

Impact of Diseases on Civilization

Ergot
Claviceps purpurea
Ergotism



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Impact of Diseases on Civilization

Ergot & Ergotism

Pliny the younger, 200 A.D.

Rhine valley, 857

1st recorded epidemic
the "holy fire"

Normandy, 800-900

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Ergot & Ergotism

Gaston de la Valloire, 1039

hospital for the *ardents*

St. Anthony's Fire

Thuillier, 1670

association with rye bread

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Ergot & Ergotism

Peter the Great,
1722



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Pont St. Esprit, France, 1951
Ethiopia, 1970s

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Ergot & Ergotism

Useful properties: "Mutterkorn"
20+ chemicals extracted
ergonovine, ergotamine,
ergine
lysergic acid hydroxyethylamide

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Late blight of potato

1570 - potato introduced to Spain,
France & Italy

1700s - potatoes a staple food

1843 - epidemic in the NE U.S.

1845 - epidemic in Europe

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Late blight of potato

Starving boy and
girl in Cahera,
Ireland, London
News 1847

Late blight of potato



Image from Illustrated London news, 1847. From the Ariadne computer image collection and the Western civilization slide collection (Ariadne bba59).

Late Blight of Potato



PIP 429/599 from Looking glass, or, caricature annual, 1836. From the Ariadne computer image collection and the Western civilization slide collection (Ariadne bbx57).



Late blight of potato



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Late blight of potato



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Late blight of potato

1846 - Lindley discovers Cu control

1861 - de Bary
caused by *P. infestans*

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Late blight of potato

1914 - WWI begins

1915 - German potato crop 3x
normal

1916 - Potato crop destroyed by
late blight

1918 - Germany defeated

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Coffee rust

- 1000 - Coffee introduced to Yemen
- 1600 - Coffee seed smuggled to India
- 1650 - Dutch establish plantations in Ceylon

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Coffee Rust



Impact of Diseases on Civilization

Coffee rust

- 1650 - coffee introduced to U.K
promoted to combat drunkenness
coffee houses become popular
- 1700 - popularity of coffee houses wanes

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Coffee Rust



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Coffee rust

- 1797 - British take-over Dutch colonies
- 1825 - Rebuild plantations after Napoleonic wars
- 1870 - Coffee production = 100 million lb. per year

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Coffee rust

- 1875 - Coffee rust is epidemic
1000 acres tea planted
- 1880 - 300,000 acres tea
- 1895 - coffee no longer produced in Ceylon

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"Modern" Epidemics

Bengal Famine – 1943

Brown spot, *Cochliobolus miyabeanus*
(*Helminthosporium oryzae*)
40-90% yield loss
→ 3 million deaths



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"Modern" Epidemics

Southern corn leaf blight 1970



Cochliobolus heterostrophus
(*Helminthosporium maydis*)
→ destroyed 710 million bu in the US
- new race T appeared & infected hyper-susceptible lines containing Texas cytoplasm male-sterile (Tcms)

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"Modern" Epidemics

Fusarium head blight 1993-1998

Gibberella zeae (*Fusarium graminearum*)
→ \$1B loss in MN, ND, SD & Manitoba in '93



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