

Medical properties and uses.—This bark is stomachic and carminative. It has been found efficacious in scurvy, and may be used as an adjunct to simple bitters in dyspepsia; but it does not appear to be superior to *canella alba*, and is very little used.

ZINCUM. Zinc.

Syn. Zinc (F.) Zink (G.) Zinco (I.) Tootanāgum (Tam.)

Zinc is a semiductile metal procured in great abundance in Britain, particularly in Derbyshire; and in most of the mining countries of Europe. It occurs in

A. The metallic state:

- i. combined with sulphur and iron. *Sf. 1. Blende.*
 - Var. a. Yellow blende.
 - b. Brown blende.
 - c. Black blende.

B. Oxidized:

- ii. combined with silica.
- iii. acidified by carbonic acid.
2. *Red Zinc ore.*
3. *Electric calamine.*
4. *Common calamine.*
 - Var. a. crystallized.
 - b. compact.
 - c. earthy.

As the fourth species of these ores is an article of the materia medica, we shall describe its characters and properties before we notice those of metallic zinc.

1. COMMON CALAMINE.

Officinal. CALAMINA. *Carbonas Zinci impura.* Lond. CARBONAS ZINCI IMPURUS. *Edin.* CALAMINARIS. *Dub.* Calamine, Impure Carbonate of Zinc.

Syn. Pierre Calaminaire (F.) Galmey (G.) Pietra Calaminare (I.) Calamina (S.) Madal tootum (Tam.)

This ore of zinc is found abundantly in Derbyshire, Somersetshire, Cumberland, and Flintshire, occurring in veins in secondary limestone, generally accompanied by galena, calcareous spar, quartz, and other ores of zinc. The three varieties are indiscriminately used; and consist, according to an analysis by Mr. Smithson¹, of the following components: *var. a.* 65.2 oxide of zinc, 34.8 carbonic acid; *var. b.* 64.8 oxide of zinc, 35.2 carbonic acid; *var. c.* 71.4 oxide of zinc, 13.5 carbonic acid, 15.1 water, — in 100 parts of each variety. They are, however, generally calcined in a moderate heat, by which part of their carbonic acid is dissipated, before they are brought to the shops.

Qualities.—Calamine is usually in the form of grayish yellow or reddish yellow friable lumps, without lustre, opaque, and breaking with an irregular earthy fracture. The specific

¹ *Phil. Trans.* 1803. 17.

gravity of the two first varieties is 4.334; that of the last 3.584. Before the blowpipe calamine becomes yellow; and when exposed to its utmost heat is sublimed. It dissolves in sulphuric acid with effervescence, but does not gelatinize. It is not used as a remedy till after it is prepared.

Official preparation. *Calamina preparata*. L. E. D.

2. METALLIC ZINC.

Official. ZINCUM. Lond. Edin. Dub. Zinc.

Although the method of extracting zinc from its ores had been long known and practised in India and China, yet it was not known in Europe till about 1742, when Von Swab first obtained it by distillation. At present it is well understood, and conducted in the following manner:—The sulphuret or blende, which is the ore usually employed, is first broken to pieces, and the galena and pyrites separated by hand; and is then roasted in a reverberatory furnace, by which the carbonic acid and part of the sulphur are driven off. The roasted ore being washed, to separate the metallic particles from the lighter parts, is now ground in a mill with one-eighth of its weight of charcoal; and put into large earthen jars placed in a circular furnace, and through the bottom of each of which passes an iron tube that goes through the floor of the furnace into a vessel of water placed beneath. The cover of each jar is firmly and accurately luted on, so that the reduced zinc, as it is elevated by the strong heat of the furnace, not finding a vent to escape by the top, descends through the iron tube into the water, and is there condensed in small metallic drops, that are afterwards melted and cast into ingots, in which state it is brought to market¹, under the name of *speltre*.

Qualities.—Zinc when rubbed between the fingers emits a very perceptible odour and has a peculiar taste. Its colour is brilliant white with a shade of blue; its fracture shining and lamellated; hard, yet staining the fingers black when rubbed upon them. Its specific gravity varies from 6.861 to 7.1. In any temperature between 212° to 400° it is very malleable; but at a higher temperature it can be pulverized in a mortar. It may be drawn into wire, but its ductility is not great. Zinc melts at 680° of Fahrenheit; if in contact with air it is rapidly oxidized; and at the temperature of ignition burns with a white dazzling flame, and is volatilized in the state of a flocculent white oxide. It is oxidized and soluble in all the acids; and decomposes water when aided by a small portion of sulphuric or of muriatic acid. It is used only for pharmaceutical purposes.

¹ The principal works are near Bristol, and at Swansea.

Official preparations. *Zinci Oxydum*. L. E. D. *Zinci Sulphas*. L. E. D.

3. IMPURE OXIDE OF ZINC.

Official. *OXIDUM ZINCI IMPURUM*. Edin. *TUTIA*. Dub. Impure Oxide of Zinc. Tutty.

Syn. Tutie (F.) Tutia (G.) Tuzia (I.) Atutia (S.)

This substance is supposed to be an artificial compound of the sublimed oxide of zinc that collects in the chimneys of the furnaces in which the ores of this metal are roasted, mixed with clay and water, and baked.

Qualities.—Tutty is inodorous and insipid, of a brownish colour on the outside, moderately hard and ponderous, and breaks with a smooth fracture. The internal colour is yellowish; and the pieces sometimes contain small globules of zinc. The oxide it contains consists of 85 zinc, 15 oxygen,—in 100 parts. It is not employed as a remedy until it is levigated and prepared.

Official preparations. *Oxidum Zinci impurum preparatum*. E. *Unguentum Oxidi Zinci impuri*. E. D.

ZINGIBER. *Trans. Linn. Society*, viii. 347.

Cl. 1. Ord. 1. Monandria Monogynia. Nat. ord. Scitamineæ Linn. Cannæ Juss.

G. novum. Anther double. Filament lengthened beyond the anther with a furrowed awl-shaped apex. Style received in the furrow of the anther.

Sp. 1. *Z. officinale*.¹ Official Ginger. *Jacquin Hortus Vindobonensis*, i. 31. t. 75. (*Amomum Zingiber*) *Willd. Spec. Plant.* i. 6. *Med. Bot.* 2d edit. 731. t. 250. *Rumph. Amb.* ii. t. 12.

Official. *ZINGIBERIS RADIX*. Lond. *AMOMI ZINGIBERIS RADIX*. Edin. *ZINGIBER*; *RADIX CONDITA*. Dub. Ginger root dried and preserved.

Syn. Gengembre (F.) Ingwer; Imber (G.) Zenzero (I.) Gengibre (S.) Sont'h (H.) Sant'hi (San.)

The ginger plant is a native of the East Indies², and is particularly abundant in the mountainous district of *Gingi*, to the east of Pondicherry, whence it derived its name. It is now naturalized to the West Indies, where it flowers in September. The root is perennial, creeping, of a compressed roundish form, or tuberosc, fleshy, and sending off many long fibres and offsets: the stem is annual, rises about three feet in height, is an annual culm, solid, upright, round, and enclosed in an imbricate membranous sheathing: the leaves are alternate, linear-lanceolate, six inches long, smooth, and on short embracing petioles: the flowers are in a dense spike close to the stem, composed of

¹ *Zingiberis* Dioscoridis. The similarity between the Greek name of the plant, and the Sanscrit *Stringavera* (horn-shaped) is remarkable. *Asiatic Researches*, vol. xi. p. 346.

² It is named *ziz* by the Brahmans.

large upright, ovate, subacuminate, coloured scales, half closing the flowers: the calyx is a small double spathe of a dingy yellow colour, tubular, with the segments of the border conical, and nearly equal: the anther-bearing filament is extended beyond the anther, has an awl-shaped appendage with a groove to receive the style after it has passed between the lobes of the anthers, and is terminated with the stigma a little beyond the extremity of the filament: the capsule is smooth, containing many oblong seeds.

The herbaceous part of the plant withers in December, and the roots are dug up in January; but when the root is intended to be preserved in syrup, it is dug up when the shoots do not exceed five or six inches in height. For preparing the dried ginger, after the roots are dug, the best pieces are selected, scraped, then washed, and dried in the sun with great care. This is called *white ginger*; in contradistinction to which the roots that are scalded in boiling water before being dried are denominated *black ginger*. The confected or preserved ginger is prepared by scalding the green roots till they are tender; then peeling them in cold water, and putting them into a thin syrup, from which in a few days they are shifted into the jars in which they come home, and a very rich syrup poured over them.

Dried ginger is imported in bags, each containing about one hundred weight. The white kind brings the highest price, being more pungent and better flavoured. The external characters of goodness in either are soundness, or the being free from worm holes; heaviness, and firmness: the pieces that are light and soft, or very friable and fibrous, should be rejected. The confected ginger is nearly translucent when good.

Qualities.—Dried ginger has a pungent aromatic odour, and a hot biting taste. Its odour appears to depend on a volatile oil, which can be obtained separate in distillation with water, and has all the flavour but none of the pungency of the root. Water, alcohol, and ether extract its virtues. The greater part of ginger root, however, is starch. To separate it, triturate the root with water, and strain through cloths; then after the fecula suspended in the water has subsided, separate it by decanting off the water, and macerate in alcohol; what remains undissolved is a tolerably pure insipid starch. The pungency resides in a resino-extractive matter, which is combined with the fecula, but may be obtained separate by evaporating the ethereal tincture on the surface of water.

Medical properties and uses.—Ginger is stimulant, carminative, and sialogogue. It has been found useful in flatulent

cholic, dyspepsia, and tympanitis; and in gout when it attacks the stomach. It is less frequently used alone than as an adjunct to other remedies to promote their efficacy, and give them warmth. The local stimulus of ginger when chewed excites the salivary glands, and provokes a considerable flow of saliva: hence it has been found useful as a sialogogue in relaxations of the uvula and tonsils, and in paralysis of the muscles of the tongue and fauces.

The dose of powdered ginger may be from grs. x. to ℥j.

Official preparations. *Syrupus Zingiberis*, L. E. D. *Tinctura Zingiberis*. L. D.

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The dose of powdered ginger may be from gr. x. to ʒj.
 Official preparations. Symplic. Singl. I. E. D. Linum.

Zingiber officinale, L. D. The ginger root is a perennial herb, with a thick, knotted, and branched root, which is the part used. The leaves are lanceolate, and pointed at the apex, and are set in opposite pairs along the stem. The flowers are small, and white, and are produced in a terminal panicle. The fruit is a small, round, and pointed berry, which is covered with a thin, and smooth, and shining skin. The seed is small, and round, and is covered with a thin, and smooth, and shining skin. The ginger root is a perennial herb, with a thick, knotted, and branched root, which is the part used. The leaves are lanceolate, and pointed at the apex, and are set in opposite pairs along the stem. The flowers are small, and white, and are produced in a terminal panicle. The fruit is a small, round, and pointed berry, which is covered with a thin, and smooth, and shining skin. The seed is small, and round, and is covered with a thin, and smooth, and shining skin.

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