

## Charles Gardner Shaw, 1917–1998

Jack D. Rogers  
Lori M. Carris

*Department of Plant Pathology, Washington State  
University, Pullman, Washington 99164-6430*

Charles Gardner Shaw, a former long-time member of the faculty of Washington State University, died Feb. 12, 1998, in Pullman. Professor Shaw was born Aug. 12, 1917, to Dr. Walter A. and Hattie M. Hendricks Shaw in Springfield, Massachusetts. He was reared and educated in Springfield. Following graduation from high school, he attended Ohio Wesleyan College where he received a baccalaureate degree. He continued his education at Pennsylvania State University, earning a master's degree, and the University of Wisconsin, earning a doctorate in botany in 1947 under the late M. P. Backus. His dissertation dealt with the Peronosporaceae of Wisconsin. While at UW he married Esther Anne Tennant on Aug. 17, 1940. During World War II he served in the U.S. Marine Corps in the South Pacific Theatre including Okinawa and Guadalcanal. He was honorably discharged with the rank of major. He later served in the Marine Corps Reserves and while in Pullman was the liaison officer for the Marine Corps at the State College of Washington, now University, for several years. Shaw joined the faculty of the State College of Washington in 1947 and became chairman of the Department of Plant Pathology in 1961, serving through 1972. He retired from Washington State University in 1983.

As chairman, Professor Shaw orchestrated a period of departmental growth that had begun under another great mycologist and chairman, George W. Fischer. Seven new faculty members were hired during Shaw's tenure, including one of the authors of this memorial (JDR). Mycological research and instruction had been an important part of the plant pathology enterprise at Washington State University almost since its inception. Rubén Durán, Fischer, F. D. Heald, Shaw, and Roderick Sprague were among the more notable practitioners. Under Shaw's leadership mycological instruction was given increased emphasis. Shaw continued to teach a summer course, Field Mycology, during his chairmanship. Graduate courses in Basidiomycetes and Lower Fungi were taught by



FIG. 1. Charles Gardner Shaw.

Rubén Durán and a course in Ascomycetes and Fungi Imperfecti by J. D. Rogers. Professor Durán taught Introductory Mycology during Shaw's chairmanship; Shaw again taught this course several times following his chairmanship. Throughout his career—both before and after his chairmanship—Shaw was an effective and highly enthusiastic forest pathologist. J. D. Rogers was hired primarily to take over the teaching of forest pathology from Shaw, but the latter continued to guide graduate students and to participate in professional activities until his retirement. Professor Shaw was an energetic and ambitious chairman. Under his regime graduate student numbers and research grants increased significantly. This period coincided in large part with the striving of the institution to become a first-rate university following many years as a state college.

Professor Shaw, at various times, taught mycology and forest pathology. He was known as an enthusi-

astic and demanding teacher. He often was colorfully garbed in combinations of plaids and stripes with the inevitable handlens hanging from his neck. He was highly educated and interested in all things with a mycological connection. Examinations might, for example, ask the student to make a connection between a Greek myth and a mycological phenomenon. He was an excellent field botanist and made careful identifications of host plants. He was likewise attuned to wildlife and geological phenomena. He loved collecting and field trips connected with the Field Mycology course were particularly memorable. Professor Shaw planned the trips with special regard to unusual scenery and opportunities to observe or discover particular host-parasite phenomena. He would divide students among available vehicles and, being the lead driver, take off at the highest legal speed. It was up to the following drivers to keep up with him. Short cuts over poorly maintained roads were the rule. When a collecting area was reached, everyone would pile out and begin to collect everything in sight. Shaw would be close to the literature used to identify host plants and, along with his handlens, help students determine host plants on the spot. Plants were then put in a plant press. Nights were always spent camping. Camp was usually made at some spot that coincided with sunset. Supper was hastily prepared, water boiled for morning use, and lanterns lit. In at least one tent, Professor Shaw would initiate a bridge game that would continue into the wee hours. Breakfast was at daybreak and usually featured Shaw's pancakes. Then, it was clean up, pack up, and tear off to the next site. All told, these field trips were interesting, educational, and exhausting.

Professor Shaw was highly involved in both mycological and plant pathological research. Seventeen students earned the M.S. and/or Ph.D. under his direction and Shaw collaborated and coauthored with most of them. One of his long-time projects was to build the Washington State University Mycological Herbarium (WSP) into an internationally recognized repository. Largely through his efforts WSP now houses about 70 000 specimens from throughout the world. It has particularly valuable collections of smut fungi (Ustilaginales), downy mildews (Peronosporales), grass pathogens, pyrenomycetes, and forest tree pathogens. An outgrowth of collecting and herbarium activities was his highly useful two volume *Host-Fungus Index for the Pacific Northwest*, first published in 1958 and revised in 1973.

Professor Shaw was a world authority on the downy mildews (Peronosporales), an interest developed as a graduate student. Among other useful and thought-provoking contributions was his conception of generic phylogeny in the Peronosporales (Shaw, 1978).

This was based on correlations, or lack of correlations, among such characters as: direct germination of conidia vs zoospore production from sporangia; determinate vs indeterminate conidiophores and sporangiophores; obligate parasites vs facultative saprophytes; and hosts in the Gramineae vs hosts in other angiospermous groups. This publication coincided with a valuable bibliography of the Peronosporaceae on Gramineae (Shaw et al., 1978). Professor Shaw later provided an excellent summary of his concepts of taxonomy and evolution of the Peronosporales in a widely used book devoted to the downy mildews (Shaw, 1981). One of the more insightful discussions in Shaw's contribution deals with morphological adaptations among the downy mildews to dry climates. Professor Shaw's analysis of asexual reproduction by sporangia versus conidia clearly illustrates how terrestrial organisms may have evolved from aquatic ancestors. His expertise on downy mildews led to several trips to Pakistan during 1969-72 as a consultant on chickpeas for the Rockefeller Foundation.

It is not surprising that Professor Shaw also interested himself in various aspects of the Ustilaginales because his career, in part, coincided with those of G. W. Fischer and C. S. Holton who, along with their associates, made the State College of Washington the "smut capital of the world." One particularly influential publication (with Fischer) proposed that smut fungi of similar morphology and symptomology parasitizing different species and genera of the same host family be considered as the same species, whereas smut fungi of similar morphology parasitizing different host families be considered as different species (Fischer and Shaw, 1953).

Professor Shaw was a leading fungal nomenclatural scholar. He was attracted to the legalistic aspects of nomenclature and his aid with nomenclatural problems was widely sought. The mental faculties that contributed to his nomenclatural prowess made him an excellent reviewer of manuscripts. He could cut to the heart of a manuscript and give a penetrating analysis of it, in some cases even with a manuscript dealing with a subject with which he was basically unfamiliar.

Professor Shaw was involved in a number of research areas in forest pathology, usually with his graduate students. Among his research areas were: white pine blister rust; dwarf mistletoes; insect dissemination of basidiospores from sporophores of wood-decay fungi; decay of forest residues. He and his students had, and continue to have, an enormous influence on forest pathology nationwide. In combined contributions to mycology and forest pathology Professor Shaw published over 130 papers.

Professor Shaw was twice chief-of-party for USAID-

WSU with the Jordanian Ministry of Agriculture. During his involvement with AID he and Esther Anne had assignments in India, Pakistan, Jordan, New Zealand, and Thailand.

Professor Shaw was a member of Delta Tau Delta and served as chapter adviser for more than 20 years at WSU. His other honor society memberships included Phi Kappa Phi and Phi Beta Kappa. He had numerous interests and hobbies. He excelled at bridge, poker, and other games. He was an avid stamp and coin collector. He helped begin the Pullman Stamp Club in 1948. He enjoyed the outdoors and especially liked to fish and hunt. He had earlier been active as a Boy Scout and Explorer Scout leader and had coached Little League baseball.

He is survived by his wife of 57 years at their Pullman home; two sons, Charles Gardner "Terry" Shaw III of Juneau, Alaska, and Mark Tennant Shaw of Kent, Washington; a daughter Sharon Anne Taber of Auke Bay, Alaska; nine grandchildren; and one great grandchild.

#### SELECTED BIBLIOGRAPHY

- Shaw, C. G. 1949. Nomenclatorial problems in the Peronosporaceae. *Mycologia* 41: 323-338.
- Shaw, C. G. 1951. New species of the Peronosporaceae. *Mycologia* 43: 445-455.
- Fischer, G. W., and C. G. Shaw. 1953. A proposed species concept in the smut fungi, with application to North American species. *Phytopathology* 43: 181-188.
- Adams, D. F., C. G. Shaw, and W. D. Yerkes, Jr. 1956. Relationship of injury indexes and fumigation fluoride levels. *Phytopathology* 46: 587-591.
- Gordon, C. C., and C. G. Shaw. 1960. A new genus of the Meliolaceae on the roots of *Solanum* spp. *Mycologia* 52: 327-333.
- Shaw, C. G. 1965. Taxonomic concepts as applied to fungi. Pp. 819-821. In: Symposium on taxonomy of pathogenic fungi. *Phytopathology* 55: 819-837.
- Thyr, B. D., and C. G. Shaw. 1966. Ontogeny of the needle cast fungus, *Hypodermella arcuata*. *Mycologia* 58: 192-200.
- Wicker, E. F., and C. G. Shaw. 1968. Fungal parasites of dwarf mistletoes. *Mycologia* 60: 372-383.
- Shaw, C. G. 1973. *Host fungus index for the Pacific Northwest I. Hosts*. Wash. State Agric. Exp. Sta. Bull. 765. 121 pp.
- Shaw, C. G. 1973. *Host fungus index for the Pacific Northwest II. Fungi*. Wash. State Agric. Exp. Sta. Bull. 766. 162 pp.
- Shaw, C. G. 1978. *Peronosclerospora* species and other downy mildews of the Gramineae. *Mycologia* 70: 594-604.
- Blanchette, R. A., and C. G. Shaw. 1978. Management of forest residues for rapid decay. *Canad. J. Bot.* 56: 2904-2909.
- Shaw, C. G., R. J. Chacko, and K. M. Safeeulla. 1978. *Bibliography on downy mildew (Peronosporaceae) of the Gramineae*. Wash. State Univ., Coll. of Agric. Bull. 867. 53 pp.
- Harrington, T. C., M. M. Furniss, and C. G. Shaw. 1981. Dissemination of Hymenomycetes by *Dendroctonus pseudotsugae* (Coleoptera: Scolytidae). *Phytopathology* 71: 551-554.
- Shaw, C. G. 1981. Taxonomy and evolution. Pp. 17-29. In: *The downy mildews*. Ed., D. M. Spencer. Academic Press, New York.