

Acknowledgements

This timeline attempts to capture, however imperfectly, 100 years of history of plant pathology in the United States. We were only able to hit the high points, and there are numerous other names and incremental advances and ideas that we were not able to fit into this limited format. Over the two years of developing this project, we were awed and overwhelmed by the complexity of our history, which should really be described as an intricate web or network rather than a linear progression, made possible by the interactions, collaborations, and cooperation among the members of the past. Although we limited our focus mainly to the science in the U.S., we also recognize international members, who have played a key role in our society.

By its very nature, plant pathology draws upon many disciplines to solve the basic problems that still confront agriculture after 100 years. Like all sciences, plant pathology builds on the foundation of discoveries and ideas from the past. We felt it was important for today's generation of plant pathologists to get a glimpse of their roots, and to see how our discipline has evolved, correcting for errors and incorporating new insights provided by developing technology. Looking backwards from our perspective and technology, these discoveries seem to be obvious or simple. But put yourselves in the mindset of the pioneers of our science as you take this journey to the past, and as one of our founding members J. C. Walker espoused, keep "one foot in the furrow."

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APS Centennial Planning Committee and APS Centennial Timeline Project Leaders

We would particularly like to thank the following individuals who have contributed to this project:

George S. Abawi, Cornell University, Geneva, NY
Sandra L. Anagnostakis, Connecticut Agricultural Experiment Station, New Haven, CT
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J. Artie Browning, Texas A&M University, College Station, TX
Carolee T. Bull, USDA-ARS, Salinas, CA
Ann R. Chase, Chase Horticultural Research, Mt. Aukum, CA
Robert A. Cating, University of Florida
David J. Chitwood, USDA Nematology Laboratory, Beltsville, MD
Edwin L. Civerolo, USDA-ARS, Parlier, CA
R. James Cook, Washington State University, Pullman, WA
Paolo Cortesi, State University of Milan, Milano, Italy
Karen Cummings, The American Phytopathological Society, St. Paul, MN
Cleora J. D'Arcy, University of Illinois, Urbana, IL
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James E. DeVay, University of California, Davis, CA
Theodor O. Diener, University of Maryland, College Park, MD
Sharon M. Douglas, Connecticut Agricultural Experiment Station, New Haven, CT
Danied S. Egel, Purdue University, Vincennes, IN
Jonathan D. Eisenback, Virginia Tech., Blacksburg, VA
Albert H. Ellingboe, University of Wisconsin, Madison, WI
Wade H. Elmer, Connecticut Agricultural Experiment Station, New Haven, CT
Howard Ferris, University of California, Davis, CA
Sue Figueroa, The American Phytopathological Society, St. Paul, MN
Jacqueline Fletcher, Oklahoma State University, Stillwater, OK
David G. Gilchrist, University of California, Davis, CA
Blair J. Goates, USDA-ARS, Aberdeen, ID

Timeline Image References and Credits

1908-1918

1908 Crown gall on sugar beet (sarcoma-like tumor) / E.F. Smith, *J. Cancer Res.* 1:231-309, Plate VI.
1909 Cover of first APS Annual Meeting program / The American Phytopathological Society
1910 Wallace at microscope in Sodus Field Laboratory / Cornell University Plant Pathology Herbarium photograph collection
1910 Machinery for nursery stock / Cornell University Plant Pathology Herbarium photograph collection
1911 Cover of first issue of *Phytopathology* / The American Phytopathological Society
1911 Results of inoculations of a number of varieties of beans with different strains of *Colletotrichum lindemuthianum* / M.F. Barrus, *Phytopathology* 1:190-195, Table II
1914 Monoxenic culture of *Heterodera radicicola* in medium with tomato seedling / L.P. Byars, *Phytopathology* 4:323-326, Fig. 2.
1915 E. C. Stakman with wheat pots in the greenhouse / University of Minnesota
1918 War Emergency Board / Paul Peterson, Clemson University.
1918 Barberry Eradication USDA Publication / Paul Peterson, Clemson University.
1918 University of Wisconsin-Madison, Department of Plant Pathology Seminary / University of Wisconsin archives
1909-1918 APS Presidents / University of Minnesota APS president collection

1919-1928

1919 *Urocystis cepulae* smut on onion treatment results / Cornell University Plant Pathology Herbarium photograph collection
1921 APS annual summer meeting in conjunction with conference of the cereal pathologists / Paul Peterson, Clemson University.
1921 Title page of 'Damping-off in Forest Nurseries' by C. Hartley, U. S. Dept. Agric. Bull 934:1-99. / Public domain, USDA
1922 University of Minnesota, Department of Plant Pathology / University of Minnesota.
1925 Cover of *Laboratory Outlines in Plant Pathology* / W.B. Saunders Co., Philadelphia.
1926 Cover of first *Phytopathological Classics* / The American Phytopathological Society
1928 Tobacco plant inoculated with ring-spot virus, showing a decline in symptom development on upper leaves / J. Agric. Res. 37:127-153, Fig. 7.
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1929-1938

1929 APS Annual Meeting group photo in Des Moines, Iowa / Paul Peterson, Clemson University.
1929 C. Chupp inspecting potato in field of Sid Webb / Cornell University Plant Pathology Herbarium photograph collection
1934 Tobacco leaf inoculated with *Pseudomonas syringae* pv. *tabaci* (= *Bacterium tabacum*). Lower leaf was wound-inoculated with culture containing bacteria and toxin; upper leaf was wound-inoculated with bacteria washed free from toxin / *J. Agric. Res.* 48:401-426, Fig. 3.
1934 Effect of mildew and rust infection on respiration of clover leaflets (g of CO₂ per gram of dry weight of respiring leaves) / *J. Agric. Res.* 49:549-558, Fig. 2a.
1934 Cyril G. Small, Ithaca New York's first practicing plant doctor, with power sprayer outfit / Cornell University Plant Pathology Herbarium photograph collection
1937 Cover of *Introduction to Nematology* by B.G. Chitwood and M.B. Chitwood / Monumental Printing Co., Baltimore, Maryland
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1939-1948

1940s Students with Rubert Burely Streets, first professor of plant pathology at University of Arizona / Hans VanEtten, University of Arizona
1940s North Carolina State University scientists J. C. Nusbaum (right) and J. C. Wells (center) with tobacco grower diagnosing tobacco disease problem / Turner Sutton, North Carolina State University
1941 Annual dinner APS Meeting, Dallas, Texas / Cornell University Plant Pathology Herbarium photograph collection
1941 *Globodera* cysts / Kenneth Barker, North Carolina State University
1942 Tobacco mosaic virus double shadow cast by platinum. X 100,000. Sh - shadow direction, a-b, long axis of the rod, B - angle between the long axis of the rod and the shadow direction, m - metal added by shadow casting / Originally published in *J. Cell Biology* 17:321-326, Fig. 1.
1944 Root-knot resistant tomato (cv. Nemared) / Kenneth Barker, North Carolina State University
1944 Comparative susceptibility of certain plants to different populations of the root-knot nematode / *Proc. Helminthol. Soc. Wash.* 11:31-37, Table 2.
1944 Distribution of oak wilt in 1998 / U.S. Forest Service website
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1949-1958

1950s Arthur Kelman in the classroom at North Carolina State University / Turner Sutton, North Carolina State University
1951 Damage to corn by the stubby-root and stinging nematodes / Kenneth Barker, North Carolina State University.
1955 Effect of spore concentration on germination of spores, demonstrating volatile nature of inhibitors / *Phytopathology* 45:259-266, Fig. 2.
1956 Hand duster / Cornell University Plant Pathology Herbarium photograph collection
1958 Fanleaf symptoms in leaves of *V. vinifera*. Outer two leaves are from plants grown in soil infested with nematodes from fanleaf soil, the center leaf is from a control vine / *Phytopathology* 48:586-595, Fig. 2.
1958 Plant Pathology Problems and Progress 1908-1958 cover / The American Phytopathological Society
1958 APS 50th Anniversary Meeting exhibit hall / Special Collections Department, Iowa State University
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1959-1968

1961 Warburg apparatus being loaded / Cornell University Plant Pathology Herbarium photograph collection
1961 H.R. Garriss in cotton plot / Turner Sutton, North Carolina State University
1963 Cover of first *Annual Review of Phytopathology* / The American Phytopathological Society
1965 APS Official Seal / The American Phytopathological Society
1965 Students in a lab and lecture demonstration / Cornell University Plant Pathology Herbarium photograph collection
1967 First cover of *Phytopathology News* / The American Phytopathological Society
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1969-1978

1969 Cover of *Plant Pathology* by George N. Agrios / Academic Press, New York
1970 Norman Borlaug receives Nobel Peace Prize / Norman Borlaug
1970s Flax plots, St. Paul campus, University of Minnesota / University of Minnesota
1972 Finished building in Eagan (pre-landscaped) / Paul Peterson, Clemson University.
1972 Dedication ceremony on May 11, Kenneth A. Gilles (AACC President) and Joseph P. Fulton, University of Arkansas, Fayetteville (APS President) / Paul Peterson, Clemson University.
1974 Cover of the first *Annual Proceedings of The American Phytopathological Society* / The American Phytopathological Society
1975 First APS Compendia, *A Compendium of Corn Diseases* / The American Phytopathological Society
1975 Healing chestnut blight canker / Paolo Cortesi, State University of Milan
1976 Corn plants exposed to -5 C. Left, no bacteria added; center, *Pseudomonas syringae* and the competitive bacterium *Erwinia herbicola* added; right, *Pseudomonas syringae* added causing frost injury / Steve Lindow, University of California, Berkeley
1978 University of California-Davis, Plant Pathology Department faculty / Thomas Gordon, University of California, Davis
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1979-1988

1980 First cover of *Plant Disease* / The American Phytopathological Society
1981 Typical hormone-type stimulation and stunting of root development following inoculation of radish seed with rhizobacteria and planting in unsterile soil. Isolates 19 and 123 increased fibrous root development, 114 increased lateral branching, and 121 stunted root development. / *Phytopathology* 71:642-644, Fig. 1.
1983 University of Minnesota plant pathologists / University of Minnesota
1983 APS President R. Ford addressing attendees at APS 75th Anniversary / Special Collections Department, Iowa State University
1983 Copper resistant (top) and copper sensitive (bottom) strain of *Xanthomonas evesicatoria* exposed to copper at 0, 4 and 8 hours and plated on nutrient agar / Robert Stull, University of Florida.
1985-1986 University of Florida Citrus Research and Education Center plant pathologists in the field / Ron Brlansky, University of Florida, CREC
1986 First cover of *Be&C Tests* / The American Phytopathological Society
1986 Non-transformed tobacco with systemic symptoms after inoculation with TMV (left) and resistant-transgenic tobacco with coat protein (right) / *Science* 232:738-742, Fig. 1B.
1987 Planting potato tubers treated with genetically engineered lcc- mutants of *Pseudomonas syringae* / Steve Lindow, University of California, Berkeley
1987 First cover of *MPMI* / The American Phytopathological Society
1987 TEM image of *Xylella fastidiosa* in xylem cells of leaf petioles from infested almond trees / Photo courtesy of Darlene Hoffman, USDA-ARS, Parlier, CA and Edwin Civerolo, USDA-ARS, Parlier, CA.
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1989-1998

1989 Citrus plant pathologists at the University of Florida, Citrus Research and Education Center / Ron Brlansky, University of Florida, CREC
1989 APS Headquarters addition drawing / The American Phytopathological Society
1991 Cover of Wheat Health Management / The American Phytopathological Society
1991 Fusarium head blight / The American Phytopathological Society image collection
1991 Virus transmission assay in *Cryphonectria parasitica*. Virus-infected donor on the right, virus-free recipient on the left. The reduction in pigmentation on newer growth of the recipient indicates successful transmission / Kent Loeffler, Cornell University
1995 Poster presentations during the 87th APS Annual Meeting, Pittsburgh, Pennsylvania / The American Phytopathological Society
1996 Exhibitors present their new products and services at the APS Annual Meeting in Indianapolis, Indiana / The American Phytopathological Society
1996 Karnal bunt of wheat from naturally infected spike in Mexico / Blaire Goates, USDA-ARS, Aberdeen, ID
1997 APS CD-ROM Turfgrass Diseases: Diagnosis and Management / The American Phytopathological Society
1997 Participants review the latest research during the APS Annual Meeting in Rochester, New York / The American Phytopathological Society
1998 Cellulase in infected root tissue / Eric Davis, North Carolina State University
1998 Transgenic (left) and non-transgenic (right) papaya inoculated with PRSV / *Plant Health Progress*, 21 June 2000, Accession DOI:10.1094/PHP-2000-0621-01-RV, Fig. 4.
1998 APS Council at headquarters for mid-year meeting / The American Phytopathological Society
1998 Meeting of APS industry members at headquarters / The American Phytopathological Society
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1999-2008

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2007 *Plant Disease Management Reports* screen capture / The American Phytopathological Society
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