

Caryophyllon.

Natural History: Bonn trans., 1865, v. 1, p. 13. (Crofton, A Pageant of the Spice Islands, p. 10.)

A BIBLIOGRAPHY OF CLOVE

"There is, also, in India another grain which bears a considerable resemblance to pepper but is longer and more brittle; it is known by the name of caryophyllon. It is said that this grain is produced in the East Indies; with us it is imported for its aromatic perfume."

Glen Albert Chesebro

Indicoplenstes, K.

547

(Caryophylli.)

Topographia Christiana, p. 10. (Pharmacographia, 1 ed., p. 250; ibid., 2 ed., p. 281; Patrologiae Cursus, 88, p. 446; Crofton, A Pageant of the Spice Islands, p. 10.)

A Thesis Submitted for the Degree of

(States that clove was imported into Ceylon and then transmitted to distant regions.)

BACHELOR OF SCIENCE

(Pharmacy)

Aegineta, P.

ca. 7 C.

(Caryophylli.)

De re medica, lib. vii, c. 3; Germ. trans., p. 658. (Pharmacographia, 1 ed., p. 250; ibid., 2 ed., p. 281; Crofton, A Pageant of the Spice Islands, p. 10.)

Describes clove and gives its uses.

Crispus, B.

8 C.

(Caryophyllus stes.)

Poematum Medicum, p. 10. (Pharmacographia, 1 ed., p. 250; Patrologiae Cursus, 88, p. 446.)

UNIVERSITY OF WISCONSIN

(Clove, called Caryophyllus, was noticed.)

1942

Khurdachan, I.

869-885

(Sirofles.)

Pliny, C.

(77)

Caryophyllon.

Natural History: Bohn trans., 1885, v. 3, p. 113. (Crofton, A Pageant of the Spice Islands, p. 5.)

"There is, also, in India another grain which bears a considerable resemblance to pepper, but is longer and more brittle; it is known by the name of caryophyllon. It is said that this grain is produced in a sacred grove in India; with us it is imported for its aromatic perfume."

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(States that clove were imported into Ceylon and then transmitted to distant regions.)

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(Caryophylli.)

De re medica, lib. vii, c. 3: Germ. trans., p. 658. (Pharmacographia, 1 ed., p. 250; *ibid.*, 2 ed., p. 281; Crofton, A Pageant of the Spice Islands, p. 10.)

Describes clove and gives its uses.

Crispus, B.

8 C.

(Cariophylus ater.)

Poematium Medicum, \_\_, p. \_\_. (Pharmacographia, 1 ed., p. 250; Patrologiae Cursus, 34, p. 374; Pharmacographia, 2 ed., p. 282.)

(Clove, called Cariophylus ater was noticed.)

Khurdádbah, I.

869-885

(Girofles.)

Le Livre des routes et des provinces, p. \_\_\_. (Journ. Asiat., S. 6, v. 5, p. 227; Pharmacographia, 1 ed., p. 281; *ibid.*, 2 ed., p. 282.)

(Reports the growth of the clove-tree in Java.)

Baithar, I. *Original was not available.* ca. 1200

(Le Girofle.)

Djami el Moufridat, \_\_\_ ed., p. \_\_\_. (Notices et Extraits des manuscrits de la Bibliotheque du Roi, 26, pt. 1, p. 64; Crofton, A Pageant of the Spice Islands, p. 24.)

(Chapter and verse for the medicinal virtues of clove.)

Chau Ju-kua. *Gives a description, a drawing and the habitat of Caryophyllus.* ca. 1250

(Cloves.)

Chu-fau-chi, pp. 77, 133, 159, 209. (Crofton, A Pageant of the Spice Islands, p. 20.)

The original was not available.

*Pinax et Tabulae, 2 ed., p. 110. (Willdenow, Linne's Species Plantarum, 4 ed., v. 2, p. 967; Woodville, Medical Botany, 2 ed., v. 2, p. 138.)*

Battuta, I. 1304-1377

(On the Clove.)

Travels in Asia and Africa, \_\_\_ ed., p. \_\_\_. (Crofton, A Pageant of the Spice Islands, p. 16.)

The original was not available.

*Conquista de las Islas Molucas: Eng. trans., p. 36. (Crofton, A Pageant of the Spice Islands, p. 5.)*

(Ramusio, -.) 1554

(Caryophylli.)

Delle navigationi et viaggi, fol. 404 b. (Pharmacographia, 1 ed., p. 251; *ibid.*, 2 ed., p. 282.)

(A statement that Pigafetta, the companion of Magellan, gave a good description of the clove tree as he observed it in 1521.)

*(Pharmacographia, 1 ed., p. 250; *ibid.*, 2 ed., p. 281; Crofton, A Pageant of the Spice Islands, p. 5.)*

Van Linschoten, J. H. ca. 1592

(Of Clove.)

Itinerary, p. \_\_. (Hakluyt Society, The Voyage of John Huyghen Van Linschoten to the East Indies, p. 81; Crofton, A Pageant of the Spice Islands, p. 57.)

The original was not available.

Clusius, C.

1605

Caryophylli.

Exoticorum Libri X, p. 15. (Willdenow, Linne's Species Plantarum, 4 ed., 2, p. 965.)

Gives a description, a drawing and the habitat of *Caryophyllus aromaticus*.

Bauhin, C.

1671

*Caryophyllus aromaticus*.

Pinax et Prodrromus, 2 ed., p. 410. (Willdenow, Linne's Species Plantarum, 4 ed., v. 2, p. 965; Woodville, Medical Botany, 2 ed., v. 2, p. 538.)

Gives several synonyms, habitat and a description of clove.

Argensola, --

1708

(*Caryophillum*.)

Conquista de las Islas Molucas: Eng. trans., p. 36. (Crofton, A Pageant of the Spice Islands, p. 5.)

The original was not available.

Vignoli, --

1724

(*Caryophylli*.)

Liber Pontificalis, seu de Gestis Romanorum Pontificum, 1, p. 94. (Pharmacographia, 1 ed., p. 250; *ibid.*, 2 ed., p. 281; Crofton, A Pageant of the Spice Islands, p. 9.)

(States that Constantine presented St. Silvester, bishop of Rome, 314-335 A.D., gold, silver, incense and spices. Among the latter was 150 pounds of clove.)

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1726

(Ting-hiang.)

Chinese Encyclopedia, 20, p. 301. (Crofton, A Pageant of the Spice Islands, p. 4.)

The original was not available.

Rumphius, G. E.

1735

(Caryophyllum regium.)

Herbarium Amboinense, ed. Burman, v. 2, p. 11, tab. 2. (Pharmacographia, 1 ed., p. 255; *ibid.*, 2 ed., p. 287; Crofton, A Pageant of the Spice Islands, p. 69; Willdenow, Linne's Species Plantarum, 4 ed., v. 2, p. 965; DeCandolle, Prodrum, 3, p. 262; Woodville, Medical Botany, 2 ed., v. 2, p. 538; Stephenson and Churchill, Medical Botany, v. 2, pl. 95.)

(Gives a description of "Royal Cloves.")

Linne, C.

1737

(Caryophyllus aromaticus.)

Hortus cliffortianus, p. 207. (Willdenow, Linne's Species Plantarum, 4 ed., v. 2, p. 965.)

The original was not available.

Trew, C. J.

1750-1772

(Caryophyllus aromaticus.)

Herbarium Blackwellianum, p. \_\_\_\_\_. (Willdenow, Linne's Species Plantarum, 4 ed., v. 2, p. 965; DeCandolle, Prodrum, v. 2, p. 263; Persoon, Synopsis Plantarum, 2 ed., p. 30.)

The original was not available.

Miller, P. 1759

*Caryophyllus*.

The Gardeners Dictionary, 7 ed., p. \_\_\_\_\_. (Willdenow, Linne's Species Plantarum, 4 ed., v. 2, p. 965.)

Gives a description and habitat of clove.

Schreber, J. C. D. 1772

*Caryophylus aromaticus*.

Linne's Materia Medica, 2 ed., p. 136. (Willdenow, Linne's Species Plantarum, 4 ed., v. 2, p. 965.)

Gives scientific name, the habitat and properties of *Caryophyllus aromaticus*.

Valmont de Bomare, J. C. 1775

(*Caryophyllum regium*.)

Dict. rais. univ. d'Hist. Nat., v. 3, p. 70. (Pharmacographia, 1 ed., p. 255; *ibid.*, 2 ed., p. 287.)

(Gives a description of "Royal Cloves.")

Houttuyn, M. 1777

(*Caryophyllus aromaticus*.)

Linne's Pfl. Syst., v. 2, p. 50, t. 12, f. 1. (Willdenow, Linne's Species Plantarum, 4 ed., v. 2, p. 965; Woodville, Medical Botany, 2 ed., v. 2, p. 538.)

The original was not available.

Capmany, M. A. 1779-1792

(*Caryophylli*.)

Memorias sobre la marina etc., de Barcelona, v. 3, p. 170. (Pharmacographia, 1 ed., p. 251; *ibid.*, 2 ed., p. 282.)

(Clove is enumerated in the tariff of Barcelona of 1252.)

Tessier, H. A. 1779

(Sur l'importation du Giroflier des Moluques aux Îles de France, de Bourbon et de Sechelles, et de ces îles à Cayenne.)

Observations sur la physique, \_\_, p. \_\_. (Pharmacographia, 1 ed., p. 251; ibid., 2 ed., p. 283.)

(A description of the introduction of the clove tree and nutmeg tree into the islands of Mauritius and Bourbon in 1770.)

Gaertner, J. 1788

(Caryophyllus aromaticus.)

De fructibus et seminibus plantarum, p. 167, t. 33, f. 2. (Willdenow, Linne's Species Plantarum, 4 ed., v. 2, p. 965; Persoon, Synopsis Plantarum, 2 ed., p. 30; Stephenson & Churchill, v. 2, pl. 95.)

The original was not available.

Thunberg, C. P. 1788

(Caryophyllis aromaticis.)

Dissert. de Caryophyllis aromaticis, p. 1. (Willdenow, Linne's Species Plantarum, 4 ed., v. 2, p. 965; DeCandolle, Prodrromus, v. 3, p. 262; Stephenson & Churchill, Medical Botany, v. 2, pl. 95.)

The original was not available.

Buée, -. 1797

(Cloves.)

A Narrative of the Successful Manner of Cultivating the Clove Tree in the Islands of Dominica, p. \_\_. (Crofton, A Pageant of the Spice Islands, p. 83.)

(States that the clove tree was successfully cultivated in Cayenne and thence transplanted to Dominica (1789) and Martinique.)

Persoon, C. H.

1807

*Caryophyllus aromaticus.*

Synopsis Plantarum, 2 ed., p. 30. (Dispens. U. S. A., 2 ed., p. 177; *ibid.*, 3 ed., p. 173; *ibid.*, 4 ed., p. 176.)

Gives a number of botanical references, habitat and synonyms of *Caryophyllus aromaticus*.

Vincent, W.

1807

*Caryophyllon.*

The Commerce and Navigation of the Ancients in the Indian Ocean, 2, p. 700. (Crofton, A Pageant of the Spice Islands, p. 6.)

Discusses the early history of clove.

Thacher, J.

1810

*Eugenai Caryophyllata.*

Am. New Dispens., 1 ed., p. 123; *ibid.*, 2 ed., p. 216; *ibid.*, 4 ed., p. 220.

Gives a description of the plant and drug with habitat, part used, medicinal use and dose.

Woodville, W.

1810

*Caryophyllus aromaticus.*

Medical Botany, 1 ed., p. 538, f. 193. (Dispens. U. S. A., 2 ed., p. 177; *ibid.*, 3 ed., p. 173; *ibid.*, 4 ed., p. 177; *ibid.*, 5 ed., p. 182; *ibid.*, 6 ed., p. 182; *ibid.*, 7 ed., p. 182; *ibid.*, 8 ed., p. 182; *ibid.*, 9 ed., p. 188; *ibid.*, 10 ed., p. 188; *ibid.*, 11 ed., p. 195; *ibid.*, 12 ed., p. 222; *ibid.*, 13 ed., p. 231; *ibid.*, 14 ed., p. 236; Nat. Dispens., 1 ed., p. 355; *ibid.*, 2 ed., p. 360; *ibid.*, 3 ed., p. 494; *ibid.*, 5 ed., p. 416; Ecler. & Gen. Dispens., 1 ed., p. 170; Bently & Trimen, Medicinal Plants, v. 2, no. 112; Stephenson & Churchill, Medical Botany, 2 pl. 95.)

Gives synonyms, botanical origin, characteristics, habitat, history and use of clove with an illustration.

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1811

Caryophyllum Aromaticum.

Am. Med. Dict., 1 ed., p. (none).

Gives a description, habitat, scientific name, use and dose of clove.

Sprengel, C.

1825

Caryophyllus.

Linne's Systema Vegetabilum, 2 ed., p. 485. (DeCandolle, Prodrromus, v. 3, p. 262; Stephenson & Churchill, Medical Botany, v. 2, pl. 95.)

Gives a description, habitat and synonyms of clove.

An American Physician

1827

Eugenia.

Eclectic & Gen. Dispens., 1 ed., p. 170.

Gives botanical origin, synonyms, qualities, medicinal properties and uses of clove.

Hayne, F. G.

1827

Caryophyllus aromaticus.

Getreue Darstellung und Beschreibung der in der arzneykunde Geräuchlichen Gewächse, v. 10, f. 38. (Bently & Trimen, Medicinal Plants, v. 2, no. 112.)

An illustration of Caryophyllus aromaticus.

DeCandolle, A.

1828

Caryophyllus aromaticus.

Prodromus, v. 3, p. 262. (Dispens. U.S.A., 5 ed., p. 182; *ibid.*, 6 ed., p. 182; *ibid.*, 7 ed., p. 182; *ibid.*, 8 ed., p. 182; *ibid.*, 9 ed., p. 188; *ibid.*, 10 ed., p. 188; *ibid.*, 11 ed., p. 195; *ibid.*, 12 ed., p. 222; *ibid.*, 13 ed., p. 231; *ibid.*, 14 ed.,

p. 236; *ibid.*, 15 ed., p. 263; *ibid.*, 16 ed., p. 374; *ibid.*, 17 ed., p. 330; *ibid.*, 18 ed., p. 336; *ibid.*, 19 ed., p. 302; Bently & Trimen, Medicinal Plants, v. 2, no. 112.)

Gives a description and habitat of clove.

Nees, T. F. L.

1828

*Caryophyllus aromaticus* L.

Plantae Medicinales, oder Beschreibung officinelle Phlanzen, v. 1, t. 299. (Bently & Trimen, Medicinal Plants, v. 2, no. 112.)

Gives botanical origin, synonyms, general characteristics, composition, reference and a plate of the clove-tree plant.

Dumas, J.

1833

Recherches de chimie organique.

Jour. de Chim. med., 9, p. 604. (Jour. de Pharm., 20, p. 565.)

A description of compounds isolated from clove, including methods of analysis, their physical and chemical properties.

Bonastre, M.

1834

Nouvelle matière cristalline tirée du girofle.

Jour. de Pharm. et de chim., 20, p. 565. (Dispens. U. S. A., 3 ed., p. 174; *ibid.*, 4 ed., p. 178; *ibid.*, 5 ed., p. 184; *ibid.*, 6 ed., p. 184; *ibid.*, 7 ed., p. 183; *ibid.*, 8 ed., p. 183; *ibid.*, 9 ed., p. 189; *ibid.*, 10 ed., p. 189; *ibid.*, 11 ed., p. 197; *ibid.*, 12 ed., p. 224; *ibid.*, 13 ed., p. 232; *ibid.*, 14 ed., p. 238; *ibid.*, 15 ed., p. 365; *ibid.*, 16 ed., p. 365; *ibid.*, 17 ed., p. 361; *ibid.*, 18 ed., p. 338; *ibid.*, 19 ed., p. 303; *ibid.*, 20 ed., p. 299; *ibid.*, 21 ed., p. 302; *ibid.*, 22 ed., p. 302; Am. Jr. Pharm., 7, p. 83.)

A description of "euginine" including the method of preparation and physical and chemical properties.

Dumas, J.

1834

Recherches de chimie organique.

Jour. de pharm. et de chim., 20, pp. 30, 565.

Gives methods and results of analyses of products obtained from clove, giving also some chemical and physical properties.

Stephenson, J. & Churchill, J. M. 1834

*Eugenia caryophyllata*,  
or  
*Caryophyllus aromaticus*.

Medical Botany, v. 2, pl. 95. (Bently & Trimen, Medicinal Plants, v. 2, no. 112.)

Gives botanical origin, general characteristics, synonyms, habitat, history, medicinal properties, use, dose, official preparation and an illustration of clove.

Wood, G. B. & Bache, F. 1834

*Caryophyllus*. U.S.

Dispens. U. S. A., 2 ed., p. 177; *ibid.*, 3 ed., p. 172; *ibid.*, 4 ed., p. 176; *ibid.*, 5 ed., p. 182; *ibid.*, 6 ed., p. 182; *ibid.*, 7 ed., p. 182; *ibid.*, 8 ed., p. 181; *ibid.*, 9 ed., p. 188; *ibid.*, 10 ed., p. 188; *ibid.*, 11 ed., p. 195; *ibid.*, 12 ed., p. 222; *ibid.*, 13 ed., p. 230; *ibid.*, 14 ed., p. 236; *ibid.*, 15 ed., p. 363; *ibid.*, 16 ed., p. 374; *ibid.*, 17 ed., p. 330; *ibid.*, 18 ed., p. 336; *ibid.*, 19 ed., p. 301; *ibid.*, 20 ed., p. 298; *ibid.*, 21 ed. p. 300; *ibid.*, 22 ed., p. 301.

Gives the sexual system classification, natural order, general characteristics, properties, uses and official preparations of clove.

Ruschenberger, W. S. W. 1838

(Cloves.)

A Voyage Round the World, p. \_\_\_. (Am. Jr. Pharm., 10, p. 30; Crofton, A Pageant of the Spice Islands, p. 86.)

(Gives a description of the clove tree plantations in Zanzibar, including a short history.)

Gives synonyms, botanical origin, description and use of clove.

*Caryophyllus aromaticus.*

Encyclopedia of Plants, 1 ed., p. 416. (Dispens. U.S.A., 2 ed., p. 177; *ibid.*, 3 ed., p. 173; *ibid.*, 4 ed., p. 176.)

Gives a description of clove, with drawings, derivation of the name, use and habitat.

Méry, -. et Guindon, -.

1841

## (Girofles.)

Hist. des Actes ... de la municipalité de Marseille, p. 273. (Pharmacographia, 1 ed., p. 251; *ibid.*, 2 ed., p. 282.)

(Clove is enumerated in the tariff of Marseilles of 1228.)

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1843

## (Girofles.)

Recueil des Historiens des Croisades, Lois, p. 173. (Pharmacographia, 1 ed., p. 250; *ibid.*, 2 ed., p. 282.)

(Duty was levied on clove at Acon (Acre), in Palestine, at the end of the 12th century.)

Hamerton, -.

1844

## (Cloves.)

Report on the Affairs of the Imam of Muscat, p. \_\_. (Crofton, A Pageant of the Spice Islands, p. 91.)

The original was not available.

Dunlison, R.

1848

*Eugenia Caryophyllata.*

Dict. of Medical Science, 7 ed., p. 328.

Gives synonyms, botanical origin, description and use of clove.

(Caryophylli.)

Diplomata, Chartae, etc., v. 2, p. 309. (Pharmacographia, 1 ed., p. 250; *ibid.*, 2 ed., p. 282.)

(Clove is enumerated with other commodities in the diploma granted by Chilperic II to the monastery of Corbie in Normandy, in 716 A.D.)

Muspratt, S.

1850

On Caryophylline, and a New Acid From Cloves.

Lancet, 1850, v. 2, p. 500. (Pharm. Jour., 10, p. 343; Dispens. U. S. A., 9 ed., p. 189; *ibid.*, 10 ed., p. 189; *ibid.*, 11 ed., p. 196; *ibid.*, 12 ed., p. 224; *ibid.*, 13 ed., p. 232; *ibid.*, 14 ed., p. 237; Bently & Trimen, Medicinal Plants, v. 2, no. 112.)

Gives methods for isolating caryophyllin and its properties. Also describes a new acid under investigation.

Lumsdaine, --

1851

(Cultivation of Nutmegs and Cloves in Bencoolen.)

Jour. of the Indian Archipelago and E. As., 5, p. 78. (Am. Jr. Pharm., 32, p. 53; Am. Jr. Science and Arts, \_\_, p. \_\_; Pharm. Jour., 11, p. 516; Bently & Trimen, Medicinal Plants, v 2., no. 112.)

(Gives type of soil desired for cloves, time and amount of harvest, upkeep of plantation and labor needed.)

Douet d'Arcq.

1852

(Girofles.)

Revue archéologique, 9, p. 213. (Pharmacographia, 1 ed., p. 251; *ibid.*, 2 ed., p. 282.)

(Clove is enumerated in the tariff of Paris in 1296.)

King, J. & Newton, R. S.

1852

Caryophyllus Aromaticus. (p. 22.)

Eclec. Dispens., 1 ed., p. 109.

Give the natural order, classification according to the sexual system, history, properties, uses and official preparations of clove.

(Caryophylli.)

Berg, -. medici della città di Pisa dal xiii. al xiv. 1854

(Caryophyllum regium.)

Linnaea, \_\_, p. 137. (Pharmacographia, 1 ed., p. 255; *ibid.*, 2 ed., p. 287; Bently & Trimen, Medicinal Plants, v. 2, no. 112.)

(Gives a description of "Royal Cloves.")

Martins, T. V. C. 1855

(Hakluyt Society) ration of caryophyllis. 1855

(Cloves.) his Mit. der phys.-med. Soc. zu Erlangen, 2, p. 54.

The Voyage of Sir Henry Middleton to Bantam and the Maluco Islands, p. 80. (Crofton, A Pageant of the Spice Islands, p. 61.)

Clove is mentioned in a letter from the king of Tarnata to the king of England.

(Describes the preparation of caryophyllin from clove.)

Crawfurd, J. 1856

(Clove.)

A Descriptive Dictionary of the Indian Islands and Adjacent Countries, p. 430. (Crofton, A Pageant of the Spice Islands, p. 2; Pharmacographia, 1 ed., p. 252; *ibid.*, 2 ed., p. 283; Bently & Trimen, Medicinal Plants, v. 2, no. 112.)

(States that it is difficult to understand how the clove first came to the notice of foreign nations, as it had not been used in any way by the inhabitants of the Molucca Islands.)

Wagby, C. P. 1860

(Cloves.)

Crawfurd, J. ca. 1856

Report of the East India Mission, p. 22. (Crofton, A Pageant of the Spice Islands, p. 61.)

(Cloves.)

History of The Indian Archipeligo, 2, p. 482. (Crofton, A

Pageant of the Spice Islands, p. 22.)

The original was not available.

Bonaini, -.

1857

(Caryophylli.)

Statuti inediti della città di Pisa dal xii. al xiv. secolo, 3, p. 106. (Pharmacographia, 1 ed., p. 254; ibid., 2 ed., p. 286.)

(Under the statutes of Pisa, 1305 A.D., duty was levied on cloves and on "folia et fustic garofalorum.")

Martius, T. W. C.

1859

(On the preparation of caryophyllin.)

Wissenschaftliche Mit. der phys.-med. Soc. zu Erlangen, 2, p. 54. (Am. Jr. Pharm., 32, p. 66; Pharm. Jour., 19, p. 183; Dispens. U. S. A., 12 ed., p. 224; ibid., 13 ed., p. 232; ibid., 14 ed., p. 237; ibid., 15 ed., p. 365; ibid., 16 ed., p. 375; ibid., 17 ed., p. 331; ibid., 18 ed., p. 337; ibid., 19 ed., p. 303; ibid., 20 ed., p. 299.)

(Describes the preparation of caryophyllin from clove.)

Gray, A.

1860

Myrtle Family.

Structural & Systematic Botany, v. 1, p. 418.

"Cloves are the dried flower-buds of *Caryophyllus aromaticus*."

Rigby, C. P.

1860

(Cloves.)

Report of the Zanzibar Dominions, p. 22. (Crofton, A Pageant of the Spice Islands, p. 87.)

The original was not available.

Kunstmann, -.

1863

(Gewurznelken.)

Die Kenntniss Indiens im XV<sup>ten</sup> Jahrhundert, p. 46. (Pharmacographia, 1 ed., p. 251; *ibid.*, 2 ed., p. 282.)

(States that clove was brought from Banda to Java in the first half of the 15th century.)

Carson, J.

1864

(*Caryophyllus aromaticus*.)

Illust. of Med. Bot., i. 43, pl. 37. (Dispens. U. S. A., 8 ed., p. 182; *ibid.*, 9 ed., p. 188; *ibid.*, 10 ed., p. 188; *ibid.*, 11 ed., p. 195; *ibid.*, 12 ed., p. 222; *ibid.*, 13 ed., p. 231; *ibid.*, 14 ed., p. 236; *ibid.*, 15 ed., p. 363; *ibid.*, 16 ed., p. 374; *ibid.*, 17 ed., p. 330; *ibid.*, 18 ed., p. 336; *ibid.*, 19 ed., p. 302.)

The original was not available.

King, J.

1864

*Caryophyllus Aromaticus*.

Am. Dispens., 6 ed., p. 197; *ibid.*, 8 ed., p. 191; *ibid.*, 10 ed., p. 191; *ibid.*, 15 ed., p. 191; *ibid.*, 16 ed., p. 191.

Gives the natural order, sexual system classification, description, history, properties and uses and official preparations of clove.

Hasskarl, J. K.

1866

(*Caryophyllum regium*.)

Neuer Schlüssel zu Rumph's Herb. Amb., 1 ed., p. —. (Pharmacographia, 1 ed., p. 255; *ibid.*, 2 ed., p. 287.)

(Gives a description of "Royal Cloves.")

Langkavel, -.

1866

(Caryophylli.)

Botanik der späteren Griechen, 1 ed., p. 19. (Pharmacographia, 1 ed., p. 250; *ibid.*, 2 ed., p. 281.)

(Gives various Greek spellings for the word meaning cloves.)

Rogers, T. 1866

Cloves.

History of Agriculture and Prices in England, p. \_\_. (Crofton, A Pageant of the Spice Islands, p. 82.)

"These aromatic buds are occasionally mentioned, twelve entries being found in accounts which I have examined. With the exception of saffron, it is on the whole the costliest of the several spices."

Thomas, R. P. 1866

Caryophyllus.

A Universal Formulary, p. 172.

Gives scientific name, botanical origin, description and use of clove.

Biddle, J. B. 1868

Caryophyllus.

Materia Medica, 3 ed., p. 172; *ibid.*, 13 ed., p. 225.

Gives a description, habitat, constituents, effects, uses and dose of clove.

Yule, -. 1871

(Caryophylli.)

Marco Polo, v. 2, p. 217. (Pharmacographia, 1 ed., p. 251; *ibid.*, 2 ed., p. 282.)

(Reports the growth of clove in Java.)

Caryophylli. *aromaticus* L. is mentioned in a discussion

Pharmacographia, 1 ed., p. 249; *ibid.*, 2 ed., p. 280. (Crofton, A Pageant of the Spice Islands, p. 4; Bently & Trimen, Medicinal Plants, v. 2, no. 112.)

Gives the botanical origin, habitat, history, time and conditions of collection of the drug, description, microscopic structure, chemical composition, production and commerce, uses and substitutes of clove.

(An account of the mediæval commerce in clove.)  
(Hakluyt Society) 1874

(Cloves.)

The First Voyage Round the World by Magellan, 52, p. 134. (Crofton, A Pageant of the Spice Islands, p. 37.)

Describes the clove tree as found on the island of Giailolo (Gilolo).

Smith, E. 1874

(Cloves.)

Foods, 1 ed., p. 236.

"The flower bud of the Cayophyllus aromaticus is the clove of commerce, and is also called from its resemblance to a nail (Clou)."

(-----) 1875

(Value of Cloves.)

Proc. A. Ph. A., 22, p. 624.

Reports a rise in the price of clove due to a cyclone and excessive heat in Zanzibar.

(An Adulteration of Powdered Cloves.)  
Hallier, E. 1878

Myrtaceae.

Schule der Syst. Bot., p. 246.

*Caryophyllus aromaticus* L. is mentioned in a discussion of the Myrtaceae.

Heyd, W. 1879

(*Caryophylli*.)

Geschichte des Levantenhandels im Mittelalter, 2, p. 593. (Am. Drugg., 15, p. 46.)

(An account of the mediaeval commerce in clove.)

Stille, A & Maisch, J. M. 1879

*Caryophyllus*.

Nat. Dispens., 1 ed., p. 355; *ibid.*, 2 ed., p. 360; *ibid.*, 3 ed., p. 394; *ibid.*, 5 ed., p. 416. (Am Jr. Pharm., 67, p. 300.)

Give scientific names, botanical origin, description, constituents, other parts, medicinal action and uses of clove.

Bently, R. & Trimen, H. 1880

*Eugenia caryophyllata*.

Medicinal Plants, v. 2, no. 112. (Dispens. U. S. A., 15 ed., p. 363; *ibid.*, 16 ed., p. 374; *ibid.*, 17 ed., p. 330; *ibid.*, 18 ed., p. 336; *ibid.*, 19 ed., p. 302; Nat. Dispens., 1 ed., p. 355; *ibid.*, 2 ed., p. 360; *ibid.*, 3 ed., p. 394; *ibid.*, 5 ed., p. 416; Am. Dispens., 18 ed., p. 453.)

Gives scientific name, references, synonyms, description, habitat, official parts and names, general characteristics, medicinal properties and uses of clove with an illustration.

Heintz, E. 1880

(An Adulteration of Powdered Cloves.)

Pharm. Handelsbl., 1880, p. 6. (Am. Jr. Pharm., 52, p. 261; Proc. A. Ph. A., 28, p. 177.)

(Reports the adulteration of powdered clove with a large percentage of stems, a little starch and a fatty material.)

(-----)

(1882)

(Wooden Clove.)

Madras Mail, \_\_, p. \_\_. (Drugg. Circ., 26, p. 144; Tropical Agriculturist, \_\_, p. \_\_; Chem. & Drugg., 24, p. 311.)

("x x x mentions the appearance in the market of artificial cloves, which remind one of the once celebrated wooden nutmegs of Connecticut. They are made of soft deal, stained a dark color, and flavored with oil of cloves. The counterfeit spice is said to have been imported into Zanzibar.")

Kramer, C. F.

1882

Astringent Drugs.

Am. Jr. Pharm., 54, p. 388.

In a thesis submitted to the Philadelphia College of Pharmacy. Gives the amount of tannin found in samples of various drugs including clove.

Maisch, J. M.

1882

Notes on the Useful American Myrtles.

Am. Jr. Pharm., 54, p. 346.

In discussing the above group, the habitat and constituents of clove are given.

Thomé, O. W.

1882

(Cloves.)

Structural & Physiological Botany, 4 ed., p. 399.

"The flower-buds of Caryophyllus aromaticus of the Moluccas and Antilles are the clove of commerce."

(Editor.) 1883

Cloves.

Chem. & Drugg., 25, p. 137.

A discussion of the reasons for the steadily increased price of clove. adulteration of powdered clove with powdered saffron bark and the method by which the adulteration was determined.

Fluechiger, F. A. 1883

Caryophylli. 1883

Pharmacognosie, 2 ed., p. 762. (Am. Drugg., 15, p. 46.)

Includes scientific name, synonyms, habitat, history, constituents and substitutes of clove.

Traces the history of clove.

Jevons, W. S. 1884

(Cloves.) 1884

Investigations in Currency and Finance, p. 52. (Crofton, A Pageant of the Spice Islands, p. 82.)

The original was not available.

"Whole cloves are said to be more effectual as moth destroyers than tobacco, camphor or cedar shavings."

Oldberg, O. & Wall, O. A. 1884

Caryophyllus; U.S. 1884

A Companion to U. S. P., 1 ed., p. 290.

Gives the botanical origin, habitat, part used, description, constituents, medicinal uses and dose of clove.

Unters. d. Naturg. d. Gewürze., 10, p. 401.)

Wiegand, T. S. 1884

(Adulteration of Powdered Cloves.)

Am. Jr. Pharm., 56, p. 124. 1884

Reports the adulteration of powdered clove with powdered clove stems and ground cocoonut shells.

Indian Agriculturist, p. 156; (Pharm. Jour., 47, p. 156; Drugg. Circ., 31, p. 199.)

Bernbeck, -.

1885

Caryophylli aromatic. pulv. mit Cort. ligni  
sassafras verfälscht.

Ph. Ztg., 30, p. 73. (Am. Jr. Pharm., 57, p. 240.)

Reports the adulteration of powdered clove with powdered  
sassafras bark and the method by which the adulteration was  
determined.

Fluechiger, F. A.

1885

Zur Geschichte der Gewürznelken.

Journ. der Pharm. v. Els.-Loth., 12, p. 343. (Am. Drugg., 15,  
p. 46.)

Traces the history of clove.

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1886

Cloves as Moth Exterminators.

Drugg. Circ., 30, p. 56.

"Whole cloves are said to be more effectual as moth des-  
troyers than tobacco, camphor or cedar shavings."

Richardson, C.

1887

Spices and Condiments.

Bull. U. S. D. A., Div. Chem., 13, pt. 2, p. 129. (Pharm. Jour.,  
53, p. 1047; Am. Drugg. & Pharm. Rec., 24, p. 186; Ztschr.  
Unters. d. Nahr.-u. Genussm., 18, p. 401.)

Gives the adulterants of a number of spices, including  
clove, and methods by which the adulterations may be detected.

Rumphius, -.

1887

(The Clove Tree.)

Indian Agriculturist, \_\_, p. \_\_. (Pharm. Jour., 47, p. 156;  
Drugg. Circ., 31, p. 199.)

(Editor.)

1889

(Spurious Cloves.)

Pharm. Era, 3 p. 413.

A report of the occurrence of spurious clove from Germany consisting of a moulded and roasted paste of wheat flour and oak bark.

Hanausek, T. F.

1889

(Artificail Clove.)

Ztschr. f. Nahrungsm. Unters., 3, p. 121. (Am. Jr. Pharm., 61, p. 411; Proc. A. Ph. A., 38, p. 479; Pharm Jour., 49, p. 64; Apot.-Zeit., 4, p. 691; Drugg. Circ., 33, p. 202.)

(Calls attention to "artificial cloves" made of a moulded paste.)

(Editor.)

1890

Ash Standards for Spices.

Chemiker Ztg., 14, p. 687. (Am. Jr. Pharm., 62, p. 342.)

Ash standards are given for a number of spices, including clove.

(Editor.)

1890

Clove-Culture in Zanzibar.

Chem. & Drugg., 36, p. 849.  
Pharm. Rec., 10, p. 277.

An account of the growing of clove in Zanzibar and Pemba, including the history, methods of cultivation and the amount of the crop.

(Editor.)

1890

The Trade in Zanzibar Cloves.

Chem. & Drugg., 37, p. 236.

The report of "a meeting of the trade interested in forward contracts for Zanzibar cloves."

Guillemard, F. H. H. 1890

(Cloves.)

The Life of Ferdinand Magellan, p. 282. (Crofton, A Pageant of the Spice Islands, p. 47.)

Relates several of Magellan's experiences relating to clove.

Pabst, G. 1890

*Eugenia caryophyllata*.

Köhler's Medizinal-Pflanzen, v. 2, p. 125.

Gives synonyms, description, habitat, history, official parts, products and chemical composition with a colored illustration of clove and references.

(Pratt, -.) 1890

(Clove Culture in Zanzibar.)

Oil, Paint & Drug Rept., \_\_, p. \_\_. (Pharm. Jour., 49, p. 1042; Dispens. U. S. A., 17 ed., p. 331; *ibid.*, 18 ed., p. 337; *ibid.*, 19 ed., p. 302; *ibid.*, 20 ed., p. 298; *ibid.*, 21 ed., p. 301; *ibid.*, 22 ed., p. 301; Proc. A. Ph. A., 38, p. 478; Am. Drugg., 19, p. 151.)

(Gives detailed information as to the growth of clove in Zanzibar.)

Birdwood, G. C. M. (1891)

(Cloves.)

First Letter Book of the East India Company, p. 34. (Crofton, A Pageant of the Spice Islands, p. 5.)

The original was not available.

(Editor.) 1891

The Trade in Zanzibar Cloves.

Chem. & Drugg., 38, p. 384.

The report of a meeting of brokers and merchants interested in the Zanzibar clove trade. A proposed form of delivery contract is given.

(Editor.) 1892

(The Clove Industry of Zanzibar.)

Kew Bull., no. \_\_, p. 87. (Bull. Pharm., 7, p. 115.)

(An account of the clove industry in Zanzibar.)

(Editor.) 1892

Zanzibar and the Clove Trade.

Chem. & Drugg., 40, p. 421.

An analysis of the overproduction of clove in Zanzibar. Includes some statistics.

Holfert, J. 1892

Zur Beurtheilung der gemahlenden Gewürze.

Pharm. Rund., 10, p. 292.

Gives commercial definitions, scientific names and microscopical and chemical characteristics of a number of spices, including clove.

(U. S. Consul.) 1892

(Clove Cultivation.)

U. S. Consular Report, no. 266, p. \_\_. (Pharm. Jour., 52, p. 808.)

(Gives information on germination, planting out, after-treatment, enemies, collection, drying and export of clove in Zanzibar.)

Davenhill, L. D.

1893

Microscopical Examination of Mustard, Cloves and Pepper.

Pharm. Era, 10, p. 54.

A table showing the source, price, quality, admixtures and remarks about 8 samples of clove.

(Editor.)

1893

Clove-Growing in Zanzibar.

Chem. & Drugg., 42, p. 26.

A short history of clove cultivation in Zanzibar. Also a description of the appearance of clove of different qualities and the exports of clove from Pemba and Zanzibar for 1890 and 1891.

(Editor.)

1893

(The Zanzibar Clove Industry.)

Kew Bull., no. \_\_, p. 17. (Ibid., no. 96, p. 417.)

(An account of the important clove industry in Zanzibar.)

Jorissen, -. & Hairs, E.

1893

(Vanillin from Cloves.)

Bull. de l'assoc. belge des chim., \_\_, p. \_\_. (Bull. de pharm. de Bruxelles, 37, p. 231; Pharm. Jour., 53, p. 262.)

(Reports the presence of vanillin in clove.)

Strassburger, E.

1893

Der botanische Garten von La Mortola.

Pharm. Rund., 11, p. 113.

Gives a description and history of clove.

(Editor.)

1894

The Adulteration of Cloves.

Chem. & Drugg., 44, p. 733.

Reports a poor clove market and much adulteration of Zanzibar clove with stems, earth, other impurities, or moistening them to increase the weight. Gives a proclamation issued in Zanzibar rendering the adulteration of clove punishable by law.

(Editor.)

1894

The Clove as a Dye Plant.

Kew Bull., no. 96, p. 417. (Chem. & Drugg., 46, p. 836.)

Gives a short history of clove and 2 letters concerning the use of the ripe fruit for dyeing cloth.

Kramer, H.

1894

A Microscopical and Chemical Examination of Cloves.

Proc. A. Ph. A., 42, p. 159; Am. Jr. Pharm., 66, p. 479. (Pharm. Jour., 54, p. 260; Am. Drugg. & Pharm. Rec., 25, p. 230; W. Drugg., 16, p. 409; Dispens. U. S. A., 18 ed., p. 337; ibid., 19 ed., p. 302; ibid., 20 ed., p. 298; Winton & Moeller, 2 ed., p. 632.)

Reports the results of an analysis of some commercial samples of clove and clove oil and the methods used.

Prantl, K. A. E.

1894

(Caryophylli.)

Lehrbuch der Botanik, v. 1, p. 320.

"Caryophylli, Gewürznelken, die Blütenknopsen von Jambosa Caryophyllus (Molukken)."

Waage, T.

1894

Impurities, Substitutes, Adulterations and Inferior Qualities in Drugs.

Bull. Pharm., 8, p. 15.

In an address concerning inferior drugs, includes descriptions of inferior samples of clove and tests for detecting the adulteration.

Peabody, W. L.

1895

The Tannin of Cloves.

Am. Jr. Pharm., 67, p. 300. (Proc. A. Ph. A., 43, p. 850.)

Gives the methods used and results obtained in the determination of tannin in clove.

(Adrian, --)

1897

Cloves and Caffeine in France.

Chem. & Drugg., 51, p. 575. (Am. Jr. Pharm., 69, p. 610.)

Excise authorities admit cloves duty free and after use for the preparation of clove oil, are burnt in the presence of an excise officer.

(Editor.)

1897

Bulls and Bears in Zanzibar Cloves.

Chem. & Drugg., 51, p. 922.

A review of London stocks and prices of cloves from 1891 thru 1897 with reference to the "bulls" and "bears" and forecasting the future course of the market.

(Editor.)

1897

Cloves and Slavery.

Chem. & Drugg., 50, p. 592.

A discussion of the effects of the abolition of slavery in Zanzibar on the clove production.

(Editor.) 1897

The Supply of Zanzibar Cloves.

Chem. & Drugg., 50, p. 22.

A discussion of the reasons for a drop in the supply of clove from Zanzibar.

Report from Zanzibar, ... (London Commercial Record, ...  
p. ...; Drugg. Circ., 42, p. 154.)

(-----) 1898

Caryophyllum.

Pharm. Jour., 60, p. 512. (Ibid., 64, p. 304.)

Gives macroscopic and microscopic characters of clove with drawings.

Cloves in Zanzibar.

Br. & Col. Drugg., 1899, v. 2, p. 203. (Drugg. Circ., 41, p. ...)

(Editor.) 1898

Cloves.

Chem. & Drugg., 52, p. 368. (Drugg. Circ., 42, p. 109; Pharm. Rev., 16, p. 29.)

A description of a new process for drying clove in Zanzibar.

The Clove Season.

Felter, H. W. & Lloyd, J. U. 1898

Caryophyllus.

Am. Dispens., 18 ed., v. 1, p. 453.

Gives the natural order, common name, synonyms, botanical source, illustration, history, description, chemical composition, action, use, and dose of clove with substituted drugs and related spices.

Berichte, Oct. 1899, p. 37. (Drugg. Circ., 44, p. 4.)

(Hakluyt Society) 1898

Calecut and its Commerce.

A Journal of the First Voyage of Vasco da Gama, p. 48. (Crofton, A Pageant of the Spice Islands, p. 27.)

Caryophyllum.

"Cloves are brought to this city (Calcut) from an island called Melequa (Malacca)."

Lyne, R. N.

(1898)

(Zanzibar Cloves.)

Report from Zanzibar, \_\_, p. \_\_. (London Commercial Record, \_\_, p. \_\_; Drugg. Circ., 42, p. 164.)

(Reports on experiments attempting to improve the quality of cloves from Zanzibar and the effect of slavery and rainfall on the industry.)

(A Zanzibar Correspondent.)

1899

Cloves in Zanzibar.

Br. & Col. Drugg., 1899, v. 2, p. 203. (Drugg. Circ., 43, p. 260.)

Outlines the conditions and operations in the production of clove in Zanzibar.

(Editor.)

1899

The Clove Season.

Chem. & Drugg., 55, p. 38.

It is predicted that the future clove crop will be smaller due to the destruction of many trees by drought.

Schimmel & Co.

1899

Nelken-Oel.

Berichte, Oct. 1899, p. 37. (Drugg. Circ., 44, p. 4.)

Reports the immense losses of clove trees in Zanzibar and Pemba because of drought. Give other information relative to the current market.

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1900

Caryophyllum.

Pharm. Jour., 64, p. 304.

Gives botanical characteristics, identity tests, commercial notes and drawings of clove.

(Editor.)

1900

Zanzibar Produce.

Chem. & Drugg., 57, p. 444.

Gives statistics on exports from Zanzibar for 1898 and 1899, including clove. Also discusses the effect of the abolition of slavery on the clove production.

Jelliffe, S. E.

1900

The Pharmacography of Cloves.

Drugg. Circ., 44, p. 4. (Proc. A. Ph. A., 48, p. 637.)

Detailed information on the anatomy of whole and powdered cloves with drawings.

Tschirch, A. & Oesterle, O.

1900

Caryophylli.

Anat. Atlas, 1 ed., p. 47. (Pharm. Jour., 64, p. 513.)

Gives botanical source, synonyms, description of the clove-tree and the drug, description of powdered clove and microscopic characteristics with drawings.

Kenrick, E. B.

1901

The Detection of Stems in Ground Cloves.

Analyst, 26, p. 291. (Pharm. Jour., 68, p. 62; Proc. A. Ph. A., 50, p. 872; West. Drugg., 24, p. 187; Bull. Pharm., 16, p. 346; Chem. & Drugg., 59, p. 872; Drug. Circ., 46, p. 123; Pharm. Era, 27, p. 5.)

Gives a method of detecting powdered clove stems as an adulterant of powdered clove.

Winton, A. L.

1901

The Anatomy of the Fruit of *Cocos Nucifera*.

Am. Jr. Science, 12, p. 277. (Am. Jr. Pharm., 73, p. 554.)

Gives methods for detecting powdered cocoanut shells in various powdered spices. Includes the average of 8 analyses of clove.

Gadd, E. W. & Gadd, S. C.

1905

Greenish, H. G. & Collin, E.

1902

Vegetable Powders and Their Diagnostic Characters.

Pharm. Jour., 68, p. 411.

Give several drawings showing diagnostic characteristics of powdered clove.

Haupt, H.

1905

Jackson, J. R.

1902

Christmas Spices.

Chem. & Drugg., 61, p. 979.

In an article concerning "Christmas spices," includes a short history and description of clove.

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1903

(Clove Market.)

Pharm. Jour., 71, p. 368.

A table of the quantity of cloves brought into Zanzibar from 1898 to 1902, inclusive, is given.

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1905

General Markets.

Pharm. Jour., 74, p. 808.

A report on the output of cloves in Pemba and the conditions of the current harvest.

(Editor.) S. Dept. Agr.)

1905

Zanzibar Cloves.

Chem. & Drugg., 66, p. 833.

Reports the 1904 clove harvest to be the largest on record.

Gadd, H. W. & Gadd, S. C. 1905

The Testing of Drugs, Chemicals and Galenicals by  
Dispensing Chemists.

Pharm. Jour., 75, p. 902. (Proc. A. Ph. A., 54, p. 783.)

Discuss the detection of exhausted flower-buds in cloves.

Chem. & Drugg., 71, p. 949.

Haupt, H.

1905

Die häufigeren Verfälschungen der gemahlten Gewürznelken.

Pharm. Zentral., 46, p. 1. (Drugg. Circ., 49, p. 152; Am. Drugg.  
& Pharm. Rec., 46, p. 201; Pract. Drugg., 18, p. 239.)

Reports the adulteration of cloves with pimenta and the  
adulteration of powdered cloves with powdered clove stems.

Über den Gehalt der Gewürznelken an Melkensäuren.

Spaeth, E.

1905

Gewürznelken.

Ztschr. Unters. d. Nahr. u. Genussm., 10, p. 23. (Ibid., 16,  
p. 498.)

Describes clove and gives some standards for it.

Reich, F. 1903

(Editor.) Die quantitative Bestimmung der ätherischen 1906

(A "Deal" in Clove.) Genussm., 16, p. 498. (Ibid., 18,

Chem. & Drugg., 69, p. 944.

A discussion of the "clove contract" in Zanzibar by which  
a firm purchased the clove received for taxes by the Zanzibar  
government during 1906-7.

Cloves.

Circ. 19. (Chem. & Drugg., 83, p. 898.)

"Cloves are the dried flower buds of *Caryophyllus aromaticus* L., which contain not more than five (5) per cent of clove stems; not less than ten (10) per cent of volatile ether extract; not less than twelve (12) per cent of quercitannic acid; not more than eight (8) per cent of total ash; not more than five tenths (0.5) per cent of ash insoluble in hydrochloric acid, and not more than ten (10) per cent of crude fiber."

(Editor.)

1907

Zanzibar Cloves.

Chem. & Drugg., 71, p. 949.

Gives figures on clove exports for 1905 and 1906. Also quotes a claim that clove were being sent to England "in a damp or wet condition, or with more or less excessive moisture, the impression being that the cloves were by some means impregnated with water before shipment."

Bohny, P.

1908

Über den Gehalt der Gewürznelken an Nelkenstielen.

Schweiz-Wschr. f. Chem. u. Pharm., 46, p. 545. (Proc. A. Ph. A., 57, p. 208.)

Gives percentages of stalks found in commercial lots of clove.

Reich, R.

1908

Über die quantitative Bestimmung der ätherischen Öle.

Ztschr. Unters. d. Nahr. u. Gemussm., 16, p. 498. (Ibid., 18, p. 402.)

Gives methods for the quantitative estimation of volatile oil in clove and other spices and drugs.

Rosenthaler, L. 1908

Die Eisenchloridreaktion der Nelken.

Pharm. Zentralh., 49, p. 647. (Proc. A. Ph. A., 57, p. 209.)

Gives a reaction of cloves with ferric chloride.

Spaeth, E. 1908

Die chemische und mikroskopische Untersuchung der Gewürze und deren Beurteilung.

Pharm. Centralh., 49, pp. 517, 539, 569, 581, 601, 626, 648, 673, 698 & 718. (Proc. A. Ph. A., 57, p. 148.)

Discusses methods of chemical and microscopical examination of adulterated spices, including clove.

Cripps, R. A. & Brown, J. A. 1909

The Determination of Essential Oil and Moisture In Spices and Aromatic Drugs.

Analyst, 34, p. 519. (Chem. & Drugg., 83, p. 898.)

Gives methods of determining the amount of essential oil and moisture in drugs and spices and the results of several analyses of spices, including clove.

(Editor.) 1909

German East African Cloves.

Chem. & Drugg., 75, p. 13.

"The experiments which have been made to introduce clove-trees into the German East Africa, with a view to competition with Zanzibar, have proved abortive, and all the trees planted on the island of Mafia, which has a geographical position close to Zanzibar and Pemba, although lying further south, are reported to have succumbed."

(Editor.) 1909

Zanzibar Cloves.

Chem. & Drugg., 75, p. 485.

Gives statistics on the export of clove from Zanzibar for 1906-8, including destinations.

(Editor.)

1909

Zanzibar Produce.

Chem. & Drugg., 75, p. 474.

Gives figures on the number of people engaged in picking clove in Zanzibar and Pemba.

Hodgson, T. R.

1909

(An Analysis of Cloves.)

The University of Birmingham, 1909, p. \_\_. (Am. Jr. Pharm., 81, p. 6; Proc. A. Ph. A., 57, p. 209; Pharm. Jour., 82, p. 222.)

Gives the results of a chemical analysis of clove.

Reich, R.

1909

Bestimmung des ätherischen Öles und des Eugenols in Gewürznelken.

Ztschr. Unters. d. Nahr. u. Genussm., 18, p. 401. (Schimmel's Rep., April, 1910, p. 43; Proc. A. Ph. A., 58, p. 205.)

Gives the methods for the direct estimation of volatile oil and eugenol in clove.

Lyne, R. N.

1910

Zanzibar Cloves.

Chem. & Drugg., 77, p. 394.

An abstract of a paper entitled, "The Causes Contributing to the Success of the Zanzibar Clove Industry."

Thain, L. L.

1910

A Point in Pharmacology.

Lancet, 88, p. 1036. (Pharm. Jour., 85, p. 699.)

In a letter to the editor, the use of clove in keratin-coated capsules is recommended in senile flatulence.

(Editor.)

1911

Zanzibar Cloves.

Chem. & Drugg., 79, p. 624.

Gives figures showing the deliveries of clove at the Customs House in Zanzibar for the calendar years 1895-1910 and for the 16 seasons from 1895 to 1911.

Holmes, H. H.

1911

Cloves.

Determination of the Moisture Content of Vegetable Drugs, U. Wis. Thesis, 1911, p. 8. (Jour. A. Ph. A., 10, p. 273.)

Gives the results of 3 determinations of the moisture content in "powdered" clove by the xylene method.

Parry, E. J.

1911

Cloves.

Foods and Drugs, 1, p. 222. (Chem. & Drugg., 83, p. 898.)

Gives a description of clove, its microscopical characteristics with drawings and the results of several analyses of clove.

Besson, A. A.

1912

Der Stielgehalt der Gewürznelken.

Chem. Ztg., 36, p. 593. (Pharm. Ztg., 57, p. 482.)

Statistics on the amount of clove stems found in clove.

British Vice-Consul, 1912

(The Clove Industry.)

Report of the British Vice-Consul of Zanzibar, 1911-12, p. \_\_.  
(Pharm. Jour., 91, p. 374.)

(A report on the clove industry in Zanzibar for the year  
1911-12.)

Burns, W. C. 1912

Cloves.

The Moisture Content of Aromatic and Other Drugs, U. Wis.  
Thesis, 1912, p. 3. (Jour. A. Ph. A., 10, p. 272.)

Gives the results of several determinations of the moist-  
ure content of clove, with the methods used and an explanation.

Beak, G. B. 1913

(Cloves.)

Report of Vice-Consul at Zanzibar, \_\_, p. \_\_. (Journal of the  
Board of Trade, \_\_, p. \_\_; Pharm. Jour., 91, p. 264.)

(Gives statistics on the clove crops of 1911-12 and 1912-  
13.)

Craster, J. E. E. 1913

(Clove.)

Pemba, the Spice Island of Zanzibar, p. \_\_. (Chem. & Drugg.,  
83, p. 825; Yrbk. A. Ph. A., 2, p. 235.)

(An interesting account of the cultivation and collection  
of clove in Zanzibar with criticisms of the methods used.)

(Editor.) 1913

Madagascar Cloves.

Chem. & Drugg., 83, p. 404.

"The clove plantations in Madagascar comprise 400,000 trees, of which 230,000 are on the island of Sainte Marie."

Kebler, L. G.

1913

Cloves.

Jour. A. Ph. A., 2, p. 1090.

Calls attention to the excessive presence of clove stems in commercial lots of clove.

Parry, E. J.

1913

The Adulteration of Cloves.

Chem. & Drugg., 83, p. 898. (Yrbk. A. Ph. A., 2, p. 237.)

A discussion of the adulteration of clove, Canadian and U. S. standards for clove and a method for detecting partially distilled clove. Gives the results of the analysis of 6 samples of adulterated clove.

Ogden, A. W.

1915

Effect of Storage on Moisture Content of Cloves.

Am. Jr. Pharm., 87, p. 526. (Yrbk. A. Ph. A., 4, p. 123.)

Discusses the observes effects of storage conditions on the moisture content of clove.

Resident.

1915

(The Clove Industry of Zanzibar.)

Report, \_\_, p. \_\_. (Pharm. Jour., 95, p. 220.)

(An account of the clove industry in Zanzibar from 1818 to 1915.)

Winton, A. L. & Moeller, J.

1916

Cloves.

The Microscopy of Vegetable Foods, 2 ed., p. 632. (Dispens. U. S. A., 20 ed., p. 299; *ibid.*, 21 ed., p. 301; *ibid.*, 22 ed., p. 302.)

Gives scientific name, synonyms, habitat and histology of clove with drawings.

(Editor.) 1917

Zanzibar Cloves.

Chem. & Drugg., 89, p. 1109.

"It is estimated that there are in both islands (Zanzibar and Pemba) about 60,000 acres under clove cultivation and about 5½ million trees in bearing." Also gives statistics concerning clove production.

(Editor.) 1918

The Scarcity of Cloves.

Chem. & Drugg., 90, p. 209.

A short history of the part that clove has played in England's acquisition in the Far. East.

Schneider, A. 1920

A General Method for Making Quantitative Microanalysis of Vegetable Drugs and Related Substances.

Jour. A. Ph. A., 9, p. 1140.

Describes a quantitative method of determining the adulteration of powdered clove.

(Hakluyt Society) 1921

Ambam.

The Book of Duarte Barbosa, v. 2, p. 199. (Crofton, A Pageant of the Spice Islands, p. 34.)

States that the Portuguese secured clove from Ternate.

Sherman, H. C.

1921

(Cloves.) *Zanzibar Clove Duty.*

Food Products, 1 ed., p. 451; *ibid.*, 2 ed., p. 524.

Give scientific name, habitat and the average of 8 analyses of clove.

Blokze, K. R. F.

1922

Spice Trade of Dutch East Indies.

Pharm. Era, 55, p. 243. 662.

A discussion of the production of spices in the Dutch East Indies, including data on the clove exports from 1913 through 1920, and the destinations of the exports.

(Editor.)

1922

Zanzibar Cloves.

Chem. & Drugg., 97, p. 579. (*Ibid.*, 108, p. 662.)

The Zanzibar Government has established nurseries and distributes clove seedlings free to encourage the planting of clove trees. Also reports a system of loans to clove producers.

(Editor.)

1924

Diseases of Clove Trees.

Chem. & Drugg., 100, p. 888. By 1928, the basis of the Zanzibar clove duty has been altered. On clove and mother of cloves the duty.

A description of 2 diseases which attack clove trees in Zanzibar and the methods of eradication.

(Editor.)

1928

Drawback on Zanzibar Clove Duty. (*Try of Madagascar in 1928.*)

Chem. & Drugg., 109, p. 474. (*Chem. & Drugg.*, 109, p. 327.)

Gives 2 amendments to the Customs Management Decree of 1926 concerning clove.

(Editor.) 1928

Drawback on Zanzibar Clove Duty.

Chem. & Drugg., 109, p. 526.

Gives the conditions under which duty paid on clove exports may be reclaimed.

(Editor.) 1928

Madagascar Cloves.

Chem. & Drugg., 108, p. 662.

Describes clove production in Madagascar and predicts a drop in the price of clove.

(Editor.) 1928

Why Clove have Declined.

Chem. & Drugg., 108, p. 479. (Ibid., 108, p. 662.)

Gives reasons for the decline in importance of clove to Zanzibar.

(Editor.) 1928

Zanzibar Clove Duty.

Chem. & Drugg., 109, p. 416.

"By a Decree dated July 7, 1928, the basis of the Zanzibar clove duty has been altered. On clove and mother of cloves the duty is 20 per cent. ad valorem, and on clove stems 10 per cent. ad valorem."

Kirkman, V. H. 1928

(Memorandum upon the Clove Industry of Madagascar in 1928.)

Bull. of the Imperial Institute, 26, p. \_\_. (Chem. & Drugg., 109, p. 527.)

(Gives information on the clove industry of Zanzibar and suggests improvements.)

(Editor.)

1929

(Sainte Marie Cloves.)

Bulletin Economique, no. 1, p. 56. (Crofton, A Pageant of the Spice Islands, p. 114.)

The original was not available.

(Editor.)

1929

Zanzibar Clove Industry.

Chem. & Drugg., 11., p. 103.

Gives accounts of clove harvesting work and particulars as to the quantities and market prices of 1927 compared with former years.

Redgrove, H. S.

1929

Some Notes on Cloves.

Pharm. Jour., 123, p. 368. (Yrbk. A. Ph. A., 18, p. 98.)

A discussion of clove as to its history, habitat, constituents, uses and adulterants.

(Zanzibar Department of Agriculture.)

1930

(Preparation of Cloves.)

Annual Report, 1930, p. \_\_. (Chem. & Drugg., 113, p. 350.)

Gives results of experimental work in preparing and drying clove in Zanzibar. The results of laboratory examination of 149 samples of clove are also given.

(Zanzibar Department of Agriculture.)

1930

(Zanzibar Clove Industry.)

Annual Report, 1930, p. \_\_. (Chem. & Drugg., 113, p. 295.)

Gives statistics on the clove crops in Zanzibar and Pemba from 1896 to 1928, geographical distribution of exports, vanillin industry market, regeneration of the industry, the Clove Grower's Association and government plantations.

Report of a Mission appointed to investigate the Clove Trade in India, Ceylon, British Malaya and the Dutch East Indies, p. \_\_. (Editor.) (Crofton, A Pageant of the Spice Islands, p. 82.) 1931

Zanzibar Cloves. not available.

Chem. & Drugg., 115, p. 346.

Gives statistics on the clove production and trade of Zanzibar.

(Zanzibar Cloves.)

Annual Report, \_\_, p. \_\_. (Pharm. Jour., 133, p. 506.) Mason, -. 1931

(A report on the production of clove in Zanzibar for 1932-3.) Also The Clove and Nutmeg Industry in Penang and Province Wellesley.

Malay Ag. Jour., \_\_, p. \_\_. (Crofton, A Pageant of the Spice Islands, p. 124.)

The original was not available.

(Clove.)

Annals in the Coastlands of British East Africa and the Islands of Pemba and Zanzibar, p. 573. (Crofton, A Pageant of the Spice Islands, p. 87.) Miller, -. 1931

Two Important Pests of the Clove Tree.

Malay Ag. Jour., \_\_, p. \_\_. (Crofton, A Pageant of the Spice Islands, p. 124.)

The original was not available.

(Clove.)

Troup, R. S. Compositae, p. 349. (Crofton, A Pageant of the Spice Islands, p. 24.) 1931

(Cloves.)

Report on Zanzibar Protectorate Clove Cultivation, pp. 11, 12, 15, 18, 26 & 39. (Crofton, A Pageant of the Spice Islands, p. 110.)

Miller, G. 1935

(Gives the results of a scientific investigation into the clove industry of Zanzibar and Pemba.)

Kirsopp, -. & Bartlett, -. (1932)

(Cloves.)

Report of a Mission appointed to Investigate the Clove Trade in India, Ceylon, British Malaya and the Dutch East Indies, p. 51. (Crofton, A Pageant of the Spice Islands, p. 82.)

The original was not available. (Chem. & Drugg., 124, p. 695.)

Agricultural Department of Zanzibar. 1933

(Zanzibar Cloves.)

Annual Report, \_\_, p. \_\_. (Pharm. Jour., 133, p. 506.)

(A report on the production of clove in Zanzibar for 1932-3. Also a report on the development of oil in the growing clove bud.)

Fitzgerald, W. 1934

(Cloves.)

Travels in the Coastlands of British East Africa and the Islands of Zanzibar and Pemba, p. 553. (Crofton, A Pageant of the Spice Islands, p. 87.)

The original was not available.

Kirkpatrick, F. A. 1934

Cloves.

The Spanish Conquistadores, p. 349. (Crofton, A Pageant of the Spice Islands, p. 24.)

Notes the demand for spices by Northern Europe.

Keller, G. 1935

Sources of Cloves.

Drug. & Cos. Ind., 36, p. 281. (Pharm. Abstracts, 1, p. 70.)

A description of the propagation of clove trees, the collection of the buds and the marketing of clove.

Crofton, R. H.

1936

(Clove.)

A Pageant of the Spice Islands, p. 1. (Chem. & Drugg., 124, p. 695.)

A history of clove in the spheres of politics and economics from the first mentions in Chinese and Roman literature to the present-day position of the trade in Zanzibar and Madagascar.

(Editor.)

1936

(Sainte Marie Cloves.)

La Revue de Madagascar, \_\_, p. \_\_. (Crofton, A Pageant of the Spice Islands, p. 114.)

The original was not available.

Fitch, W. K.

1937

The future of the Clove Market.

Pharm. Jour., 139, p. 648.

An analysis of the Indian boycott of the clove market caused by Zanzibar legislation regarding sales methods. Also a prediction of the results of producing vanillin from other sources.

Fitch, W. K.

1937

The Zanzibar Clove Industry.

Pharm. Jour., 139, p. 50.

A discussion of a bill before the Legislative Council of Zanzibar to establish a Clove Growers' Association.

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v. 73-100; 1925-1938
- Am(eric)an Drugg(ist) and Pharm(aceutical) Rec(ord).  
v. 22-72; 1892-1924
- Am(eric)an J(ou)r(nal of) Pharm(acy).  
v. 1-112; 1825-1940
- Bull(etin of) Pharm(acy).  
v. 5-42; 1891-1928
- Bull(etin of the) Am(eric)an Ph(armaceutical) A(ssociation).  
v. 1-59; 1851-1911
- Drug Bull(etin).  
v. 50-55; 1928-1933
- Drugg(ists') Circ(ular).  
v. 1-84; 1857-1940
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v. 1-28; 1912-1939
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v. 43-60; 1910-1926
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v. 4-12; 1875-1883
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v. 1-5; 1935-1941
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v. 1-10; 1898-1939
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v. 1-67; 1887-1930
- Pharm(aceutical) Jour(nal and Transactions).  
v. 1-143; 1841-1939
- Pharm(aceutical) Rev(iew).  
v. 14-26; 1896-1908

Pharm(aceutical) Rec(ord).

v. 3-15; 1883-1893

Pharm(aceutische) Rund(schau).

v. 1-13; 1883-1895

Pharm(acist, The).

v. 1-2; 1868-1869

Pharm(acist) & Chem(ist).

v. 3-17; 1870-1885

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v. 1-52; 1897-1934

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v. 5-53; 1899-1935

Proc(eedings of the) A(merican) Ph(armaceutical) A(ssociation).

v. 1-59; 1851-1911

West(ern) Drugg(ist).

v. 4-50; 1882-1928

Y(ea)r B(oo)k (of the) A(merican) Ph(armaceutical) A(ssociation).

v. 1-28; 1912-1939.

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1898.

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1839; 5 ed., 1843; 6 ed., 1845; 7 ed., 1847; 8 ed., 1849;  
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NATIONAL FORMULARY

(I-VI) (1886-1935)

History

of

Clove

U.S.P., 1820

P. p. 32

Caryophylli.  
Cloves.

Eugenia caryophyllata, W. III, 965.  
Semina florealia. The flower buds.

U.S.P., 1830 (Phil.)

P. p. 8

Caryophyllus.  
Cloves.

UNITED STATES PHARMACOPOEIA

(O-XI) (1820-1930)

and

U.S.P., 1830 (N.Y.)

P. p. 25

Caryophylli.  
Cloves.

NATIONAL FORMULARY

(I-VI) (1888-1935)

Prop. Odour aromatic, warm, spicy.

Med. Oper. Stimulant; seldom employed but to correct the action of other remedies.

U.S.P., 1840

P. p. 17

Caryophyllus.  
The unexpanded flower buds of  
(DeCandolle).

History

of Caryophyllus aromaticus

Clove

U.S.P., 1850

P. p. 20

Caryophyllus.  
The expanded flowers of  
(DeCandolle).

U.S.P., 1860

P. p. 23

Caryophyllus.  
The unexpanded flowers of  
(DeCandolle).

Cloves.  
The unexpanded flowers of Caryophyllus aromaticus

U.S.P., 1820

P. p. 32

Caryophylli.  
Cloves.

*Eugenia caryophyllata*. W.III.965.  
Gemmae florales. The flower buds.

U.S.P., 1830 (Phil.)

P. p. 8

Caryophyllus.  
Cloves.

*Eugenia caryophyllata*. W.  
ii. 965.  
Gemmae florales. The flower  
buds.

U.S.P., 1830 (N.Y.)

P. p. 25

Caryophylli.  
Cloves.

*Eugenia Caryophyllata*.  
The unexpanded buds  
of the E. C.

Prop. Odour strong and fragrant; taste  
hot, acrid, aromatic, per-/ manent.

Med. Oper. Stimulant; seldom employed but  
to correct the action/ of other remedies.

U.S.P., 1840

P. p. 17

Caryophyllus.

Cloves.

The unexpanded flowers of *Caryophyllus aro-/ maticus*  
(DeCandolle).

U.S.P., 1850

P. p. 20

Caryophyllus.

Cloves.

The expanded flowers of *Caryophyllus aro-/ maticus*  
(DeCandolle).

U.S.P., 1860

P. p. 23

Caryophyllus.

Cloves.

The unexpanded flowers of *Caryophyllus aro-/ maticus*  
(DeCandolle).

U.S.P., 1870

P. p. 24

Caryophyllus. Cloves.

The unexpanded flowers of *Caryophyllus aromaticus*/  
(DeCandolle).

U.S.P., 1880

p. 67

Caryophyllus

Cloves

The unexpanded flowers of *Eugenia caryophyllata* Thunberg (Nat. Ord.,/ Myrtaceae).

About half an inch (12 millimeters) long, dark-brown, consisting of a subcylindrical, solid and glandular calyx-tube, terminated by four teeth, and surmounted by a globular head, formed by four petals, which cover numerous, curved stamens and one style. Cloves emit oil, when scratched, and have a strong, aromatic odor, and a pungent, spicy taste.

U.S.P., 1890

p. 80

Caryophyllus

Cloves

The unexpanded flowers of *Eugenia aromatica* (Linne) O. Kuntze/ (nat. ord. Myrtaceae).

About 15 Mm. long, dark brown, consisting of a subcylindrical, solid and glandular calyx tube, terminated by four petals, which cover numerous curved stamens, and one style. Cloves emit oil, when scratched, and have a strong, aromatic odor, and a pungent, spicy taste.

Preparation: Tinctura Lavendulae Composita.

U.S.P., 1900

p. 91

Caryophyllus

Cloves

The dried flower buds of *Eugenia aromatica* (Linne) O. Kuntze/ (Fam. Myrtaceae).

About 15 Mn. long, brownish-black, consisting of a stem-like, solid calyx-/ tube, obscurely four-angled and granular roughened, terminated by four teeth,/ and surmounted by a globular head consisting of four petals, which cover/ numerous curved stamens and one style; odor strongly aromatic; taste pungent/ and aromatic; followed by slight numbness.

Cloves should not float in a horizontal position on water.

The powder contains few or no starch grains or stone cells. Ash not more/ than 8 percent.

Average dose. - 0.250 Gm. = 250 milligrammes (4 grains).

U.S.P., 1910

p. 102

## Caryophyllus

### Clove

#### Caryoph. - Cloves

The dried flower-buds of *Eugenia aromatica* (Linne) O. Kuntze, *Jambosa Caryophyllus* (Sprengel) Niedenzu (Fam. Myrtaceae), without the/ presence or admixture of more than 5 percent. of the peduncles, stems or other foreign matter.

From 10 to 17.5 mm. in length, of dark brown or brownish-black color,/ consisting of a stem-like, solid, inferior ovary, obscurely four-angled or somewhat/ compressed, terminated by four calyx teeth, and surmounted by a nearly globu-/ lar head, consisting of four petals, which enclose numerous curved stamens and/ one style; odor strongly aromatic; taste pungent and aromatic, followed by/ slight numbness.

When Clove is pressed strongly between the thumbnail and finger the volatile/ oil becomes visible.

Stems either separate or attached to flower-buds; sub-cylindrical or four-/ angled, attaining a length of 25 mm. and a diameter of 4 mm., either simple,/ branching or distinctly jointed, and less aromatic than the flower-buds.

The powder varies from dark brown to reddish-brown and consists chiefly/ of cellular fragments showing the large oil reservoirs, spiral tracheae, and a few/ somewhat thick-walled, slightly-lignified, spindle-shaped bast-fibers; calcium/ oxalate in rosette aggregates, from 0.01 to 0.015 mm. in diameter; pollen grains/ numerous, tetrahedral, somewhat ellipsoidal, from 0.015 to 0.02 mm. in diameter./ The presence of stems in the powder is shown by stone cells of irregular, polygonal/ shape, 0.07 mm. in diameter, with thick porous walls and large lumina, the/ latter frequently filled with a yellowish-brown amorphous substance.

Clove yields not less than 10 per cent. of volatile extractive soluble in ether/ (see Part II, Test No. 12).

Clove yields not more than 8 per cent. of ash. The amount of ash, insoluble/ in hydrochloric acid, does not excess 0.5 per cent. of the weight of Clove taken.

Average Dose - Metric, 0.25 Gm. - Apothecaries, 4 grains.

U.S.P., 1920

p. 100

## Caryophyllus

### Clove

#### Caryoph. - Cloves

Clove is the dried flower-buds of *Caryophyllus aromaticus* Linne/ (Fam. Myrtaceae).

Clove contains not more than 5 per cent of its stems and not more/ than 1 per cent of other foreign organic matter, and yields not less than/ 15 per cent of volatile ether-soluble extractive, not more than 10 per/ cent of crude fiber, and not more than 0.75 per cent of acid-insoluble ash.

Description and physical properties.

Unground Clove - From 10 to 17.5 mm. in length, of a dark brown, or brownish-/ black color, consisting of a stem-like, solid, inferior ovary, obscurely 4-angled/ or somewhat compressed, terminated by 4 calyx teeth, and surmounted by a/ nearly globular head, consisting of 4 petals, which enclose numerous curved/ stamens and 1 style; odor strongly aromatic,/ followed by slight numbness.

Stems sub-cylindrical or 4-angled, attaining a length of 25 mm. and a di-/ ameter of 4 mm., either simple, branching, or distinctly jointed, and less/ aromatic than flower-buds.

Powdered Clove - Dark brown; parenchyma fragments showing the large oil reser-/ voirs, spiral tracheae and a few rather thick-walled, spindle-shaped bast fibers;/ calcium oxalate in rosette aggregates, from 0.010 to 0.015 mm. in diameter;/ pollen grains numerous, tetrahedral, from 0.015 to 0.020 mm. in diameter.

Test for purity - Stone cells, irregular or polygonal, up to 0.070 mm. in diameter,/ with thick porous walls and large lumina frequently filled with a yellowish-/ brown amorphous substance, are few or absent (less than 5 per cent of stems).

Starch grains absent (clove fruit or cereals).

Assay - Proceed as directed under volatile ether-soluble extractive, page 466./

Average Dose - Metric, 0.25 Gm. - Apothecaries, 4 grains.

## Caryophyllus

## Clove

## Caryoph. - Cloves

Clove is the dried flower-buds of *Caryophyllus aromaticus* Linne/ (Fam. Myrtaceae).

Clove contains not more than 5 per cent of its stems and not more/ than 1 per cent of other foreign organic matter, page 472, and yields/not less than 15 per cent of volatile ether-soluble extractive, not more/ than 10 per cent of crude fiber, and not more than 0.75 per cent of acid-/ insoluble ash, page 473.

## Description and physical properties-

Unground Clove-From 10 to 17.5 mm. in length, of a dark brown, or brownish-/black color, consisting of a stem-like, solid receptacle containing an inferior/ ovary, obscurely 4-angled or somewhat compressed, terminated by 4 calyx teeth, and surmounted by nearly globular head, consisting of 4 petals,/ which enclose numerous curved stamens and one style; odor strongly aromatic;/ taste pungent and aromatic, followed by a slight numbness of the tongue.

Stems sub-cylindrical or 4-angled, attaining a length of 25 mm. and a/ diameter of 4 mm., either simple, branching, or distinctly jointed, and less/aromatic than the flower-buds.

Powdered Clove-Dark brown; parenchyma fragments showing the large oil/ reservoirs, spiral tracheae and a few rather thick-walled, spindle-shaped/ bast-fibers; calcium oxalate in rosette aggregates, from 0.010 to 0.015 mm./ in diameter; pollen grains numerous, tetrahedral, from 0.15 to 0.020 mm./ in diameter.

Tests for purity-Stone cells, irregular or polygonal, up to 0.070 mm. in diameter,/ with thick, porous walls and large lumina, frequently filled with a yellowish-/ brown amorphous substance, are few or absent (less than 5 per cent of stems).

Assay-Proceed as directed for the determination of volatile ether-soluble extrac-/ tive, page 475.

AVERAGE DOSE-Metric, 0.25 Gm.-Apothecaries, 4 grains.

Preservation-

Not mentioned.

Official Preparation-

None.

U.S.P., 1930.

Summary of U.S.P. and N.F. data of Clove.

Where and when official:--

U.S.P., 1820; '30 (Phil.); '30 (N.Y.); '40; '50; '60;  
'70; '80; '90; 1900; '10; '20; '30.

Official Latin Title:--

Caryophylli, U.S.P., 1820; '30 (N.Y.).  
Caryophyllus, U.S.P., 1830 (Phil.); '40; '50; '60; '70;  
'80; '90; 1900; '10; '20; '30.

Official English Title:--

Cloves, U.S.P., 1820; '30 (Phil.); '30 (N.Y.); '40; '50;  
'60; '70; '80; '90; 1900.  
Clove, U.S.P., 1910; '20; '30.

Official Abbreviation:--

Caryoph., U.S.P., 1910; '20; '30.

Official Synonym:--

Gemmae florales, U.S.P., 1820, '30 (Phil.).  
Cloves, U.S.P., 1910, '20; '30.

Scientific Name:--

*Eugenia caryophyllata*, U.S.P., 1820, '30 (Phil.).  
*Eugenia caryophyllata*, U.S.P., 1830 (N.Y.).  
*Caryophyllus aromaticus* (DeCandolle), U.S.P., 1840; '50;  
'60; '70.  
*Eugenia caryophyllata* Thunberg, U.S.P., U.S.P., 1880.  
*Eugenia aromatica* (Linne) O.Kuntze, U.S.P., 1890; 1900.  
*Eugenia aromatica* (Linne) O.Kuntze,  
*Jambosa Caryophyllus* (Sprengel) Niedenza, U.S.P., 1910.  
*Caryophyllus aromaticus* Linne, U.S.P., 1920; '30.

Part used:--

flower buds, U.S.P., 1820; '30 (Phil.).  
unexpanded buds, U.S.P., 1830 (N.Y.).  
unexpanded flowers, U.S.P., 1840; '50; '60; '70; '80;  
'90.  
dried flower buds, U.S.P., 1900.  
dried flower-buds, U.S.P., 1910; '20; '30.

Family:--

Myrtaceae, U.S.P., 1880, '90; 1900; '10; '20; '30.

Description:--

U.S.P., 1880; '90; 1900; '10; '20; '30.

Preservation:--

Not mentioned.

Official Preparations:--

Tinctura Lavendulae Composita, U.S.P., 1890.

Official Dose:--

0.250 Gm. = 250 milligrammes (4 grains), U.S.P., 1900.

Metric, 0.25 Gm. - Apothecaries, 4 grains., U.S.P.,  
1910; '20; '30.

Approved by

W. K. Richtmann

Prof. of Pharmacognosy

date May 19, 1942

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