ONE UNITED STATES GALLON CONTAINS:

Solids.	Grains.
Calcium carbonate	5.31
Magnesium carbonate	1.80
Iron carbonate	.59
Sodium carbonate	.14
Magnesium sulphate	1.17
Sodium chloride	.48
Silica	.29
Total	9.78

This analysis shows a combination of very useful ingredients. They give the water the properites of a ferruginous tonic, a mild diuretic, an antacid, and in large doses, a light laxative. The water is useful in disordered states of the stomach and in functional affections of the liver and bowels. Its continuous use tends to overcome chronic constipation. *James K. Crook.*

CRURIN. — Quinoline-bismuth-sulphocyanate. This is a coarsely granular, yellowish-red powder of pungent odor, insoluble in water, alcohol, or ether. It is decomposed on prolonged exposure to cold water and on boiling with dilute acids or alkalies. Steiner made extensive use of it in ulcers, especially those of syphilitic origin, by dusting the ulcer twice daily and covering with a protective dressing. It sometimes causes at first a burning pain, which is soon followed, however, by a feeling of warmth and comfort. If too irritating it may be diluted with starch. If the ulcers are old and have thickened edges, a wet dressing of aluminum acetate will soften them. Steiner found that both syphilitic and non-syphilitic ulcers healed completly in from ten days to six weeks, under the use of this remedy. *W. A. Bastedo.*

CRYING is an involuntary disturbance of respiration accompanied by relaxation of the facial and jaw muscles and lachrymation; it is usually an expression of strong emotion, such as grief, fear, anger, or pain. The inspiration is short and deep, sometimes spasmodic in character; the expiration is prolonged; the glottis is narrowed and an inarticulate sound is usually produced. The eyes are generally closed, and the angles of the mouth are depressed.

Crying is the only language of the new-born babe, its only means of expressing its desires, discomfort, or dissatisfaction with its surroundings. The first welcome cry expands the lungs and probably assists in establishing the normal course of the circulation. The lustiness of it is taken as a measure of the infant's vigor. The cry of the infant differs, however, to some extent from that of the adult, in the facial expression, in the absence of tears, and in the sound produced. The eyes are closed, the mouth is widely opened, the chin often quivers. With the development of the lachrymal and salivary glands, however, we have, by the third or fourth month, a flow of tears and often drivelling.

Physiology.—In crying the diaphragm is suddenly deeply depressed, causing full inspiration. The action is involuntary and is so quick that the other respiratory muscles probably take little or no part in it. The ascent of the diaphragm may be uniform or interrupted, and the air is forced through a partially closed glottis, producing a steady or a broken, inarticulate sound, varying, as a rule, with the character of the lamentation. The inspiration is sometimes also intonated (the "reprise"). The contraction of the laryngeal muscles sometimes becomes clonic and painful in the prolonged crying of deep distress. The circulation is accelerated; the face and even the entire integument of the young infant may become engorged with blood. Although the act is involuntary, it may be closely simulated, and it may be voluntarily arrested. The nervous mechanism of crying is not fully understood. It is closely related to that of laughing, so closely, in fact, that in children and hysterical adults either may quickly give place to the other. Crying may be inaudible when, from embarrassed respiration as in the weakness of marasmus, syphilis, rachitis, or pneumonia, the infant cannot produce the sound, or when, on account of pain, it suppresses it, as in pleurisy. The deepest grief is often expressed in silence, the face buried in the hands, perhaps, while the tears refuse to flow. Tearless crying in an infant more than four months old is regarded as an unfavorable symptom.

Significance of Crying.—Much may be learned of an infant's condition by observing its expression and its actions while crying, as well as from the character of the act itself, but it is going a step too far to say that the location of the disease can always be determined from the cry. Persistent crying always indicates the existence of something abnormal. It may denote hunger, as the mother is apt to believe; it is probably just as often a sign of thirst. If, however, the infant refuses to take the breast, this element is ruled out, providing there be no other cause for refusal, such as obstruction of the nostrils or disease of the mouth or throat. The cry of hunger is fretful, and is generally interrupted by vigorous sucking of the fingers or hunting for the breast, but the discomfort induced by overfeeding is manifested in the same manner. Nursing relieves hunger, but stops the cry of overfeeding only for the moment. In pain about the head the brows are generally knit and the hands are often raised to the region of the pain. In earache the cry is most persistent, and the hands may be held to the side of the head or thrust into the mouth, as is often the case also in disease of the mouth or throat. The sudden, sharp, hydrocephalic cry is characteristic of cerebral disease, but only in the presence of other symptoms. In painful diseases of the chest the cry is not loud, as a rule; it is more frequenly moaning in character, or each expiration may be slighlty intonated. When coughing is accompanied or followed by crying it arouses suspicion that the bronchitis has reached the smaller tubes and that catarrhal pneumonia is imminent. The absence of crying is often of greater significance. The cry of weakness is low in tone, and has more the character of whining or moaning; it is often indicative of marasmus, atelectasis, or of hereditary syphilis when it has also a nasal tone. A hoarse cry denotes a catarrhal condition of the larynx which may be due to "cold," syphilis, diphtheria, or pseudo-croup. The "croupy" cry, with corresponding cough, signifies a dry or inflamed condition of the vocal cords or a spasmodic closure of the glottis as in laryngismus stridulus. In abdominal pain the crying is usually accompanied by squirming movements of the body and by drawing up of the legs or kicking. It ceases with the evacuation of the bowels in catarrh of the small intestine, but accompanies and follows it in colitis or dysentery. Laying the infant upon its abdomen stops it, not by relieving the pain, but by so impeding the respiration that it cannot cry. When continuous crying is unaccompanied by other symptoms of illness, errors may often be avoided by the removal of all clothing in order to exclude such causes as the pricking of a pin, inflammation about the umbilicus, or a recently developed hernia, dislocation, or fracture. The infant with rheumatism or pleurisy, and not infrequently the rachitic child, cries with pain when it is picked up; pressure upon different regions in succession will generally locate the tenderness.

In older children the manner of crying is often an index to the emotion expressed. In the cry of fear, for example, the eyes remain open and the orbits are turned toward the source of danger; the lips and often the entire face become pale; the outcry is short and loud. The cry of anger is also loud, but the lower lip protrudes in a pout, and the face becomes livid. The peevish cry of the spoiled child is accompanied by peeping eyes, a scarcity of tears, and whining often breaking into a staccato movement. The cry of pain corresponds to the character of the pain and varies from a sudden violent scream to a whine more like that of peevishness. In anger or pain the breath is often held until the face becomes cyanotic and the veins become distended. Convulsions have followed such paroxysms, and death has been attributed to them in a few instances. Such results would probably more frequently follow were it not for the anatomical peculiarities of the infant's circulation which permit the distention of superficial vessels and the more rapid flow of venous blood from the cranium. Finally, crying often becomes a habit with over-indulged children. Even young infants learn it and cry not merely for food or drink, but to be carried, to be rocked, for the light, or apparently for no other purpose than to attract attention. It is easily cured by persistent and total disregard of it on the part of the nurse.

Crying has also its significance in the adult, but much depends upon the emotional nature of the individual. Some persons maintain a stoical indifference to the most trying circumstances, while others are moved to tears by the merest trifles. The latter class are especially susceptible to the influence of suggestion. Crying frequently occurs in intoxication by alcohol and other stimulants, especially in advanced dypsomania. In the morphine habitué when frequent, it is sometimes indicative of the approach of imbecility. The weeping of the hysterical woman is characteristic in the depth of grief expressed, in the violence of the outcry, or its dramatic pathos, and especially in its sudden change to an equally violent fit of laughter. Crying is often a symptom of neurasthenia. In paralytic dementia and other forms of emotional insanity a tendency to weep is sometimes one of the earliest symptoms, and in the closing period of the disease it may often be induced by the most trivial circumstances, the asking of a question, or a mere glance at the patient. Many other diseases not necessarily involving the mind are attended by so great depression of spirit as to render it of frequent occurrence. Not infrequently, however, temporary improvement seems to follow a good fit of crying just as it often follows hearty laughter. *James M. French.*

CUBA.—Cuba was discovered by Columbus on October 28th, 1492, and was called by him Juana, in honor of Prince Juan, son of Ferdinand and Isabella. Its present name is that by which it was known among the natives at the time of the discovery.

GEOGRAPHY.—The island of Cuba is very long and narrow, and lies between the 74° and 84° of west longitude and the 19° and 23° of north latitude. Its average breadth is about 80 miles. Nowhere is it more than 100 miles wide, and in the longitude of Havana it is less than 20 miles from sea to sea. Its length is about eight times its average breadth. Its extreme length, measured along a curved line following its centre, from Cape Maisi, in the east, to Cape San Antonio, in the west, is about 730 miles. The area of Cuba, including its adjacent keys and islands, is estimated at 45,000 square miles, a little less than that of the State of New York. The coast is very extensive, nearly 2,000 miles, and is surrounded by numerous small islands and reefs. In most places the coast rises abruptly from the sea. The principal exception is found in the great Zapata swamp on the south central coast. A number of good harbors indent the shore. The natural drainage of the island, as a whole, is excellent. The highest part of Cuba is a range of mountains known as the Sierra Maestra, bordering the southeast coast from Cape Maisi to Cape Cruz. The highest peaks of this range are the Pico de Turquino, 7,670 feet, the highest point in the island; Gran Pedra, 5,200 feet; Yunque, and Ojo del Toro, 3,000 feet above the level of the sea. From this range there extends very nearly through the centre of the island a general ridge, or range of hills, of greater or less elevation. In the extreme western part of the island, this ridge again attains considerable height in the Pan de Guajaibon, which is 2,530 feet above the sea. The island is divided by this ridge into two general watersheds, one draining toward the north and the other toward the south. About one-fourth the total area is estimated as mountainous, three-fifths as rolling plains, valleys, and arable slopes, the rest swamps. According to Humboldt, the general "face of the interior of the island is gently undulating, like that of England, and not more than 280 to 380 feet above the level of the sea." The rivers are numerous but short. Minerals are probably abundant, but of the metals, only copper, and, of late years, iron have been mined profitably. Coal of good quality abounds, and petroleum springs are found in some parts. Mineral springs of local celebrity exist in the different provinces. Those of San Diego, in Pinar del Rio, and at Madruga, the Saratoga of Cuba, southwest of Matanzas, are most frequented. The water of the latter contains iron, sulphur, magnesia, and potassa.

FLORA.—The flora is tropical and abundant, and the soil is fertile. Extensive forests, so dense as to be almost impenetrable, exist. About 13,000,000 acres of uncleared forest yet remain. Mahogany, lignum vitæ, and other hard woods are plentiful. Coco-wood out of which reed instruments are made, and *Cedrela odorata* used for cigar boxes and linings of cabinet work, abound. Numerous varieties of palms, the most common and useful of the Cuban woods, are found. The fruits are those common to the tropics. Sugar-cane, tobacco, coffee, sweet potatoes, Indian corn, and rice are cultivated extensively. The first two are the staple products. Cattle raising is said to be profitable in the highlands.

FAUNA.—Only a few mammals are known to be indigenous. None are large. Wild dogs and cats, sprung from the domestic animals, are numerous. Of the indigenous, the agouti, a rodent of the size of the domestic rabbit, is plentiful. The agouti is peculiar and common to all the West Indies. Another peculiar animal is an insectivore, the solenodon. Venomous reptiles there are none. There is a large snake of the boa variety called the maja, but it does not molest man. Crocodiles are found in the Isle of Pines, off the south coast. Insects are abundant in number and variety. Many arachnids are also found; but their bites, though painful, are said not to be dangerous. The rivers are well supplied with fish. Oysters and other shellfish are plentiful, but the quality is inferior. The peculiar marine mammal, the manatee, is found in the shallower waters along the coast. The birds are numerous, the parrot is the most conspicuous.

CLIMATE.—The climate of Cuba has the general characteristics of all tropical islands: *i.e.*, high and equable temperature and humidity, and abundant rainfall. Its particular situation in the north tropical zone brings it within the region of the northeast trade winds. As elsewhere in the tropics, the year is divided into a hotter and wet season and a cooler and dry season, corresponding, north of the equator, with the northern and southern declinations of the sun. In all tropical regions, the heat and the rainfall are both greater the nearer the sun is to the vertical, or, in other words, they follow the sun. Local departures from these general characters are to be found, caused largely or entirely by differences in altitude, exposure and slope of the surface, and position with respect to the prevailing winds of the zone. From its geographical position and its configuration, Cuba undoubtedly presents many of these local variations. Unfortunately, however, the meteorological statistics available are too few and meagre to give other than a very imperfect idea of the local climates of the island.

Temperature.—Cuba lies between the sea-level isotherms of 77° and 80° F. The average temperature of Havana is 77° F. The highest temperature recorded at Havana is 100.6° F., and the lowest 49.6° F. At Guanabacoa on the coast, 5 miles east of Havana, the temperature for one year was 76.8° F., and at Matanzas, on the coast, 50 miles east of Havana, the mean temperature, two years' record, was 78° F., and the highest and lowest temperatures were 93° F. and 51° F. respectively. On the south coast, at Firmeza, 16 miles east of Santiago de Cuba, and 500 feet above sea level, the average temperature for ten years was 79.8° F. At Santiago the average temperature, determined from very incomplete records, is about 80° F. The highest temperature recorded in July, 1899, was 90.3° F., and the lowest in January of the same year was 67.5° F. At Cienfuegos the average temperature for eleven months was 76° F., and the highest and lowest were 94° and 49° F. respectively. A visitor to Trinidad de Cuba stated that during a winter spent there the temperature did not go above 84° F.

or below 64° F. in the interior. The mean temperature at Ubajay, a village about 15 miles southwest of Havana, and about 242 feet above sea level, from a series of four years' observations made in 1796–99, was 73.6° F. At the San Fernando mines, almost in the centre of Santa Clara province, at an elevation of 554 feet above sea level, the average temperature for one year was 75° F., and the highest and lowest temperatures were 98° and 51° F. The average temperature for eleven months at Puerto Principe was 75.6° F., and the highest and lowest temperatures were 98° and 49° F. respectively. The average temperature of the months of June, July, and August, and of December, January, and February, corresponding to the summer and winter seasons of north temperature latitudes, and respectively the warmest and coolest parts of the year in Cuba, differ about 10° F. at Havana and 6° F. at Firmeza. In the interior, the difference is greater than on the coast, and is probably from 12° to 18° F. Humboldt states that he was credibly assured that in the country near Havana, on a hill 318 feet above the sea level, water had frozen, the ice being several lines in thickness. Snow is said to have fallen once. The average temperatures (Fahr.) of the summer and winter months at several Cuban stations are shown in the subjoined table, together with the same data for several places in the West Indies and elsewhere:

Station.	Summer.*	Winter.†
Havana (ten years)	82.0°	71.2°
Ubajay (four years)	83.1	65.0
San Fernando mines (one year)	79.7	69.7
Firmeza (ten years)	81.4	75.9
Santiago (four years)	83.4	77.8
Key West, Fla. (twenty-one years)	83.8	71.1
San Juan, Porto Rico (twelve years)	81.3	76.3
Kingston, Jamaica (ten years)	80.8	75.0
Praia, Cape Verde Islands (five years)	78.1	73.1
Honolulu, Hawaii (seven years)	77.2	70.6
Manila, Philippines (seventeen years)	81.3	77.3
New Orleans, La. (twenty-five years)	81.3	55.8
Galveston, Tex. (eighteen years)	83.3	55.6
Washington, D. C. (twenty-five years)	74.9	35.1

* June, July, and August. †December, January, and February.

San Juan, Kingston, Praia, Honolulu, and Manila are situated nearly within or not very distant from the same latitudes as the Cuban stations. The diurnal range of temperature varies a good deal in different months and in different localities. At Havana, the average is perhaps a little more than 10° F. The greatest daily range of temperature observed in five years was 23° F. The greatest daily range observed at the San Fernando mines in 1839 was 18° F. The maximum temperature of the day occurs generally between noon and two o'clock in the afternoon, and the minimum temperature usually between dawn and sunrise.

Humidity.—The average relative humidity at Havana is seventy-five per cent., and so little does it vary, that one month cannot be said to be drier or damper than another. The diurnal range is, however, considerable, varying from eighty-eight per cent. in the morning to sixty-four per cent. at noon. The absolute humidity averages from six to eight grains of vapor per cubic foot.

Rainfall.—The fall of rain is, as a rule, greater during the months of May to October. On the average the greatest amount falls in October and the next greatest in June. Relatively the greater part of rain at Havana falls during the months from June to October, the average rainfall for which period is 32.37 inches, or sixty-three per cent. of the annual fall. The average rainfall for the "dry season" is 19.36 inches. It is worth stating that four times in thirty years more rain fell in the "dry season" than in the "rainy season." The number of days in the year on which rain falls in Cuba is relatively large. At Havana, the average is one day out of every three. Notwithstanding the great frequency of rain, the days on which precipitation occurs are not continuously cloudy. As a rule, the rain falls in heavy showers, and the clouds generally break up as soon as the rain ceases, leaving the sky clear and bright. Out of 714 days on which rain occurred in the course of seven years, Ramon de la Sagra records that the rain fell after the middle of the day 449 times, before the middle of the day 146 times, and both before and after the middle of the day, 119 times. The divisions of the seasons of Cuba into "rainy" and "dry," as already alluded to, is purely a relative classification. More rain falls at Havana during the "dry season" than falls in the entire year at Denver, Col. (14.5 inches), or Los Angeles, Cal. (18.1 inches). The following table shows the average amount of rain falling in the "rainy" and "dry" seasons at several stations in Cuba and at a number of other places in the West Indies and elsewhere in the same seasons or in the corresponding time:

Station.	Rainy season, May to October.	Dry season, November to April.
	Inches.	Inches.
Havana* (thirty years)	32.37	19.36
Matanzas (one year)	44.01	11.28
Santiago (one year)	24.31	9.51
Firmeza (ten years)	47.78	13.97
Port au Prince, Hayti (four years)	39.05	22.12
San Juan, Porto Rico (twelve years)	35.83	25.38
Kingston, Jamaica (ten years)	26.03	6.61
Key West, Fla. (twenty-five years)	29.50	10.60
Honolulu, Hawaii (sixteen years)	14.65	24.89
Manila, Philippines (thirty-two years)	55.04	20.39
New Orleans, La. (twenty-five years)	27.00	33.52
Washington, D. C. (twenty-five years)	24.10	20.60

*Rainy season, June to October; dry, November to May.

Winds.—The prevailing winds are the "northeast trades." Except when influenced by the passage of cyclonic or anticyclonic areas, the wind blows steadily from points between east and north. During the passage of storms and areas of high barometric pressure, however, the winds may blow from any direction, being governed in this regard by the location of the centre of cyclonic or anticyclonic activity. In the winter season, cold waves in the United States, when extending far to the southward, cause cold northerly winds, or "norther" along the north Cuban coast. The average velocity of the wind at Havana is about 7.5 miles an hour. The diurnal variation in the velocity of the wind is much more pronounced than the seasonal variation. The wind increases with great regularity from a minimum of four miles per hour about 4 A.M., to a maximum of eleven miles per hour at 2 P.M., and then declines gradually to its minimum. In a climate having such high temperatures and humidities as that of Cuba, the velocity of the wind and its constancy are of the greatest importance to comfort and health.

Storms.—Thunder storms, accompanied by profuse electrical display, are of frequent occurrence; especially is this so during the summer, when they are almost a daily characteristic of the afternoon weather. Very little damage, however, results from either the wind or the lightning. Cuba, in common with the other islands of the West Indies, is occasionally visited by very destructive storms of the class known as tropical hurricanes. Fortunately these storms are of infrequent occurrence, and when they do happen, their destructive energy is limited to a relatively narrow region in the course of their path. Experience and statistics both show that these storms are most likely to occur in August, September, and October. The history of 22 of these hurricanes occurring since 1872 has been collected and their paths have been determined; of the 22 only 7 passed over Cuba. The following table shows the average climatic conditions for ten years at Havana.

Health.—Cuba has a somewhat unenviable hygienic reputation. Climatically, there is no reason why Cuba should not be as healthful as Jamaica or Porto Rico. The prevalent diseases are fevers of the malarial type, yellow fever, dysenteric disorders, and tuberculosis. The mortality is high. From the best sources Chaille esti-

Havana.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Temperature (degrees, Fahrenheit)—													
Mean	70.3	72.0	73.2	76.1	78.8	81.5	82.4	82.2	80.7	78.1	75.3	71.4	76.8
Highest	84.4	87.6	91.4	93.6	99.0	97.7	100.6	98.6	96.6	91.9	88.7	86.0	100.6
Lowest	52.2	49.6	55.0	52.9	64.4	69.1	71.2	69.8	70.9	61.7	56.5	51.8	49.6
Rainfall—													
Mean	2.32	2.52	2.50	1.46	5.15	8.29	5.09	5.43	7.62	8.49	4.24	1.93	55.14
Greatest	6.31	6.18	5.05	5.67	17.51	17.56	7.13	9.36	13.57	13.53	7.94	5.56	60.06
Least	.02	.20	.56	0.00	.33	1.50	3.10	1.45	3.15	1.47	1.45	.30	46.02
Number of days on which rain fell—													
Mean	7.5	6.2	5.9	3.8	9.9	14.3	13.0	13.3	16.7	15.6	12.3	9.0	127.5
Greatest	14	11	10	9	16	20	16	21	25	22	18	16	149
Least	1	2	3	0.00	3	7	11	9	11	10	8	4	120
Humidity—													
Mean relative per cent.	75	73	70	69	71	76	74	75	79	78	77	74	74
Mean absolute grains per cubic foot	6.2	6.4	6.3	6.8	7.6	8.7	8.8	8.8	8.9	8.1	7.4	6.3	7.5
Wind—													
Average velocity, miles per hour	7.8	8.3	8.7	9.2	7.8	6.7	6.5	6.3	6.5	7.8	8.7	8.3	7.8
Prevailing direction	E.	E.	E.	E.	E.	E.	E.	E.	E.	N. E.	E.	E.	E.

mated the death rate of Havana as 36.3 per 1,000, of Guanabacoa as 39.8 per 1,000, and of Marianao as 39.5 per 1,000. These latter places are suburban resorts of Havana, much frequented by invalids; hence the probable cause of their increased mortality. Among the diseases causing death, the Havana statistics show tuberculosis first, intestinal diseases second, and fevers third. Yellow fever is endemic in Havana and most of the other sea ports. It is infrequent in the interior of the island, and always the result of importation. The sanitary conditions of Havana and the other larger cities and towns are bad. A special report shows that three-fourths of Havana's population live in the most densely populated locality in the world. Crowded together in badly ventilated dwellings, with floors directly on the soil, and sinks and cesspools at the doors, with no sewage system, it is not to be wondered that disease finds congenial aboard. With intelligent sanitation, Havana (and Cuba) can be made as healthful as any other place in the tropics.

Precautions for Visitors.—No water should be drunk, unless previously filtered or boiled. Food should be well and properly cooked, and should be partaken of moderately. As a rule, persons going from a colder to a warmer climate experience some loss of desire for food; this is natural, and should occasion no uneasiness. No effort should be made to get up an appetite by the use of stimulants. Linen or cotton garments should be preferred to woollen. Clothing should be worn loosely about the body, especially about the abdomen and the throat. Wet clothing should be exchanged for dry as soon as practicable. At night it is a wise precaution to protect the abdomen by using a bandage of gauze or other light material, as it lessens the likelihood of undue cooling from nocturnal radiation which is relatively very great in tropical latitudes. For the same reason the night should be passed under roof, or shelter of some kind. A mosquito net should always be used as a protection from mosquitoes, gnats, and other biting insects, all of which may carry disease germs and infect by their bites. Exercise and work should be engaged in moderately at first, and then only during the cooler parts of the day, that is, before 10 A.M. and after 3 P.M., and never at night. An umbrella should be used as much as practicable when one is exposed to the sun. *W. F. R. Phillips.*

CUBEB.—Cubeba. "Cubebs." "The unripe fruit of *Piper Cubeba* L. (fam. *Piperaceæ*)" (U. S. P.).

This species is a climbing plant with perennial, smooth, flexuous, branched stems, and alternate lanceolate, bright green, and shining leaves. The flowers are dicœcious and aggregated in close linear catkin-like spikes. Native of Java, Sumatra, Borneo; also cultivated in the coffee plantations of Java and Sumatra, as well as in the West Indies. The drug generally reaches us through the commercial ports of India. It has been known in Europe since the Middle Ages, having been introduced through the Arabian physicians, and its earliest employment appears to have been as a spice. It was, however, used in genito-urinary troubles by the Arabians centuries ago; but that employment either never took any hold in European medical practice or completely died out long ago, and was not revived until the beginning of the present century, when it was reintroduced by medical officers stationed in India.

"Cubeb" consists of the whole fruits dried. They are about 5 mm. (¼ in.) in diameter, globular, wrinkled by the shrinking of the juicy mesocarp, slightly pointed at the apex, sometimes flattened at the base, from which the slender brittle stalks, in reality the narrowed portion of the fruit, projects from 2 to 6 mm. They each contain a roundish stone within which is a single flattish seed, or, as the fruits are collected before maturity, frequently an air space. Color, grayish-brown, or blackish; odor, strongly aromatic and peculiar; taste, spicy, but milder than that of pepper.

Cubeb has been the subject of very extensive adulteration, and the adulterants have been numerous, chiefly the fruits of other species of Piper. They are to be distinguished chiefly by the characters of the stalk and the taste. The stem (rachis) of the cluster, which is to be sifted out, is also extensively sold for cubeb, in the ground state.

Cubeb contains from six to twelve or more per cent. of a composite *essential oil*, which is official (*Oleum Cubebæ*, U. S. P.), also about three per cent. of an amorphous resin, nearly an equal amount of *cubebic acid*, and *cubebin*, besides some fat and other uninteresting ingredients. Cubebin is bitter, but nearly inert. The resin and cubebic acid are active, but the value of the drug depends chiefly upon the oil, which is considered below. All the above substances combined, extracted by ether and concentrated by evaporating the solvent, compose the so-called "Oleo-resin of Cubeb" (*Oleo-resina Cubebæ*, U. S. P.), of which the yield is from sixteen to twenty per cent. of the cubeb.

Action and Use.—Cubeb is mainly an aromatic spice, like its near relative, pepper. The odor and flavor are due to its oil, the pungent taste to its amorphous resin. As a local stimulant to digestion, as an ingredient of cough mixtures and gargles, it has a certain value which it shares with others of its class. But nearly all the call for cubeb is in diseases of the bladder and urethra, especially in gonorrhœa and gleet. It is eliminated by the kidneys, whose secretion it augments slightly and scents decidedly, and the urine so impregnated soothes the bladder and urethra, through which it passes, and diminishes the formation of pus—by exactly what process cannot be said.

The drug is distinctly inferior to copaiba, for the same purpose.

Its irritating effect upon the stomach is apt to be reflected upon the skin by an erythematous eruption, which,

however, cannot be regarded as characteristic of this drug.

ADMINISTRATION.—It may be given in powder, the dose of which is from 4 to 10 gm. (2 to 4 gm. = 3 ss. to i.); the bulk is generally an objection. There are official, besides the oleo-resin, a fluid extract and a twenty-per-cent. tincture, both good, which may be reduced, if desired, by syrup or mucilage. The oleo-resin represents about six times its weight of cubeb. From the oleo-resin are made the troches of cubeb, each containing 0.04 gm. (about gr. ss.), considerably used as a popular "expectorant" in pharyngitis, etc. *Henry H. Rusby.*

CUBEB, OIL OF.—OLEUM CUBEBÆ. The source of this oil is explained above. It varies from colorless to greenish or yellowish, has a specific gravity of about 0.920 and dissolves in an equal volume of alcohol. It has the characteristic odor of cubeb. It consists chiefly of cadinene ($C_{15}H_{24}$), apparently identical with the active portion of oil of copaiba. Upon keeping the oil, a portion of it becomes converted into cubeb camphor ($C_{15}H_{24}.H_2O$). The same change occurs in it in the fruit if the latter becomes old, and this product will be contained in the oil distilled from such fruit. Oil of cubeb has the same properties as cubeb, and is given for the same purposes, in doses of 0.3 to 1 c.c. (♏v. to xv.). *Henry H. Rusby.*

CUCUMBER. See *Cucurbitaceæ.*

CUCURBITACEÆ.—(The Cucumber or Gourd Family.) A family of some ninety genera and more than five hundred species, of great economic interest, both generally and medicinally. The plants are perennial, tendril-bearing herbs or undershrubs, rarely shrubs, and either prostrate or climbing. They inhabit warm, and especially tropical regions, throughout the globe. They are of rather delicate vitality and easily destroyed by accident, yet they are very commonly inhabitants of sandy, arid regions, and the family is noted for its protective provisions. Most common among these are purgative or poisonous constituents. These are very commonly stored in large fleshy and starchy roots, like the bryony, many of which have to endure long periods of rest, subject to decay, against which they can be protected by resins, and to attacks by foraging animals, against which they are protected by poisonous glucosides. The pulpy fruits, like those of colocynth and elaterium, are often similarly protected. The seeds are very commonly anthelmintic and diuretic. Besides the well-known drugs colocynth, elaterium, bryony, and pumpkin seed, separately considered, a very large number are used locally, or in domestic practice, for the same purposes. Among such seeds may be mentioned those of squash, cucumber, and melon; among roots, various species of Wilbrandia, Megarhiza, Cayaponia, Corollocarpus, Kedrostis, Modecca, Melothria, and Lagenaria; among fruits, species of Luffa, Momordica, and Trichosanthus, besides those of some of the above-mentioned genera. The use of the bland pulps of some of these fruits, such as cucumber, for poultices, is to be regarded as chiefly, if not wholly, mechanical. The juice of the stems and fruits frequently carries the drastic principle. Upon the other hand, many of our most useful vegetables are derived from these fruits, as the melons, pumpkins, squashes, cucumbers, citron melons, cayotes, calabashes, and acchocte. The well-known dish-rag gourd is elsewhere considered. *Henry H. Rusby.*

CUDBEAR. See *Litmus.*

CUINCHO.—Michoacan, Mexico. These springs are located 10 kgm. northwest of the city of Morelia. The water has a temperature of 100° F. Dr. Zuñiga, to whom we are indebted for a study of these springs, says, in speaking of the water: "It is perfectly clear, odorless, colorless, its taste is insipid and its reaction neutral." It contains eighteen grains of fixed substances per United States gallon and on analysis yields the following results: Lime, magnesia, soda, chlorine, and carbonic acid. A recent issue of the Mexican Pharmacopœia says the water contains sulphate of lime and magnesia, carbonate of lime, carbonate of potassa, and carbonate of soda and magnesia, with some chloride of lime and magnesia.

Notwithstanding the fact that the bathing facilities are rather primitive in character, large numbers of people employ these waters in the belief that they are useful in such affections as chronic malaria, hypochondriasis, and the uric-acid diathesis. *N. J. Ponce de Léon.*

CUMARIN, or COUMARIN.—*Cumaric Anhydride. Tonka Bean Camphor* ($C_6H_4.O.CO.CH.CH$). This is the odorous principle of a number of plants or plant parts, more especially of the tonka bean, the deer's-tongue, sweet clover or melilot, and a number of species of grasses, notably the *Anthoxanthum odoratum* L. and *Savastana odorata* (L.) Scribn. It is also largely produced artificially in several ways. It occurs in white crystals which melt at 67° C., and which are soluble in alcohol but not in water. In all of these plants it can scarcely be detected in the fresh or growing state, but develops in drying. In the tonka bean it is developed by the action of alcohol, which frequently leaves the beans with a crystalline surface, due to this substance. This is frequently rubbed off, wholly or partly, and even replaced by similarly appearing substances. Cumarin has an odor very similar to that of vanilla, and a burning taste. It is exclusively employed for perfuming and flavoring, chiefly to substitute vanilla. Large doses are said to exert a primary stimulant and a secondary paralyzant action upon the heart. *Henry H. Rusby.*

CUMIN.—CUMMIN. CUMINUM. The fruit of *Cuminum Cyminum* L. (fam. *Umbelliferæ*), a low annual of the caraway type, probably of Asiatic origin, but extensively cultivated in China, India, and parts of Europe for its aromatic fruits. The odor and taste are strongly aromatic, but less pleasant than many others in the family, on which account it is scarcely used in this country.

Cumin yields about three per cent. of a clear, yellow *essential oil* of spicy taste and odor, and having the general medical properties of the innocuous portion of the family. The oil is separable into *cuminol* or cuminaldehyde ($C_{10}H_{12}O$) and *cymol* ($C_{10}H_{14}$). Cumin is used everywhere in the East, and to a less extent in Europe, as a domestic flavor, and is said to be one of the components of curry powder; also an ingredient in some European liqueurs. In plasters and liniments, and in veterinary practice, it is also occasionally employed. It is an excellent carminative. The dose is 0.5 to 2 gm. (gr. viij. to xxx.); of the oil, ♏ij. to viij. *W. P. Bolles.*

CUPREA BARK. See *Cinchona.*

CUPRIASEPTOL.—$Cu(C_6H_4.OH.SO_3)_2.H_2O$. Copper phenolsulfonate, copper sulphocarbolate. This is prepared by heating a mixture of phenol and sulphuric acid, and saturating the product with copper oxide. It occurs either as small light-green needles or as a coarse crystalline powder, and contains 12.4 per cent. of copper. It is recommended as a hæmostatic. *W. A. Bastedo.*

CURARE.—*Woorari. Ourari.* This is a complex mixture of inspissated juices, which, in the relatively fresh state, is used as an arrow poison by the Indians of South America. Its composition is not known, but investigations have shown that there is always present the juice of certain species of *strychnos* which are indigenous to the country. Other species of strychnos are the source of similar poisons. In Java and Borneo, *S. tiente* yields a poison also used by the natives for poisoning their arrows; in Africa, *S. icaega* Baill. and *S. kipapa* Gigl. are the source of a powerful ordeal poison; and many other species supply active poisons, among them the well-known *S. nux vomica* L. The composition of curare varies according to the tribe from which it is obtained, each tribe selecting the tree growing in its immediate neighborhood and preparing the juice according to its tribal custom. Four varieties have been described:

First, that of the Amazon valley, from *S. Castelnæana* Weddell, a large woody climber growing in most parts of Brazil, and also in Colombia and among the Andes. The bark of the stem is the part employed. Secondly, that of the upper Orinoco region, from an imperfectly known species *S. gubleri*, possibly identical with *S. toxifera* Bentham. Thirdly, the curare of British Guiana which is attributed to the just-named *S. toxifera*. And, finally, that of French Guiana, which, on the authority of Dr. Crévaux, is attributed to *S. Crévauxii* Baillon.

The method of preparation has been described by travellers, some of whom spoke only from hearsay, while others were present during its compounding. The bark of the vine is the part employed. It is scraped and cut into small pieces, and the juice is obtained by a crude method of percolation and infusion. To this product are added the juices of several other plants, and, in some specimens, ants are found incorporated, and it is also said that the venom of certain snakes is added. Our knowledge of the manufacture and composition of curare is very obscure, and we are not able to distinguish the various forms that reach the market. It comes in earthenware pots, or in vessels formed from gourds, into which it has been poured when in a liquid state.

It occurs as a dark, brittle extract, with a disagreeable odor and a bitter taste. It is almost entirely soluble in water.

The active principle *curarine*, discovered in 1856 by Preyer, is separated as a colorless crystalline body, very deliquescent, very bitter in taste, and alkaline in reaction. With sulphuric acid it gives a blue color which serves to distinguish it from strychnine.

Curare exercises a depressant action upon the peripheral terminations of the motor nerves, affecting first the voluntary and later the involuntary muscles. When it is administered in small doses the brain and sensory nerves remain unaffected, but when it is given in large doses its effects extend to the central nervous system, producing a general paralysis, with disturbed special senses and loss of consciousness. Death takes place from failure of respiration, the respiratory muscles being affected earlier than the respiratory centre. Curare is rapidly absorbed and as rapidly removed from the system with the urine. In many cases of poisoning, this excretion of the poison favors the adoption of artificial respiration as a very rational mode of treatment. The kidneys begin to act quickly, and the poison may be eliminated in a few hours. If respiration can be maintained for that period the effects of the poison may be readily overcome. During the action of curare the body temperature is raised. After moderate doses there is a gradual failure of muscular power with loss of reflexes, and this may terminate in complete motor paralysis. The respirations are more frequent and become shallow and labored. The pulse is increased in force and frequency. The secretion of urine becomes greater. When the drug is given in larger doses all these symptoms are aggravated. There is also some fever, with marked depression. The heart becomes feeble and the vessels are dilated; and shivering alternates with fever, trembling, and clammy perspiration. According to reports, some specimens of curare produce muscular twitching and spasms.

As a therapeutic agent curare is of little value. Its power of preventing muscular contractions has suggested its employment in all conditions in which muscular spasm is a prominent symptom. In these, however, it cannot prove of much value, as it produces its effect through the peripheral nerves, and has little or no action upon the central nervous system, such as calabar bean and similar drugs exercise. It has been employed in poisoning with strychnine, and in hydrophobia, tetanus, epilepsy, and chorea. A case of hydrophobia has been reported in which the spasms were controlled by curare in doses of from gr. ¼ to ½, administered hypodermically, and recovery ensued. In a case of tetanus, gr. iv. were administered during twenty-four hours with success.

The dose of curare is from gr. $\frac{1}{10}$ to ½, to be administered hypodermically. Its effects require to be carefully watched, the smallest dose being given at first, and the amount being gradually increased until the desired effect is procured. When a new supply of the drug is obtained, the same care in determining the dose is to be observed. On account of the great unreliability of the drug, it has been advised that *curarine* should be employed, the dose of which, to begin with, is gr. $\frac{1}{100}$.

The rapid action of curare, when injected beneath the skin or when applied to the denuded surface, is not evident when it is administered by the stomach or bowel. This slow absorption by mucous surfaces has given rise to the idea that it has no effect when given in this way. When it is administered in larger quantities its action is equally severe. Its diminished activity is explained by the rapid elimination of the poison, which is removed almost as quickly as it is absorbed. Another explanation is that the poison is neutralized as it passes through the liver by way of the portal vein. *Beaumont Small.*

CURCAS. See *Jatrophaie.*

CURCUMA.—TURMERIC. The rhizome of *Curcuma longa* L. (fam., *Zingiberaceæ*), a perennial, flag-like herb of India, where, as well as in other parts of Asia, it has long been cultivated.

Curcuma is distinguished in trade as "long" and "round" varieties, which for a long while were supposed to be from different plants. They are now known to be the principal and lateral rhizomes of the same. Round curcuma is about as large as a pigeon's egg, oval, flattened, rounded at the ends and encircled by the lines of numerous nodes. The long variety, which is more common, is from 3 to 6 cm. long, and from 0.5 to 1 cm. in diameter (2 in. × ¼ in.), encircled by a number of distinctly marked nodular rings. The different varieties range in color, externally, from bright yellow (Madras) to brown (Bengal) or gray (Java); internally from deep yellow through orange and brown to nearly black. Odor strong, peculiar, not disagreeable; taste aromatic, bitterish. It contains a clear yellow *essential oil*, which is its aromatic portion, much fixed oil, resin, and a deep yellow, crystalline coloring matter, *curcumin*, which becomes carmine red with acids, and reddish-brown with alkalies.

Properties similar to those of ginger, but not much used here—either as a medicine or as a condiment. It is extensively consumed in Asia as a spice, and is the basis of curry. In the arts, tumeric is employed to dye cloths yellow; in chemistry, to a slight extent, as a test for alkalies; in pharmacy, now and then to color ointments and other preparations. It is largely employed as an addition to ground mustard, to ameliorate its acridity, generally regarded as too great to admit of the table use of the pure article, and also as an adulterant of the same in its medicinal form. *Henry H. Rusby.*

CUTTLEFISH BONE.—A very light and fragile calcareous skeleton found in the cuttlefish, *Sepia officinalis* L. (order, *Dibranchiata, Loliginea*). The "bone" of this Mediterranean mollusk is found in the dorsal part of the body beneath the mantle. It is obtained by collecting the mollusks and allowing them to putrefy, or by picking up those that wash ashore. When whole it is of oblong or lanceolate outline, strongly flattened, with one surface (the dorsal) hard and smooth, and one very spongy, light, and friable. The structure is very open, laminated, and light, the entire bone when dry floating upon water. Odor, none or slight; taste, saline.

There is a considerable demand for cuttle bones—partly for cage-birds and partly for dentifrices, polishing powders, face powders, etc. It consists almost entirely of carbonate of lime, with a little phosphate of lime and some animal matter. Its early use as an antacid, etc., is now of the past. *W. P. Bolles.*

CYANIDES.—The only cyanides that concern the physician are those, respectively, of *silver, mercury,* and *potas-*