or top-necrosis. Probably several closely related viruses are involved.
- "(2) Tobacco ringspot of Virginia. Results in local infection of potato but is entirely distinct from the healthy-potato virus.
- "(3) Tobacco mosaic. May be only partially systemic in potato plants of some varieties.
- "(4) Cucumber mosaic.
- "(5) Green Mountain rugose mosaic. Viruses: pure rugose mosaic and latent. Synonyms: veindbanding and mottle or ringspot, in combination.
- "(6) Green Mountain mild mosaic. Viruses: pure mild mosaic and latent.
- "(7) Green Mountain crinkle mosaic. Viruses: probably pure crinkle mosaic and latent.
- "(8) Green Mountain leaf-rolling mosaic. Viruses: probably pure leaf-rolling mosaic and latent.
- "(9) Green Mountain interveinal mosaic. Viruses: probably pure interveinal mosaic and latent.
- "(10) Aucuba mosaic.
- "(11) Calico of Porter.
- "(12) Green Mountain streak. Viruses: Possible Y of Smith and latent.
- "(13) Streak of Koch and Johnson.
- "(14) Tomato spotted wilt.
- "(15) Bigarrure of Verplancke.
- "(16) Leaf roll.
- "(17) Apical leaf roll of Schultz & Bonde. Synonym: probably yellow top of Folsom (oral conclusion, Schultz to Folsom).
- "(18) Witches' broom. Synonym: wilding.

- “(19) Yellow dwarf.
 “(20) Aster yellows.
 “(21) Beet curly top.
 “(22) Spindler tuber.
 “(23) Unmottled curly dwarf.
 “(24) Transmissible low-growing habit of M’Intosh.
 “(25) Pseudonet necrosis.
 “(26) Internal spotting in tubers (excluding some non-virotic kinds.
 “Green Mountain mottled curly dwarf is a mixture of leaf-rolling mosaic and spindle tuber. In general however, curly dwarf is a mixture whose composition has been rather indefinite. The same is true of mosaic dwarf, leaf curl, and stipple streak.
 “Of tobacco spot necrosis, crinkle, paracrinkle, Up-to-Date streak, acropetal necrosis, A of Ireland, and B, C, D, and Z of England, each probably, or at least possibly, is the same as one of the list above, or a mixture of some of those listed above.
 “Marginal leaf roll and giant hill possibly are not viroses.”

SOLANUM PYRACANTHUM

Mosaic, Hoggan, Wisconsin, 1927.

SOLANUM VILLOSUM

Rugose mosaic of Dykstra, 1933. I from potato.

Leaf roll, Dykstra, 1923. I from potato and *Datura tatula* by *Myzus persicae*.

Veinbanding component of tomato rugose mosaic, Dykstra, I by aphids.

ULMACEAE

ULMUS sp.

Mosaic, Atanasoff, Bulgaria, 1935.

UMBELLIFEREAE

APIUM GRAVEOLENS

Aster or carrot yellows obtained from all states except California. Severin & Haasis (1934) reported that this host was susceptible to all strains.

APIUM GRAVEOLENS CELERIAC

Celery yellows.

APIUM GRAVEOLENS RAPECEUM

NOTE: Kunkel (1932) reported that the celery yellows of California could not be distinguished from Aster yellows in New York. It is transmissible by *C. sexnotata*.

DAUCUS CAROTA var. *sativa*.

Tobacco mosaic, Jones & Burnett, Washington, 1935.

LIGUSTRUM VULGARE

Chlorosis, Baur, Germany.

VERBENIACEAE

LANTANA sp.

Sandal spike, suspected for many year. Confirmed by Vvradaraja Iyengar & Rangaswami, India, 1935. In manuscript.

CHLORODENDRON FRAGANS

Mosaic, Blattny, 1924, N.

VERBENA URTICAIFOLIA

Mosaic, Curtis, Iowa, 1919, I.

VIOLACEAE

CULTIVATED PANSY

Curly top of beet, Dana, Oregon, 1934. N.

VIOLA sp. (Violet and pansy)

Cucumber virus 1, K. M. Smith, England, 1936.

VIOLA ARVENSE TRICOLOR

Mosaic of beet, Verplancke, Belgium, 1932, I.

VIOLA PAPILIONACEAE

Ring spot of tobacco, Wingard, Virginia, 1929, I from tobacco.

VIOLA TRICOLOR

Ring spot of tobacco, Wingard, Virginia, 1928, I from tobacco.

Vein aucuba, Blattny, Czechoslovakia, 1930.

Virus disease, G. H. Martin, Jr., U. S., 1925.

ERRATA

TO HOST INDEX OF VIRUS DISEASE OF PLANTS

(Vol. XIX. No. 3, pp. 315-406, 1935)

Page 319, line 8—should read *Asclepis syriaca*.

Page 342, line 3.—Maderspatanus should read Maderaspatunus.

Page 342, lines 16 and 18—An error. Omit. Ainsworth stated that cucumbers could not be infected.

Page 362, line 13—should read *Lilium auratum*.

Page 385, line 4—should read Potato yellow mosaic, Henderson Smith, England, 1928, N.

Page 386, line 13.—Ainworth should road Ainsworth.

Page 387, line 22—should read *Nicotiana acuminata*.

Page 388, line 1—should read *tabacum*.