

THE
DISPENSATORY

UNITED STATES OF AMERICA.

BY

GEORGE B. WOOD, M.D.,

PRESIDENT OF THE AMERICAN PHILOSOPHICAL SOCIETY;
PRESIDENT OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA;
EMERITUS PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE IN THE UNIVERSITY
OF PENNSYLVANIA, ETC. ETC.,

AND

FRANKLIN BACHE, M.D.

LATE PROFESSOR OF CHEMISTRY IN JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA;
LATE VICE-PRESIDENT OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA;
LATE PRESIDENT OF THE AMERICAN PHILOSOPHICAL SOCIETY, ETC. ETC.

TWELFTH EDITION,
CAREFULLY REVISED.

PHILADELPHIA:
J. B. LIPPINCOTT AND CO.
1869.

EXTRACTUM CANNABIS. U.S.

Extract of Hemp.

An alcoholic extract of the dried tops of *Cannabis sativa*, var. *Indica*. U. S.
Off. Syn. EXTRACTUM CANNABIS INDICÆ. Br.

CANNABIS. *Sex. Syst.* Diœcia Pentandria. — *Nat. Ord.* Cannabinaceæ.

Gen. Ch. MALE. *Calyx* five-parted. *Stamens* five. FEMALE. *Calyx* one-leaved, rolled up. *Styles* two. *Lindley*.

Cannabis sativa. *Linm. Sp. Plant.* 1457; *Griffith, Med. Bot.* p. 572. Hemp is an annual plant, from four to eight feet or more in height, with an erect, branching, angular stem. The leaves are alternate or opposite, on long, lax footstalks, roughish, and digitate with linear-lanceolate, serrated segments. The stipules are subulate. The flowers are axillary; the male in long, branched, drooping racemes; the female in erect simple spikes. The stamens are five, with long pendulous anthers; the pistils two, with long, filiform, glandular stigmas. The fruit is ovate and one-seeded. The whole plant is covered with a fine pubescence, scarcely visible to the naked eye, and is somewhat viscid to the touch. The hemp plant of India, from which the drug is derived, has been considered by some as a distinct species, and named *Cannabis Indica*; but the most observant botanists, upon comparing it with our cultivated plant, have been unable to discover any specific difference. It is now, therefore, regarded merely as a variety, and is distinguished by the epithet *Indica*. Dr. Pereira states that, in the female plant, the flowers are somewhat more crowded than in the common hemp; but that the male plants in the two varieties are in all respects the same. It is unfortunate that the name of *Indian hemp* has been attached to the medicinal product; as, in the United States, the same name has long been appropriated to *Apocynum cannabinum*; and some confusion has hence arisen.

C. sativa is a native of the Caucasus, Persia, and the hilly regions in the north of India. It is cultivated in many parts of Europe and Asia, and largely in our Western States. It is from the Indian variety exclusively that the medicine is

obtained; the heat of the climate in Hindostan apparently favouring the development of its active principle.*

The seeds, though not now officinal, have been used in medicine. They are about the eighth of an inch long, roundish-ovate, somewhat compressed, of a shining ash-gray colour, inodorous, and of a disagreeable, oily, sweetish taste. They yield by expression a fixed oil, which has the drying property, and is used in the arts. They contain also uncrystallizable sugar and albumen, and when rubbed with water form an emulsion, which may be used advantageously in inflammations of the mucous membranes, though without narcotic properties. They are much used as food for birds, which are fond of them. They are generally believed to be in no degree poisonous; but M. Michaud relates the case of a child, in which serious symptoms of narcotic poisoning occurred after taking a certain quantity of them. It is probable that some of the fruit eaten by the child was unripe; as, in this state, it would be more likely to partake of the peculiar qualities of the plant itself. (*Ann. de Thérap.*, A. D. 1860, p. 159.)

In Hindostan, Persia, and other parts of the East, hemp has long been habitually employed as an intoxicating agent. The parts used are the tops of the plant, and a resinous product obtained from it. The plant is cut after flowering, and formed into bundles from two to four feet long by three inches in diameter, which are sold in the bazaars under the name of *gunjah*. The *hashish* of the Arabs is essentially the same. The name *bang* is given to a mixture of the larger leaves and capsules without the stems. There is on the surface of the plant a resinous exudation to which it owes its clammy feel. Men clothed in leather run through the hemp fields, brushing forcibly against the plants, and thus separating the resin, which is subsequently scraped from their dress, and formed into balls. These are called *churrus*. In these different states of preparation, the hemp is smoked like tobacco, with which it is said to be frequently mixed. An infusion or decoction of the plant is also sometimes used as an exhilarating drink.

The medicinal resin or extract of hemp, directed by the U. S. Pharmacopœia, is made by evaporating a tincture of the dried tops. Dr. O'Shaughnessy directs it to be prepared by boiling the tops of the *gunjah* in alcohol until all the resin is dissolved, and evaporating to dryness by means of a water-bath. Mr. Robertson, of the Calcutta Medical College, prepares it by passing the vapour of boiling alcohol from the boiler of a still into the dried plant contained in a convenient receptacle, and evaporating the condensed liquor by a heat not exceeding 150° F. The Messrs. Smith, of Edinburgh, obtain a purer resin by the following process. Bruised *gunjah* is digested, first in successive portions of warm water, till the expressed liquid comes away colourless; and afterwards, for two days, with a moderate heat, in a solution of carbonate of soda, containing one part of the salt for two of the dried herb. It is then expressed, washed, dried,

* On a visit to the botanical garden of Edinburgh, in the autumn of 1860, the author saw a full-grown specimen of *Cannabis sativa*, and was surprised to find that it was only about 4 feet high, had little or no odour, and was scarcely adhesive when handled. If this is the general character of the hemp plant in the North of Europe, it is not surprising that it should be destitute of the medicinal properties of the Indian plant. As cultivated in his own garden in Philadelphia, the plant attains a height usually of six or eight feet, has a decided narcotic odour, and exudes so much of its peculiar resin as to be very adhesive to the fingers. It is highly probable, therefore, that the hemp plant grown in this country might be advantageously used in medicine. On this occasion Dr. Christison informed the author, from information he had received from India, that the plant, there cultivated in the hot plains, does not yield *hashish* satisfactorily; but that this product is chiefly if not exclusively obtained from it in the hilly regions. He said, moreover, that the story of the natives running through the hemp fields, and collecting the resin on their clothing, from which it is afterwards scraped, is, if not quite untrue, at least apocryphal. He had been informed that the real mode of gathering it is to rub the hemp-tops between the hands, and, when the palms and fingers are sufficiently loaded with the resin, to scrape it off. It is possible, however, that different methods may be followed in different localities.—*Note to the twelfth edition.*

and exhausted by percolation with alcohol. The tincture, after being agitated with milk of lime containing one part of the earth for twelve of the ganjah used, is filtered; the lime is precipitated by sulphuric acid; the filtered liquor is agitated with animal charcoal, and again filtered; most of the alcohol is distilled off, and to the residue twice its weight of water is added; the liquid is then allowed to evaporate gradually; and, finally, the resin is washed with fresh water until it ceases to impart a sour or bitter taste to the liquid, and is then dried in thin layers. Thus obtained, it retains the odour and taste of the ganjah, of which 100 pounds yield 6 or 7 pounds of the extract. Much of the commercial extract is very impure, and is but partially soluble in alcohol.

Under the name of *Extractum Cannabis Purificatum*, the U. S. Pharmacopœia directs a preparation made by evaporating a tincture of the crude extract, which, from its greater uniformity of strength, is preferable for prescription. (See Part II.) The *British Pharmacopœia* directs the Extract of Indian Hemp to be prepared by macerating an avoirdupois pound of the dried tops of the hemp, in coarse powder, in four Imperial pints of rectified spirit, for seven days, then expressing, and evaporating to the proper consistence. From this a tincture is ordered to be prepared.

Properties. Fresh hemp has a peculiar narcotic odour, which is said to be capable of producing vertigo, headache, and a species of intoxication. It is much less in the dried tops, which have a feeble bitterish taste. According to Dr. Royle, *churrus* is when pure of a blackish-gray, blackish-green, or dirty olive colour, of a fragrant and narcotic odour, and a slightly warm, bitterish, and acrid taste. Schlesinger found in the leaves a bitter substance, chlorophyll, green resinous extractive, colouring matter, gummy extract, extractive, albumen, lignin, and salts. The plant also contains volatile oil in very small proportion, which probably has narcotic properties. The resin is probably the active principle, and has received the name of *cannabin*. It is neuter, soluble in alcohol and ether, and separable from the alcoholic solution by water as a white precipitate. According to M. Laneau, of Brussels, it is insoluble in cold alcohol of 80 or 90 per cent., but is soluble in the same liquid heated, in cold absolute alcohol, ether, acetic ether, spirit of nitric ether, muriatic ether, chloroform, and bisulphuret of carbon. (See *Ann. Journ. of Pharm.*, xxviii. 362.) Its taste is warm, bitterish, acrid, somewhat balsamic, and its odour fragrant, especially when heated.*

Medical Properties. Extract of hemp is a powerful narcotic, causing exhilaration, intoxication, delirious hallucinations, and, in its subsequent action, drowsiness and stupor, with little effect upon the circulation. It is asserted also to act as a decided aphrodisiac, to increase the appetite, and occasionally to induce the cataleptic state. In overdoses it may produce poisonous effects. In morbid states of the system, it has been found to cause sleep, to allay spasm, to com-

* From the effects on the system of the exhalations from fresh hemp, it was a very probable supposition that the plant owed its medical properties, in part at least, to a volatile principle. By repeated distillation of the same portion of water from relatively large quantities of hemp renewed at each distillation, M. J. Personne obtained a volatile oil, of a stupefying odour, and an action on the system such as to dispose him to think that it was the active principle of the plant. As the water distilled was strongly alkaline, he supposed that this volatile principle might be a new alkuloid; but the alkaline reaction was found to depend on ammonia; and the liquid obtained proved to be a volatile oil, lighter than water, of a deep amber colour, a strong smell of hemp, and composed of two distinct oils, one colourless, with the formula $C_{26}H_{20}$, the other a hydrate of the first. For the former M. Personne proposes the name of *cannabene*. When this is inhaled, or taken into the stomach, a singular excitement is felt throughout the system, followed by a depression, sometimes amounting to syncope, with hallucinations which are generally disagreeable, but an action on the whole slighter and more fugitive than that of the resin. The pure resin of the Messrs. Smith, M. Personne considers to be complex, depending on volatile principles for its activity, deprived of which at a temperature of about $300^{\circ} C$, it becomes quite inert. (*Journ. de Pharm.*, A. D. 1857, p. 46.)—*Note to the twelfth edition.*

pose nervous inquietude, and to relieve pain. In these respects it resembles opium; but it differs from that narcotic in not diminishing the appetite, checking the secretions, or constipating the bowels. It is much less certain in its effect; but may sometimes be preferably employed, when opium is contraindicated by its nauseating or constipating effects, or its disposition to produce headache, and to check the bronchial secretion. The complaints in which it has been specially recommended are neuralgia, gout, rheumatism, tetanus, hydrophobia, epidemic cholera, convulsions, chorea, hysteria, mental depression, delirium tremens, insanity, and uterine hemorrhage. It has been found to cure obstinate intermittent fever, given before the paroxysm. Dr. Alexander Christison, of Edinburgh, has found it to have the property of hastening and increasing the contractions of the uterus in delivery, and has employed it with advantage for this purpose. It acts very quickly, and without anæsthetic effect. It appears, however, to exert this influence only in a certain proportion of cases. (*Ed. Month. Journ. of Med. Sci.*, xiii. 117, and xv. 124.) The strength of the extract varies much as found in commerce; and therefore no definite dose can be fixed. When it is of good quality half a grain or a grain will affect the system. The Messrs. Smith found two-thirds of a grain of their extract to produce powerful narcotic effects. In some instances it will be necessary to give as much as ten or twelve grains of the extract; and half an ounce of it has been taken without sensible effect. The proper plan is to begin with one-quarter or half a grain, repeated at intervals of two, three, or four hours, and gradually increased until its influence is felt, and the strength of the parcel employed is thus ascertained. Afterwards the dose will be regulated by the ascertained strength; but, should a new parcel be employed, the same caution must be observed as to the commencing dose. A tincture is prepared by dissolving six drachms of the extract in a pint of alcohol. The dose of this, equivalent to a grain of the extract, is about twenty minims, or forty drops. Dr. O'Shaughnessy gave ten drops every half hour in cholera, and a fluidrachm every half hour in tetanus. As the resin is precipitated by water, the tincture should be administered in muellago or sweetened water. Alarming effects have been produced by overdoses.*

Off. Prep. Extractum Cannabis Purificatum, U. S.; Tinctura Cannabis Indicæ, Br.

TINCTURA CANNABIS. U. S. TINCTURA CANNABIS INDICÆ. Br.
Tincture of Hemp. Tincture of Indian Hemp.

“Take of Purified Extract of Hemp *three hundred and sixty grains*; Alcohol *a pint*. Dissolve the Extract in the Alcohol, and filter through paper.” *U. S.*

“Take of Extract of Indian Hemp *one ounce* [avoirdupois]; Rectified Spirit *one pint* [Imperial measure]. Dissolve the Extract of Hemp in the Spirit.” *Br.*

The American reader must take care not to confound the Indian Hemp, here alluded to, with *Apocynum Cannabinum*, known by the same name in this country. The dose, equivalent to a grain of the extract, is twenty-two minims or about forty drops, to be gradually increased till its effects are experienced.