

they are the *bête noir* of Cannes, as indeed of the Riviera in general. Moreover, they seem to be quite incapable of classification. "They are legion," says Burney Yeo, and Marcet declares that their direction is so changeable that it is not worth while to record them—they blow hot and they blow cold, the sirocco from Africa and the bise from the Alps. They blow dry from the west and moist from the east. Dr. Cozalis, quoted by Burney Yeo, gives his results from several years' personal experience as follows:

"Toward the last week in October, the wind sometimes from the east, sometimes from the west, becomes high. In November there is always a windy and rainy period lasting for from eight days to three weeks. The wind is rarely violent and never cold. During or after this there



FIG. 1112.—Boulevard de la Croizette, at Cannes.

may be a few days of mistral; then commences the reign of the east wind, a mild wind which lasts till February. December and January are the least windy months. West winds begin again in February, and the northwest (mistral) may blow for two or three days. In March the winds are often violent, and bring not infrequently torrents of rain, as in November. In April the winds are very variable."

As has been previously mentioned, Cannes offers not only opportunities for residence directly on the sea, with a purely marine climate, but also situations inland said to be more bracing and less exciting, on the Californie and in the district of Cannet, where also there is greater protection from the winds. The climate along the shore is exciting and warm; inland it is more bracing and less exciting.

The class of cases which are suitable for the climate of Cannes are, first of all, tuberculous affections, especially in children. Grebner* writes of the favorable results obtained here with children affected with scrofula, tuberculosis of the bones, joints, and glands, rachitis, and anemia. The Dolfus Asylum, a German institution for poor children from four to fourteen years of age, is situated here. The children come at the beginning of October and remain until the middle of May. They spend the entire day out of doors, sleep in unheated rooms with open windows, and bathe in the sea the winter through. The advantage of this location over other marine resorts upon the Atlantic and north sea coasts, for a similar class

* Jahrbuch für Kinderheilkunde, N. F., 42, 1896, p. 284.

of cases, is the length of time during which the cure can be continuously carried out. For eight or nine months long the children can live out of doors and take the sea baths. At first the general health improves and the weight increases, and later the local conditions begin to show improvement. Nearly all cases of anemia, of whatever age they are, are said to manifest marked amelioration at Cannes. Cases of slow convalescence from acute diseases; various chronic catarrhal affections—bronchial and laryngeal,—emphysema, chronic pleurisy; certain forms of chronic gout and rheumatism; Bright's disease and diabetes—all these are said to be benefited by a winter residence here. On the other hand, this climate is unsuitable for hysteria, neuralgia, insomnia, and various other nervous maladies, and for febrile cases from what-

ever cause. "All invalids," says Burney Yeo, "except those who suffer from scrofulous or lymphatic conditions, are advised to keep away from the shore."

This climate, like any other mild, sunny one, is also favorable for the feeble from age or other causes. As to pulmonary tuberculosis, the writer does not believe that Cannes, or the Riviera in general, is a favorable climate for its cure. Certain stages of it, more particularly the chronic condition, may be temporarily benefited and life prolonged, but, as Lindsay says, "after a prolonged and thorough trial of the Riviera, but few authorities report many cases of cure." Undoubtedly sanatorium treatment in this climate would show better results, but so many other more favorable localities are now known in Europe, for the strict curative treatment of this disease—such, for example, as Davos, Arosa, Leysin, Les Avants, and others—that it seems probable that the Riviera will not in the future, as in the past, remain the Mecca for consumptives. Moreover, the profession is more and more becoming convinced that it is better to establish sanatoria for consumptives at home, in the country and locality where the patients live; for almost everywhere a suitable location can be found where the air is pure, where there is an absence of high winds and dust, and where a reasonable amount of sunshine exists. These are the climatic conditions which are really essential to a cure, although with them must be united the hygienic-dietetic régime which experience has shown to be equally important if the best results are to be secured.

Cannes—derived from *Canna*, the reeds in which the fishermen's huts originally stood—has now grown to be

a city of 23,000 inhabitants. It owes its prosperity in a great measure to the first Lord Brougham, who took up his residence here in 1834. It is especially popular with the English, who frequent it in great numbers. Ten thousand visitors spend the season here, and from fifty to sixty thousand pass through the town. It is almost unrivalled in the beauty of its situation and the charm of its surroundings, and has been called the "Pearl of the Riviera." There are innumerable excursions by sea and land, and the surrounding country is exceedingly beautiful. It has a rich and varied vegetation; here flourish the eucalyptus, olive, vine, orange-tree, and the myriad shrubs and flowers of a luxuriant southern growth.

The accommodations are excellent, but are said to be expensive. Most of the hotels, pensions, and villas are surrounded with gardens. "One great advantage of Cannes," writes Dean Alford, quoted by Burney Yeo, "over other Riviera stations is, that you have actual forest scenery within fifty yards of your hotel." The town is abundantly supplied with good drinking water. The sanitation seems to be well looked after, and the system of supervision of apartments occupied by consumptives is so complete and thorough that it will be instructive to mention it.

When a physician has a consumptive patient occupying a room in a hotel or villa, he notifies the proprietor when the room is vacated. The proprietor takes this notification to the sanitary authorities, who disinfect the premises and return the original card of notification to the physician with a note made on it that disinfection has been made, and the physician then is assured that the room is safe for occupancy again. In addition, there is kept, at the mayor's office, a list of the hotels and villas whose proprietors have agreed to conform to all the suggestions made by the physicians as to disinfection and renovation. Whenever a physician is asked to recommend a hotel or apartment, he has this list, which is public, to refer to. This arrangement works for the mutual interests of the proprietors and visitors.

Cannes has become so popular and fashionable that for this reason it is objectionable for the true invalid; he is tempted to over-exert himself in the social life and gaiety of the place.

Edward O. Otis.

CANTHARIDATE OF POTASSIUM.—The application of the cantharidins to the treatment of tuberculosis was introduced at a meeting of the Berlin Medical Society on February 25th, 1891, by Dr. Oscar Liebreich. The value of this drug as a remedy rested on its well-known property of promoting exudation of serum from the capillaries; an effect not only directed to the vessels of the surface of the body, but also produced in various organs, as the kidneys, sexual organs, and lungs, particularly when the drug is administered internally. This is the special action of the drug on the healthy tissues, and Liebreich assumed that an irritated condition of any set of capillaries would favor this process of exudation, or, in other words, that a dose too small to produce any effect on healthy capillaries would cause an exudation from those inflamed. This would relieve the congested cells and restore the tissues to a more healthy state; and, further, he claimed, as it had been shown that serum possessed decided germicidal properties, it should prove antagonistic to the growth of tubercle and assist in the effort at repair.

A number of cases treated by Liebreich's method were shown by himself and some of his colleagues; cases of laryngeal phthisis, lupus, and pulmonary phthisis were all said to be benefited. When the diseased parts could be observed, the action of the drug was found to be such as had been described by Dr. Liebreich, the ulcerated surface being more healthy and showing signs of repair. When the lungs were affected the expectoration became free and profuse, the edema decreased, and the local condition improved; the fever also diminished, and other constitutional disturbances lessened. Liebreich stated that no reaction followed its use, but other observers reported a slight rise of temperature, headache, disturbed

digestion, diarrhoea, etc. If the dose be too great it produces the characteristic symptoms of cantharides poisoning—pains in the loins, albuminuria, strangury, and hæmaturia.

Pure cantharidin being insoluble in water, the cantharidate of potassium and the cantharidate of sodium were selected as the salts most suitable for using the drug hypodermically. As the amount of cantharidin in these salts varies greatly, Liebreich advised the use of a certain solution which he had found by experiment to be most suitable. It is prepared as follows: cantharidin, .2 gm.; potassic hydrate, .4 gm., most carefully weighed and heated over a water bath in a 1,000 c.c. flask, with about 20 c.c. of water, until a clear solution results; then add water gradually, while still heating, to the full quantity.

Of this solution $\text{m} \text{ viij.}$ to xvi. are administered hypodermically. Its use should not be continued for any length of time; at least every third day should be allowed to intervene without the drug being administered.

The effect on the kidneys must be carefully watched, and the dose lessened, or its administration stopped, should any symptoms of strangury occur. In kidney disease its use is, of course, contraindicated. To overcome the painful local irritation that frequently follows at the site of injection, it has been recommended to prepare a solution containing cocaine, which prevents the pain. Two parts of the hydrochlorate of cocaine are added to one of cantharidin and two of caustic soda; this is formed into a solution, and gr. $\frac{1}{10}$ to $\frac{1}{20}$ is used as a dose. The addition of cocaine is also thought to lessen its tendency to irritate the bladder or kidneys.

This treatment was extensively applied to all forms of tuberculous disease, but it did not prove of sufficient value to warrant its continued use, and it is now rarely resorted to. It undoubtedly produces the action described by Liebreich, causing a freer exudation of serum, etc., but this does not lead to any improvement in the symptoms or tend to any permanent benefit. Post-mortem examinations of patients who have been subjected to this treatment fail to furnish any evidence of repair or beneficial effect on the disease.

Beaumont Small.

CANTHARIS.—*Spanish Fly.* This rather inaccurate name is given to *Cantharis vesicatoria* De Geer (*Lytta vesicatoria*), order *Coleoptera*, a brilliant green beetle, with a long, cylindrical body, a disagreeable odor, and powerfully irritant properties. It is about an inch in length, and from one-fifth to a fourth of an inch in breadth. It has a good-sized, ovoid, heart-shaped head, filiform, black antennae of eleven joints, a distinct, rounded thorax, and long, straight wing covers. The legs are provided with five tarsal joints, excepting the two posterior ones, which have only four. The wings are large, brown, translucent.

The odor, even when the insect has been dried for a long time, is strong and characteristic. The perfect beetle appears in great numbers in its native countries, about the middle of summer, upon poplars, ashes, lilacs, privets, and even upon roses and several other domestic shrubs, whose leaves it devours. The acrid effluvia emitted from it can be smelled at a considerable distance, and when the insects are abundant, it is said to be dangerous to persons sitting under the trees where they are.

This beetle is a native of Southern and Middle Europe,

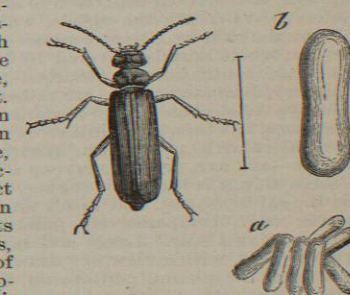


FIG. 1113.—Blistering Beetle, Natural Size; a, Eggs, somewhat enlarged; b, a single egg, greatly enlarged. (Moquin-Tandon.)

Western Asia, etc. It is abundant in Spain, France, Germany, Italy, etc., and in these countries is collected for use. During the middle of warm days it is very active and alert, but in the night and early morning, benumbed by cold and wet, it is very heavy and clumsy. Advantage is taken of this time for collecting the beetles, when they can be beaten or shaken from the shrubs where they hang and caught in sheets or bags held under the boughs. They are then killed by boiling water, steam, vinegar, ether, or some such treatment, and carefully dried by moderate heat.

The drug, as usually found in the market, consists of these bodies whole, excepting what the friction of the transportation has done in the way of rubbing off the antennae and legs. Ground, it gives a disagreeable-smelling, grayish powder, sprinkled with bright metallic green specks—the fragments of wing cases and body. Taste, resinous and acrid.

Blistering beetles were known to the ancients, and have been used for centuries in many different countries, but they have not been generally of this particular species, whose employment is comparatively modern. This, however, from its abundance, and the ease with which it can be collected, has generally supplanted the others, at least in English and American commerce.

COMPOSITION.—A great variety of ordinary animal products, nitrogenous tissues, fat, oil, watery extract, etc., and about one-fourth to one-half per cent. of a well-defined, crystalline, active principle named *cantharidin*. This energetic poison crystallizes in tables or flakes, is white, colorless, and odorless, and at first has but little taste. It dissolves in 25 parts of water, and in upward of 3,000 of alcohol; in ether and chloroform it is almost insoluble. Cantharidin is about thirty times as active as cantharides.

ACTION AND USES.—Cantharides is an intense irritant, whether applied internally or externally; taken into the stomach, it causes heat and burning of the fauces on its way down, then vomiting, often of bloody mucus, intense pain and burning of the stomach and bowels, diarrhoea, fibrinous and bloody stools, and finally urinary distress, strangury, bloody urine, and other evidences of renal and vesical irritation. The genitals are also excited—priapism in the male, swelling of the vulva, etc., in the female; uterine tenesmus or abortion may follow. Erotic sentiments may be, but are not necessarily, aroused. A small, quick pulse, rapid breathing, a hot, dry skin, headache, delirium, coma, and death may follow its introduction. Two grams (gr. xxx.) of powdered cantharides, or 5 cgm. (gr. 4) of cantharidin, would be a dangerous dose. Applied externally, cantharides produces, after a few minutes, redness and slight burning of the skin, followed, in from one-half to five or six hours, by small blisters just beneath the cuticle, which rapidly separate it from the skin and soon coalesce into one large bleb over the whole surface covered by the blister. A small amount of cantharidin is absorbed through the skin, as strangury, hæmaturia, etc., are rather apt to follow very extensive blistering. This medicine, like most active substances, has been given in a great variety of conditions—vesical catarrh, gonorrhoea, dysuria, and incontinence of urine—and as a general nervous stimulant. For none of these things is it now in vogue. Externally applied, it is the safest, surest, and in all ways the best vesicant known; easy, comparatively painless, and superficial; never leaving a scar. Large and repeated blisters were formerly used, with a view of "drawing off" serous effusions from the pleura, peritoneum, the joints, etc.; but as derivative effects are not accomplished in so simple and direct a way, these blisters are now principally used as a means of producing simple counter-irritation.

ADMINISTRATION.—If it is desired to give *cantharides* internally, the Tincture (*Tinctura Cantharidis*, U. S. P., strength 5 per cent.) is a suitable form, but the numerous cerates and liniments which follow show how almost exclusively it is employed externally: *Ceratum Cantharidis*, U. S. P., strength 32 per cent.; and the *Colloidum Cantharidatum*, U. S. P. (Blistering Collodion), contain-

ing 60 per cent., are used for blistering. The liniment, of 15-per-cent. strength, formerly official, has been discarded. For the last dozen years or more the cantharidal cerates of the Pharmacopœia have been almost superseded by a cantharidal plaster, prepared upon a large scale by manufacturing pharmacists, with a rubber basis instead of the simple fatty one of those. It is scarcely as uniform or quick in its action as the others, but on account of its convenience, its durability, and ease of handling, it is likely to continue in use. The tincture of cantharides, considerably diluted, is a frequent ingredient of "hair renewers" and other cosmetics.

ALLIED ANIMALS.—The tribe *Cantharida* contains numerous poisonous beetles, whose acrid secretions have been put to use as vesicants. Some of these are even more irritant than cantharis itself. *C. vittata*, our potato beetle, and other species of *Cantharis*, *Meloe*, the oil beetles, several species of *Mylabris* ("M. Chiccorii," the "Chinese blistering fly") are examples.

W. P. Bolles.

CAOUTCHOUC. See *Rubber*.

CAPE MAY.—The first point on the New Jersey coast to which people went to enjoy the ocean was Cape May. As early as the opening of the last century there were stage lines and sailing vessels which made a business of taking visitors to this resort. For many years Cape May maintained its prestige, and although at present other places have outstripped it in the number of visitors and display of fashion, there is no other place on the New Jersey coast that possesses so nearly an insular climate.

Cape May occupies the extremity of the peninsula. The ocean lies to the east and south, while the broad Delaware Bay stretches to the west and northwest. Thus nearly every breeze is from the water, and at the "Point" a land breeze is a rarity. Cape May City is built on an island three miles east of the point and faces the southeast. The underlying soil is gravel with sand under the gravel beds, and the surface wells upon which the city depends have an excellent supply of pure water. The sewerage is by means of terra-cotta pipe eight to fourteen inches in diameter; the discharge is by gentle but sufficient grades through outlets to tidal creeks. Water supply and sewerage are difficult problems at the seaside, and particularly on the low and narrow outlying strips of land on which many resorts are situated. The position of Cape May, at a latitude below 39° and nearly surrounded by water, gives it an equable climate and one of considerable humidity. The relative humidity ranges from 70 per cent. in November to 80 per cent. in July. The average for the year is 76.4 per cent.; it is thus higher than that of Philadelphia (74 per cent. at 8 A.M. and 67.8 per cent. at 8 P.M.), but lower than that of Atlantic City (94 per cent. at 8 A.M. and 81 per cent. at 8 P.M.). The mean annual temperature is 54.4° F., or 2.5° higher than that of Atlantic City. While temperatures as high as 88° F. may occur in summer, the air is quickly cooled as a late afternoon breeze from the ocean sweeps landward. The nights are usually cool and afford a grateful relief from the accumulated heat of the cities, where brick dwellings radiate heat long after the sun has set.

Comparing Cape May with Atlantic City it is found that there were in 1898 twenty-two more clear days at Cape May, but about two inches more rainfall, the excess occurring in the summer. The average mean annual rainfall, however, at Cape May is 33.12 inches against 42.81 at Atlantic City. The mean daily range of temperature is 8° F. at Cape May and 12° at Atlantic City. While the maximum at Cape May was 88°, at Atlantic City it was 94°, the minima being 15° and 7° respectively. The climate is more strictly a marine climate.

Cape May is well provided with hotels and cottages. It is freer from the objectionable crowds that throng other resorts, and the general tenor of Cape May is above that of most places on the New Jersey coast. It is comfortably reached in from one and three-quarters to two hours from Philadelphia.

CLIMATE OF CAPE MAY, N. J., LATITUDE, 38° 50'; LONGITUDE, 74° 58'. PERIOD OF OBSERVATION, TWELVE AND ONE-HALF YEARS.

	January.	March.	July.	September.	Year.
Temperature (Fahrenheit scale)—					
Average or normal.....	34.2°	40.1°	73.6°	67.9°	53.5°
Average daily range.....	11.8	12.6	10.7	10.7	
Mean of warmest.....	41.3	47.7	80	75.3	
Mean of coldest.....	29.4	35.1	69.3	64.6	
Highest or maximum.....	58	65	91	87	
Lowest or minimum.....	1	9	56	42	
Humidity—					
Average relative.....	78.2%	74.9%	79.7%	76.8%	76.7%
Precipitation—					
Average in inches.....	4.22	5.14	3.30	4.46	47.67
Wind—					
Prevailing direction.....	N.W.	N.W.	S.	E.	N.W.
Average hourly velocity in miles..	14.3	16.4	10	11.7	13.4
Weather—					
Average number of clear and fair days.....	20	19.2	23.7	21.4	248.7
Average number of cloudy days.....	117

Cape May beach is unexcelled on the coast; it is broad and hard, and its descent below the water line is very gradual. The beach is, as a rule, a safe one for bathing, and at the bathing hour in midsummer presents a most animated and beautiful sight. There are times when continued easterly or northeasterly winds roll up heavy seas, and it requires a certain degree of vigor to venture into the surf. Only the most robust can enjoy the breakers at such times. It should be borne in mind that far more accidents happen to bathers of experience and over-confidence than to those who indulge moderately. After storms the gradual declivity of the shore may undergo some alteration, and bathers during a flood tide sometimes find to their consternation that between them and the shore there is a gully of deeper water than they are prepared to encounter. This is an occasional source of trouble, and even experienced bathers should never be out of reach of the bathing master and his boat.

The chief advantages of Cape May as a resort are for those who have insomnia, neurasthenia, or who are convalescing from acute respiratory affections. Children always do well, and it is a good place for those in advanced life who wish the sedative effect of the sea air. It cannot be recommended for tuberculous affections of the lungs, but the climate is not necessarily a disadvantage in chronic tuberculous disease of the bones.

Guy Hinsdale.

CAPON SPRINGS.—Hampshire County, W. Va.

POST-OFFICE.—Capon Springs. Hotels and cottages. **ACCESS.**—Via Baltimore and Ohio Railroad to Capon Springs Station, thence a drive of 15 miles over mountain roads to springs.

This well-known resort is situated 4 miles from the base of the Great North Mountain, at an elevation of 1,800 feet above tidewater. The scenery here is varied and pleasing, and the climatic conditions during the season, from May 15th to about the end of October, are all that could be desired. The average summer temperature is about 65° F., the mercury seldom ranging above 75° F. The main hotel is a large building, five stories in height and well supplied with modern appliances and accessories for the safety and comfort of the guests. There are two smaller hotels and a number of cottages. The main spring discharges about 12,000 gallons of water per hour, at a temperature of 66° F. An analysis by Prof. J. W. Mallet shows the following results:

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Calcium carbonate.....	0.59
Magnesium carbonate.....	1.44
Iron carbonate.....	.04
Manganese carbonate.....	Trace.
Calcium carbonate.....	8.32
Lithium carbonate.....	Trace.
Sodium chloride.....	.06
Potassium sulphate.....	.16

Solids.	Grains.
Calcium sulphate.....	.59
Strontium sulphate.....	Trace.
Calcium phosphate.....	Trace.
Calcium fluoride.....	Trace.
Alumina.....	.02
Silica.....	.72
Nitrates.....	Trace.
Organic matter.....	.20
Total.....	12.14
Gases.	Cu. In.
Carbonic acid.....	8.56
Oxygen.....	1.73
Nitrogen.....	3.68
Total.....	14.00

A second spring, known as the Beauty Spring, has a similar composition.

The waters have been found of service in the treatment of gastric catarrh, the acid forms of dyspepsia, uric acid gravel, and catarrh of the bladder. A large and tastefully arranged bathing establishment is maintained at the resort. A swimming pool 98x48 feet is supplied by the main spring. Plunge, shower, douche, and warm baths may be had at the option of the visitor. The water is used commercially, and has the indorsement of many well-known Philadelphia medical men.

James K. Crook.

CAPSICUM.—*Cayenne Pepper*, *African Pepper*, *Red Pepper*. "The fruit of *Capsicum fastigiatum* Blume (fam. *Solanaceae*)" (U. S. P.).

The species of the genus *Capsicum* are variously estimated by different botanists at from two to ninety. So extensively have they varied, and the varieties hybridized, that hundreds of forms are now recognized. The genus is probably wholly native to tropical America, but has become everywhere cultivated and naturalized in warm countries. The plants bear cultivation, as annuals, in temperate regions also, and constitute one of the important food plants of the world. Owing to its intensely hot taste, the fruit is to be regarded as a condiment rather than as a nutrient food. This is true even in the tropics, where the amount consumed at a meal is often considerable, and a matter of great astonishment to strangers. Cultivation has now developed varieties known as "Sweet Peppers," which are wanting in acidity and pungency, and which can be eaten like tomatoes and other vegetables. These products are as yet rather new, and their practical nutritive value is not yet determined.

The fruits of the many species and innumerable cultivated varieties vary in size from that of a large pea to the two fists, in form from spherical, or much broader, to long tapering, and in color from yellow through scarlet to purple. They are eaten both fresh and dried, and if carefully dried do not lose any of their pungency. The official fruit is, however, of very uniform appearance, and is thus described: oblong-conical, from 10 to 20 mm. ($\frac{3}{8}$ to $\frac{1}{2}$ in.) long, supported by a flattish, cup-shaped, five-toothed calyx, with a red, shining membranous and translucent pericarp, enclosing two cells, and containing flat, reniform, yellowish seeds, attached to a thick central placenta.

Even the medicinal article is considerably subject to substitution by other varieties. All these are readily recognized by their form and size, except when ground, when such recognition becomes a matter of extreme difficulty, the color of the powder, which is of a deep orange red in the *C. annuum*, lighter in the genuine, and the smaller size of the cells of the latter, rendering the only assistance. The powder, especially of the commercial article sold for table use, is also greatly subject to adulteration with other substances, particularly colored sawdust and corneal. Large quantities of the latter substance, finely ground and suitably colored, are sold for this purpose. The entire absence of tannin and starch from genuine capsicum is an important characteristic in this connection, and the ash should not exceed five or six per cent.

COMPOSITION.—Besides the active constituent, *capsai-*

cin., capsicum contains some fat, wax, resin, minute amounts of volatile oil and alkaloid, and a large amount of coloring matter.

Capsaicin ($C_{26}H_{41}O_2$) dissolves in alcohol and fixed oils, as well as in ether. It is so excessively acrid as to be a most dangerous substance to handle. It can be obtained in the form of colorless crystals. It should exist in capsicum in the proportion of about one-fiftieth of one per cent., and its estimation is the only sure means of ascertaining the quality of the ground drug.

"Capsicin" is merely a soft extract, consisting chiefly of resin and fixed oil, and of very indefinite strength.

ACTION AND USES.—Externally, capsicum is a powerful counter-irritant, capable of blistering if suitably applied. Internally, its recognized effects are due entirely to its direct and reflex stimulating action. This action

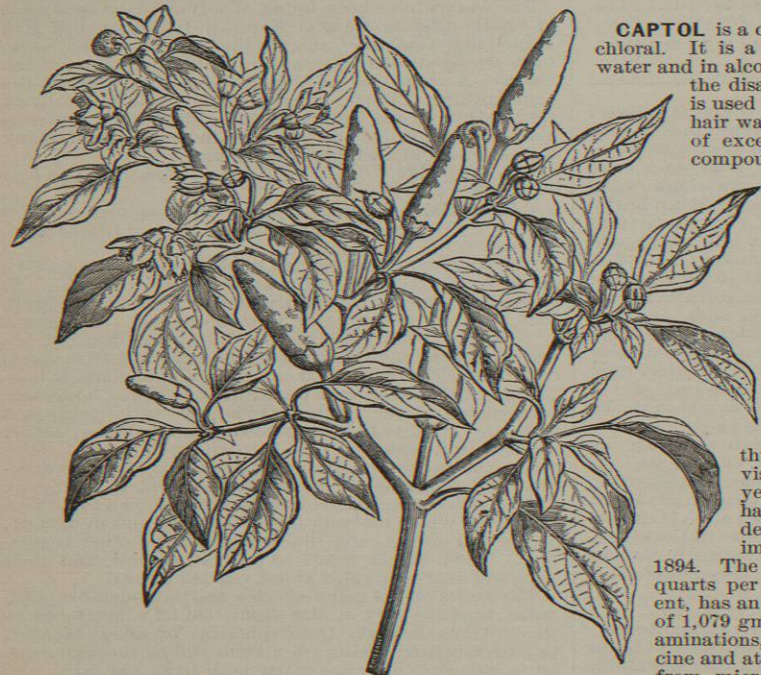


FIG. 1114.—Capsicum Fastigiatum Blume.

is seen directly in increased movement and secretion throughout the alimentary tract, and in increased renal secretion, and reflexly in increased spinal and cerebral activity. Its aphrodisiac action is both local and spinal.

Advantage is taken of these properties for the production of ordinary carminative and laxative effects, but more especially for its use as a stomachic. Mild cases of dyspepsia and habitual indigestion can be greatly benefited by its moderate use, its eliminative tendency aiding the stomachic effect. In extreme cases of habitual indigestion, especially that of alcoholism, it is frequently the only available agent. Its mental effects in such cases are often quite as notable as its stomachic. Its use is of assistance in overcoming narcotic habits. It has been suggested that the alkaloid of the drug may be partly responsible for the cerebral effects. As a diuretic, it is not ordinarily to be recommended, as its irritating effects are apt to be too pronounced. Throughout the tropics it is confidently recommended both as a prophylactic and as a curative agent against malaria, and it is frequently so prescribed in temperate regions also. The statement is generally made that red and black pepper have equiva-

lent actions, but the statement is not warranted. The irritant effect of black pepper upon the mucous membrane of the stomach is much greater in proportion to its stomachic effects proper than is the case with red pepper, while the irritation of the urethra is greater with the latter. The infusion is very serviceable as a gargle in asthenic cases of sore throat.

The dose of capsicum is .05 to .5 gm. (gr. i. to v. or possibly gr. x.). The five-per-cent. tincture is most commonly employed, in doses of .3 to .4 c.c. (℥ v. to lx.). The oleoresin is given in doses of ℥ i. to i., and the fluid extract, ℥ i. to x. There is a plaster which contains about .25 gm. (gr. iv.) of the oleoresin of capsicum spread evenly upon a surface 10 cm. (4 in.) square.

The stronger preparations of capsicum are to be regarded as ordinary irritant poisons.

Henry H. Rusby.

CAPTOL is a condensation product of tannic acid and chloral. It is a dark-brown powder, soluble in warm water and in alcohol, and claimed to be free from any of the disagreeable effects of its components. It is used in the form of the compound spirit as a hair wash and stimulant to the scalp in cases of excessive dandruff. The formula for the compound spirit of captol is: Captol, 2; chloral hydrate, 2; tartaric acid, 2; castor oil, 1; alcohol, 65 per cent., to make 1,000.

W. A. Bastedo.

CARABAÑA MINERAL SPRING.—

Province of Madrid, Spain.
Post-Office.—Carabaña.
Access.—From Madrid by rail, a twenty-minute ride.

This celebrated spring has been in active use since 1885. The location is in a country broken by sandy hills of slight elevation. It is not widely used as a resort, although a thermal establishment for bathing is maintained throughout the year. The location is best visited during the cooler months of the year. The water of the Carabaña Spring has become widely known for its valuable detergent effects. It has been extensively imported into the United States since

1894. The spring yields about twenty-five hundred quarts per day. The water is perfectly transparent, has an alkaline reaction, and a specific weight of 1,079 gm. per litre. Careful bacteriological examinations, both at the Madrid Academy of Medicine and at laboratories in Paris, show it to be free from microbial contamination. As an additional safeguard, however, the water is filtered by the Pasteur method before it is put up in bottles. According to an analysis made under the direction of the Paris Academy of Medicine, the Carabaña water is composed as follows:

ONE UNITED STATES GALLON CONTAINS:*

Solids.	Grains.
Sodium sulphate.....	7,012.89
Magnesium sulphate.....	214.10
Sodium chloride.....	112.08
Magnesium chloride.....	33.41
Calcium chloride.....	13.76
Sodium phosphate.....	1.47
Alumina.....	.53
Total.....	7,387.74

* Converted from grams per litre.

These findings represent the anhydrous state of the components. With the water of crystallization the weight of the solid elements would be rather more than twice that here expressed. The analysis shows a very powerful mineral water. It may be properly classed as a sodic and magnesian sulphated saline. The large pro-

portion of sulphate of sodium combined with the sulphate of magnesium gives the water potent properties as a saline cathartic. Given in doses of a claret-glassful before breakfast it secures a prompt evacuation of the bowels. As a laxative it may be given in somewhat smaller dosage, and repeated if necessary. The water has found its best application in the various intestinal, hepatic, and gastric disturbances in which constipation is a cause or a symptom.

James K. Crook.

CARAMECUARO.—Huaniqueo, Michoacan, Mexico. A bathing establishment has been constructed at this spring. The water is hot, and it is recommended for the treatment of paludal fevers. No analysis of the water has as yet been made.

N. J. Ponce de Léon.

CARAMEL.—A black, semi-liquid substance, brown when diluted, into which sugar is converted by depriving it of two molecules of water, through the application of a temperature of 400° to 420° F. It is not medicinally active, and is used as a coloring agent, chiefly for liquids, and especially for brandy and whiskey, also for leather.

Henry H. Rusby.

CARAWAY.—*Carum*. The fruit of *Carum Carvi* L. (fam. Umbelliferae). The spelling of the specific name "Carvi" is a relic of the use of but one character for both our *u* and *v*. The sound is, therefore, that of *u*, from which comes the pronunciation *caraway*.



FIG. 1115.—Caraway Fruit. Enlarged about four times. (Ballou.)

This is a biennial herb, with a long, brown, tapering, edible root, a slender, erect, branching, hollow stem, bi- or tri-pinnate leaves, with narrow linear segments, and small, compound umbels of white flowers. It is a native of Northern and Central Europe and Asia, and is cultivated and naturalized in nearly all temperate countries. The dried fruits, usually separated into their respective mericarps, are from 3 to 5 mm. long (1/8 in.), slender, slightly curved, tapering at each end, and marked with five fine yellow ribs, alternating with dark brown intervening spaces. There is one large oil tube between every two adjoining

external ribs, and two between every two adjoining ventral ones, six in all. The characteristic odor and taste are familiar to nearly every one. The active constituent is carvol, which constitutes a large part of its four to seven per cent. of volatile oil, and which can advantageously be substituted for the latter. There is also some fixed oil, resin, gum, sugar, and tannin. The stimulant and carminative properties are those of the family. The odor and taste are characteristic, and make of it and its oil a favorite flavoring. It is mostly used as an ingredient of bread and cakes. The medicinal dose is .5 to 2 gm. (gr. viij. to xxx.). It enters into the Compound Tincture of Cardamomum, the only official preparation.

The so-called "Black Caraway," also largely used by German bakers, is not at all related, being the seed of *Nigella*.

Oil of Caraway (Oleum Carvi).—A volatile oil existing in caraway to the extent of from four to seven per cent. It has the characteristic odor, taste, and properties of caraway. Its specific gravity is .910 to .920 at 15° C. It is soluble in an equal volume of alcohol. It consists of carvol and dextrogyrate limonene (*carvene*). The dose is ℥ i. to x., but it is preferable to use carvol. It enters into the Spiritus Juniperi Compositus, its only official preparation.

Carvol (C₁₀H₁₆O).—A ketone which constitutes the essential constituent of oil of caraway, and which also occurs in oil of dill and oil of spearmint. It is a colorless, or pale yellow, transparent liquid, having a specific gravity of .960 and boiling at 224° C. One cubic centimetre diluted with the same amount of alcohol should at most assume only a slightly reddish or violet tint on the addition of a drop of a very dilute solution of ferric chlo-

ride. It has the odor, taste, and properties of oil of caraway, and is, in addition, quite uniform. It is official in the German Pharmacopœia. The dose, if the preparation is pure, is 1-5 minims.

Henry H. Rusby.

CARBOLIC ACID.—*Phenic Acid*. *Phenylic Alcohol*. *Phenol*: C_6H_5OH . This important substance, though commonly called an acid, is, properly, not an acid at all, but a member of the group of *phenols*, bodies regarded as derivatives of hydrocarbons of the benzene series by the replacement of one or more atoms of hydrogen of the principal chain by hydroxyl (OH). In carbolic acid a single hydrogen atom of benzene itself is so replaced, so that this derivate is the simplest possible phenol in point of chemical constitution. Being also the best-known member of the group it is chemically entitled *phenol*, simply. Carbolic acid is an ingredient of coal tar, and is obtained therefrom. The tar abounds in phenols, and by fractional distillation and certain special manipulations carbolic acid is separable from the other constituents in varying degrees of purity. In the markets may be found pure carbolic acid, crystalline at ordinary temperatures, and impure acids of different grades, of which the best are crystalline, but the others fluid. These impure acids consist of carbolic acid (phenol) and the closely related phenol "cresylic acid" (cresol), and other phenols in admixture. The lower grades, indeed, may contain but little carbolic acid, but yet are efficient, since the other phenols of coal tar possess properties similar to those of carbolic acid. These impure carbolic acids are often sold under the name of *coal-tar cresote*, and are graded "No. 1" and "No. 2," according to purity. The United States Pharmacopœia recognizes as official pure carbolic acid, and an impure article corresponding to the "No. 1" of the fluid impure acids of commerce.

Acidum Carbolicum, Carbolic Acid (U. S. P.). By this title is designated the pure article, described as follows: "Colorless, interlaced or separate, needle-shaped crystals, or a white, crystalline mass, sometimes acquiring a reddish tint; having a characteristic, somewhat aromatic odor, and, when copiously diluted with water, a sweetish taste with a slightly burning after-taste. Deliquescent on exposure to damp air. Soluble at 15° C. (59° F.), in about fifteen parts of water, the solubility varying according to the degree of hydration of the acid. Very soluble in alcohol, ether, chloroform, benzol, carbon disulphide, glycerine, fixed and volatile oils. Almost insoluble in benzin. When gently heated, carbolic acid melts, forming a highly refractive liquid. It is also liquefied by the addition of about eight per cent. of water. If the acid be liquefied by a gentle heat, and then slowly cooled, under constant stirring, until it is partly recrystallized, the semi-liquid mass should have a temperature (remaining stationary for a short time) not lower than 35° C. (95° F.). The acid should have a boiling point not higher than 188° C. (370.4° F.). A lower boiling point, or a higher melting point, indicates a purer or less hydrated acid. When heated upon a water bath, the acid should be volatilized without leaving a residue. The vapor of the acid is inflammable. Carbolic acid is faintly acid to litmus paper" (U. S. P.).

As regards the color of carbolic acid, the tendency to acquire a pink tinge is the stronger the purer and more anhydrous the sample (Squibb). Good specimens, therefore, unless recently made, are more likely than not to be of pinkish hue. As regards the odor, it is much less rank and disagreeable than that of other associated phenols, a fact that, apart from other considerations, constitutes a good reason for selecting a chemically pure carbolic acid for surgical use. An absence of cresote-like odor is a good practical test of the purity of a given sample of carbolic acid. The reaction between carbolic acid and water is peculiar. On adding water to carbolic acid in small measure, the crystals first liquefy by the solution of the water, forming a transparent fluid. The proportion of water thus soluble in carbolic acid seems to be variable. The pharmacopœial description states that the acid "is liquefied by the addition of about eight