

# Aureomycin, Plot 23 and the Smithsonian Institution

Soil is a living system. This living system includes a vast microbial population; soil microbiologists contemplate and study these microbes. An early soil microbiologist at MU, Dr. William Albrecht, had some unique experiences which contributed to the world's improvement of disease control.

Dr. Benjamin Duggar, a pathologist-physiologist at Lederle Laboratories in New York, was searching for organisms producing antibiotics better and/or different than penicillin. He contacted Albrecht in 1945, requesting some Missouri soil samples. Albrecht no doubt suspected which soil conditions might be selective for fungal species desired by Duggar.

Plot 23 on Sanborn Field had been planted with timothy without treatment since 1888. A soil sample from this plot was sent to New York, along with 11 other samples from various Missouri locations. The soil from Plot 23 contained a golden mold that suppressed the growth of many microorganisms, including streptococci. This fungus, initially labeled A-377, was later named *Streptomyces aureofaciens*. The soil from Plot 23 became the type location of this fungus, and a soil sample was on display at the Smithsonian Institution (Catalog number M-6661).

The antibiotic produced by *Streptomyces aureofaciens* is aureomycin. Lederle Labs expanded production of aureomycin and by 1948 had made it available to doctors.

A plaque was installed on Sanborn Field in June 1959 commemorating the place of Plot 23 and Dr. Duggar in medical history.

Plot 23 was seeded with timothy in 1888 and has never received additional nutrients. It is plowed and reseeded when the timothy stand almost disappears. The forage yield since 1970 has averaged 1.01 tons per acre, including the weeds. The adjacent plot number 22, annually received six tons of manure per acre and has averaged 2.87 tons of forage per acre since 1970.

Duggar was born in Alabama in 1872. His early education was in Alabama and Mississippi. He obtained a Master of Arts in Botany from Harvard University and a doctoral degree in physiology from Cornell University. Duggar served with the USDA

Bureau of Plant Industry, where he worked with mushrooms and cotton rot fungus. He then became a professor of botany at the University of Missouri from 1902 to 1907. Later he retired from the University of Wisconsin in 1943 after having served at Cornell University, Washington University and the Missouri Botanical Gardens. He joined Lederle Labs in 1944 and was active there until his death in September, 1956.

## Conclusion

Aureomycin is just one benefit discovered from the soil. Soils are indeed living systems. The person on the street, if he or she thinks of soil at all, considers the role of soil as a plant support. However, the aureomycin story illustrates how the well-being of mankind is enhanced by soil products — the antithesis of “dust-to-dust.”

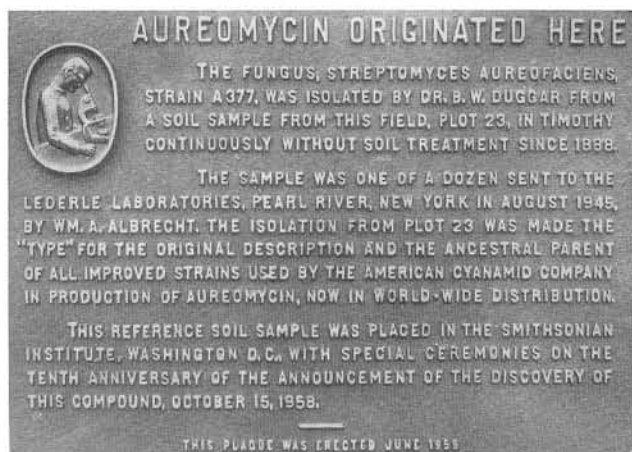


Dr. Benjamin Duggar announced his discovery of aureomycin on July 21, 1948 at the age of 76. A previous instructor at the University of Missouri-Columbia, he joined Lederle Laboratories in 1944.



A soil sample from plot 23 is stored in the Smithsonian Institution.

An aureomycin exhibit in the Smithsonian Institution, Washington, D.C. By pressing the small button in the front of the display, a viewer can light up the background listing the many diseases which aureomycin combats successfully. This display was featured just after the release of aureomycin in the late 1940s.



Plaque given for the role of Sanborn Field in the discovery of aureomycin.