

Solids.	Grains.
Bicarbonate of iron	0.126
Alumina	Undetermined.
Silica	2.789
Organic matter	Trace.
Carbonic acid, free	70.498 3.041

The waters also contain sulphureted hydrogen to the amount of 0.3 grain, equivalent to 0.8 cubic inch.

These well-known hot sulphur springs are situated on the line of the Canadian Pacific Railway near the eastern face of the Rocky Mountains. They are in an extensive reservation held by the Canadian Government as a national park. The waters are the property of the Government and are supplied to the sanitarium and the hotel. At the springs the waters are free to the public. The springs are two in number, and issue from the mountain-side at about 800 and 1,000 feet above the Bow River, which flows through the valley, and 4,500 feet above sea level. The flow of water is continuous; that from the upper and hotter spring would form a cylindrical stream five inches in diameter. The lower spring is much larger, and issues from a large cave in which is formed a natural basin some six feet in depth. The temperature of the water remains about the same all the year, that of the upper spring being 114° F. and that of the lower 95° F.

A large modern sanitarium has been erected, and every form of steam and hot-water bath is provided. The proprietor resides on the premises, and, with the aid of a staff of assistants, directs the use of the waters.

A very large and comfortable hotel has been erected by the railway company for the accommodation of tourists and visitors. It also affords every facility for baths and other uses of the water. The surrounding country is a series of snow-clad peaks, which possess all the grandeur of the mountain range, and a number of Swiss guides are kept to assist those who may desire to explore the mountains. Facilities for hunting and fishing are unsurpassed.

The air is exhilarating and the climate very favorable, the heat of summer and the cold of winter rarely being excessive. There are few places on this continent where the conditions for carrying out the high-altitude cure are as favorable as they are at Banff. The following record is taken at the Government observatory on the spot:

BANFF, ALBERTA. N. W. T., LATITUDE N. 51° 10'. LONGITUDE W. 115° 35'. HEIGHT ABOVE SEA LEVEL, 4,542 FEET.

Months.	PRESSURE.			TEMPERATURE.			Rain, inches.	Snow, inches.	Precipitation, inch.
	Monthly Mean.	EXTREMES.		Mean.	EXTREMES.				
		Max.	Min.		Max.	Min.			
January ..	25.22	25.61	24.90	16.4	30.2	-8.9	...	24.65	2.47
February ..	25.19	25.73	24.63	19.3	44.2	-23.2	...	9.95	0.99
March	25.25	25.63	24.89	17.9	41.8	-27.3	...	0.81	0.81
April	25.32	25.71	24.80	36.6	65.1	7.8	...	3.08	3.08
May	25.31	25.67	24.96	44.9	72.4	20.8	...	2.15	2.15
June	25.35	25.87	25.09	51.1	80.1	30.2	...	4.54	4.54
July	25.38	25.63	24.96	56.2	85.3	30.5	...	2.37	2.37
August	25.39	25.59	25.12	59.9	85.2	32.0	...	1.73	1.73
September ..	25.32	25.79	24.94	48.0	73.3	24.8	...	1.09	1.09
October	25.39	25.79	24.89	35.0	47.6	15.8	...	8.65	0.93
November ..	25.20	25.63	24.76	20.9	41.8	-15.8	...	1.08	0.20
December ..	25.36	25.85	24.76	19.2	48.0	-25.5	...		
Year ...	25.30	25.71	24.89	35.5	55.3	-27.3	15.93	44.33	20.26

NOTE.—Barometer not reduced to sea level.

The number of invalids who are sent to these springs is increasing each year, and the locality promises to become one of the most desirable health resorts on the continent.

Beaumont Small.

BAÑO DE SAN PABLO.—These baths are located in the city of Puebla, Mexico. The water contains the following mineral ingredients: chloride of sodium, sulphate of alumina, chloride of magnesium, carbonate of calcium,

sulphate of calcium, silica, hydrosulphuric acid, and carbonic acid—a total of about 100 grains per United States gallon. The baths here enjoy a wide reputation in Mexico on account of the exceptional excellence of the bathing establishment and also on account of the location in Puebla, which, in the writer's experience, is the most attractive of all the Mexican cities.

N. J. Ponce de León.

BAÑOS DE LAS ARENAS.—Chucandiro, Michoacan, Mexico. This is a large thermal spring having a temperature ranging from 99° to 106° F. The water is clear, slightly yellow in color, and has a neutral reaction and a sulphurous odor.

ONE UNITED STATES GALLON CONTAINS:

Solids.	Grains.
Calcium carbonate	22.98
Magnesium sulphate	7.28
Calcium sulphate	8.16
Sulphurous acid .....	.03
Carbonic acid .....	.30
Total solids	38.75

The analysis is evidently incomplete. The spring discharges more or less hydrogen sulphide and appears to be of the calcic-sulphureted type. Two bathing apartments have been constructed. It is claimed by residents of the locality that the baths are very beneficial in skin diseases and in various forms of neuralgia and rheumatism.

N. J. Ponce de León.

BAÑOS EN EL PEÑÓN.—These celebrated springs are situated four kilometres northeast of the city of Mexico, and their birth, according to the Aztec legend, was coeval with that of the city. The water furnished by the Baños en el Peñón issues from the side of the Peñón mountain. The earth here is composed chiefly of lime deposits interrupted in places by overflows of lava and beds of sandy clay. The flow of water is considerable, and this may be increased almost indefinitely by means of pumps. The water has an average temperature of 114° F., which never varies more than two or three degrees higher or lower. The physical characters are as follows: Perfectly clear, colorless, odorless, slightly saline and pungent—reaction at first slightly acid, afterward alkaline. A solid residue of 130 grains per United States gallon remains after evaporation at 100° C. (212° F.). This residue has been found to consist of the sulphate, the phosphate, and the bicarbonate of calcium, the bicarbonates of magnesium, sodium, potassium, and iron, the chloride of sodium, alumina, manganese, lithia, boric acid, iodine, and organic matter. The water also contains nitrogen, oxygen, and carbonic acid gases, the latter of which is freely discharged as the water flows from the spring.

Cementerio en el Peñón.—This is an artesian well which owes its name to the fact that it is located near an old cemetery. It is about 230 feet in depth. Its waters are also warm like those of the Baños spring. The water is somewhat opalescent in appearance, has a markedly sulphurous odor, and a somewhat pungent and saline taste. Temperature, 99.5° F. Reaction first acid, afterward alkaline. Total solid contents per United States gallon, 96.19 grains—consisting of calcium sulphate, calcium phosphate, calcium bicarbonate, magnesium bicarbonate, sodium bicarbonate, potassium bicarbonate, iron bicarbonate, sodium chloride, silica, alumina, and traces of sodium sulphide, lithia, manganese, iodine, hydrosulphuric acid, and organic matter. Gases present: carbonic acid, nitrogen, and oxygen. A third spring, known as the "Manantial del Hornó" in el Peñón is situated in the neighborhood. This is a heavily carbonated thermal spring. Its waters are very similar to those of the Baños, but are evidently a little more densely mineralized and are not quite so hot. These springs may be classified as of the alkaline-saline-carbonated type, resembling somewhat those of Wiesbaden, Kissingen, and Ems in Europe, and not unlike the Saratoga waters in the United States. According to Dr. Liceago, of Mexico City, the baths of

El Peñón are useful in a great variety of diseased conditions, including particularly subacute and chronic muscular rheumatism, gout, migraine, various neuralgias, diabetes, obesity, and chronic affections of the gastrointestinal tract and liver. The springs have a delightful location in the valley of Mexico at an elevation of 3,000 metres above the sea level. This may be called a region of perpetual spring. During the writer's sojourn in the valley in the months of November and December the atmospheric conditions were very similar to those obtaining in New York in the month of May. The baths here may be employed all the year round. The water is also highly recommended by Mexican physicians for internal use. It should be sipped hot at the springs, beginning in doses of half a tumblerful two or three times a day and gradually increasing the quantity.

N. J. Ponce de León.

BARBADOS.—The island of Barbados (also spelled Barbadoes) lies farthest to windward, *i. e.*, to the eastward, of any of the Windward Islands, in Lat. 13° 4' N., Long. 37° W. For nearly three hundred years the island has been in the possession of the English Government, and Bridgetown, its capital and largest town, is one of the chief commercial centres of the West Indies. The annual sugar crop of Barbados is estimated at about forty thousand hogsheads, and the whole island is under cultivation, the population being very dense (nearly a thousand per square mile). The length of the island, from north to south, is about twenty-one miles, and at its broadest part it extends some fourteen and a half miles from the eastern, or windward, to the western, or leeward shore. Barbados presents every variety of scenery—hill and valley, smooth tableland, and rugged rocks. From one point of view the land rises in a succession of limestone and coral terraces, which indicate different periods of upheaval from the sea. From another there is nothing to be seen but a mass of abruptly rising rocks. The highest elevation, Mount Hillaby, is 1,104 feet above the level of the sea. The island contains but few streams or streamlets. The gullies or ravines—the result, no doubt, of volcanic agency—are, however, very numerous, radiating from the high semicircular ridge of the coralline formation in a very regular manner to the west, north, and south, but not to the east, where the coral rocks end abruptly. . . . The climate of Barbados is healthy; the temperature equable. For eight months in the year the sea breezes keep it delightfully cool for a tropical country. The extent of cultivation, the absence of swamps (the porous character of the rock immediately underlying the soil preventing accumulations of stagnant water), account for the freedom from miasma" (Encyclopædia Britannica). "The northeast trade wind prevails throughout three-fourths of the year, and the rains also come for the most part from the northeast; but at certain times of the year the wind shifts to the southwest and northwest, bringing showers which, however, do not extend across to the windward, or northeast, side of the island. Indeed, it is only exceptionally that rain coming from any direction falls at one and the same time throughout the entire extent of the island. March is the driest month, October the most rainy. . . . During the dry season, December to June, the lowlands on the leeward side of the island have a smaller rainfall than do the other districts; but during the wet months (July to November), when the westerly winds are of most frequent occurrence, the rainfall of these districts exceeds that of other portions of the island" (Hann's "Handbuch der Klimatologie," p. 356).

The average rainfall for each of the twelve months of the year is given in a table to be found on p. 349 of the work just quoted, the figures being as follows:

January	3.267 inches.	July	5.708 inches.
February	2.695 "	August	7.244 "
March	1.456 "	September	6.221 "
April	2.007 "	October	8.766 "
May	3.543 "	November	7.086 "
June	5.433 "	December	4.487 "
Year			57.757 inches.

As we learn from the figures of this table, the total rainfall in Barbados for the six months of December, January, February, March, April, and May is only 17.36 inches, or an average amount of but 2.89 inches per month. The temperature in Barbados, as in all other tropical islands, varies but little throughout the year. According to the writer in Appleton's "Handbook of Winter Resorts," the thermometer ranges in December from 73° to 85° F., and in February, from 71° to 84° F. A letter from the Superintendent of the Canadian Meteorological Service, which was kindly obtained for the writer by the Hon. Beaumont Small, of Ottawa, in reply to inquiries concerning the climatological statistics of the British West Indies, alludes to the climate of Barbados as follows:

"The mean monthly temperature ranges from 76° F. in January to 80.8° F. in August. The rainfall varies greatly from month to month, but is never wholly absent; the total yearly amount, from an average of twenty-five years, was 57.74 inches. The average for March exceeds 2 inches, and in October reaches nearly 11 inches, these being respectively the driest and wettest months of the year." The mean annual relative humidity is 72 per cent., as is also the mean for the winter.

Huntington Richards.

[There is no system of drainage at Barbados outside of the garrison, but it is said (Hutchinson) that the porous nature of the land renders this unnecessary. The town and suburbs are supplied abundantly with pure drinking water. Residence in Bridgetown itself is not to be recommended to invalids, but one may safely select either Hastings or Fontabelle, in the suburbs, or Scotland, which is considered the healthiest residence portion of the island. Cases of typhoid fever are occasionally encountered, and yellow fever is sometimes brought from the other islands, but there is almost perfect immunity from smallpox, diphtheria, scarlet fever, measles, and other infectious diseases. "The records of the garrison there for the last twenty-five years show that it is the healthiest station at which troops are quartered anywhere in the world" (Moxly).

The characteristics of the climate are those of an insular tropical climate, moist, bland, and equable, with only slight variations in the temperature. The northeast trade winds blow steadily during the day, and as a rule they are not unpleasantly strong. During the dry season from December to May, there are no rains or heavy dews. Although sunstroke is said to be rare, it is wise to follow the custom of the natives and carry a sun umbrella during the hottest hours of the day—from eleven to four.

Such a climate as this is manifestly unsuited for cases of pulmonary tuberculosis. "It is more than useless," says one who has had a large experience with this climate, "to send consumptives to these islands." There are various conditions and diseases, however, which are greatly benefited by a residence here; such are the various forms of nervous prostration, or mental fatigue, neurasthenia, chronic renal diseases, the various cardiac derangements or diseases, catarrhal and irritative affections of the throat, and laryngitis. Such a climate is also very suitable for old people or those possessing little vitality, and for weakly children. It may also be recommended to those who desire to avoid the risk of bronchitis or other acute respiratory affections so common in northern latitudes. "Tropical islands," says Hutchinson, "are bad places for rheumatism; the same constant moisture that plays so large a part in curing nervous difficulties produces and intensifies all forms of rheumatic affections."

Sea bathing is one of the features of this island, the temperature of the water being about 78° F. At Hastings there is a reef of coral which protects bathers from the sharks. The accommodations are good, and one finds competent medical men there. Barbados is reached from New York in five or six days, and the island has frequent communication with England and the other islands.—E. O. Otis.]

BARGER'S SPRINGS.—Summers County, West Virginia.

POST-OFFICE.—Talcott.
ACCESS.—Via Chesapeake and Ohio Railroad to Talcott, thence a drive of three miles to the springs. Private boarding-house.

Barger's springs have their situation in a picturesque, broken region, marked by ragged cliffs and narrow shaded glens, with numerous rapid mountain streams dashing through them. The Greenbrier River, a stream famous for its charm of scenery and for the enticements it affords to the angler, flows within two hundred yards of the springs. The place has not been much improved as yet, and the only stopping place for visitors is a boarding-house with a limited capacity. No analysis of the water has been made, but it is evidently thoroughly charged with sulphureted hydrogen. Residents of the locality resort to it for the treatment of atonic dyspepsia. It is quite beneficial in chronic rheumatism, and a number of very obstinate cases of cystitis appear to have yielded to its use. The water also possesses tonic properties, and is a useful adjunct in debilitated states. Its temperature is 58° F. *James K. Crook.*

BIARIUM.—Salts of barium are of more interest to the physician from the point of view of toxicology than from that of therapeutics. Barium compounds are all poisonous, the soluble ones, of course, more actively so than the insoluble. Therapeutically, barium has been assumed to have a power over scrofulous conditions analogous to that of iodides or of mercurials, but no striking results have ever been demonstrated from its use. The *chloride* is the only barium salt of medicinal interest.

Barium Chloride, BaCl₂, 2H₂O.—Barium chloride is not now official in the United States Pharmacopœia. It is a white, crystalline salt, occurring in rhombic tablets, permanent in the air. It dissolves freely in water and diluted alcohol, and has a bitter, disagreeable taste. It has been given medicinally in doses of from 0.03 to 0.13 gm. (gr. ss. to ij.), dissolved in an abundance of water.

Barium Dioxide, BaO₂, is official in the United States Pharmacopœia for pharmaceutical use in preparing the official *Aqua Hydrogenii Dioxidii*, Solution of Hydrogen dioxide. *Edward Curtis.*

BIARIUM SALTS. (TOXICOLOGY.)—Several of the soluble salts of barium, especially the nitrate Ba(NO₃)₂ and the chloride BaCl₂, are used largely in the chemical laboratory as tests for sulphuric acid. The compound, however, which is most familiar in commerce is the sulphate BaSO₄, which is known as *barytes* or *heavy spar*. This is a heavy, white, opaque substance, much employed as a general adulterant on account of its weight, but especially for mixing with and adulterating paints. Its high degree of insolubility deprives it of any specific poisonous action, except possibly as a mechanical irritant. It has been stated that it has been used in flour, and even in butter, but such use must be rare.

The soluble barium compounds, especially those above mentioned, are irritant poisons. Cases of poisoning by them are, however, rare, and have been mostly the result of accident, the body having been mistaken for one of the ordinary saline cathartics.

Barium carbonate is used as a rat poison, but a case on record shows that it is not a very virulent body.

In the recorded cases of poisoning by barium salts the quantities taken have usually been rather large, varying from one hundred grains to half an ounce. The symptoms—which do not arise immediately—are those of irritant poisoning, nausea, with sharp burning pains in the stomach, followed by vomiting and purging. Loss of muscular power has been noted in some of the cases, but most have exhibited convulsions toward the end. No characteristic brain symptoms are developed, but giddiness and headache have been observed.

Post-mortem examination shows the usual appearances of irritant poisoning, inflammation of the mucous mem-

brane of the stomach and bowels, and extravasation of blood.

Death has usually occurred in less than twenty hours, in some cases even in two hours.

The antidote in poisoning by barium salts is any soluble sulphate, such as Epsom salt, Glauber's salt, or alum. These form at once the insoluble and inert barium sulphate, which can easily be removed from the stomach by the promotion of vomiting. The poison will be completely neutralized by the antidote, and the subsequent treatment will be on general principles.

There is no difficulty in recognizing a barium salt. Sulphuric acid or any soluble sulphate produces at once an opaque, white precipitate of barium sulphate, distinguished by its entire insolubility in water, in acids, or in alkalis. *Henry Leffmann.*

BIARIUM SPRINGS.—Iredell County, North Carolina.

POST-OFFICE.—Barium Springs.

ACCESS.—Via A. T. and O. Railroad (Southern System) to Barium Springs station, thence one-half mile to the springs. The location is five miles from Statesville and forty miles from Charlotte. Farmhouses receive visitors.

This spring has been known since 1775. From the fact that cattle refused to drink from it the spring was formerly known as "Poison" spring. It is located on the top of a rocky knoll, about fifteen feet higher than a brook not over forty feet distant, and eight to ten feet higher than eight other springs around the base of the knoll and over one hundred feet distant. The spring has no visible outlet, yet the water remains at a constant level, never freezing and never stagnating.

According to an analysis by Professor Ledoux it contains seventeen grains per United States gallon of barium sulphate and chloride, phosphoric acid and iron. Professor Chandler's analysis shows the presence also of a small quantity of sulphuric acid, lime salts, and magnesia. The water is used commercially, and is said to possess value in the incipient stage of cancer, in syphilis, eczema, indigestion, ulceration of the stomach, etc. *James K. Crook.*

BARLOW'S DISEASE. See *Scurvy*.

BARTHOLIN'S GLAND.—ANATOMY AND PHYSIOLOGY.

—Bartholin's gland was described by a number of the old anatomists, including Bartholin, Duverney, and Cowper, all of whose names have been attached to it by different writers. In recent years it has been studied more particularly by Tiedemann and Huguier, the latter of whom gave it the name of the vulvo-vaginal gland.

These glands, of the compound racemose order, are two in number, situated one on either side of the introitus vaginae, immediately below the bulb of the vestibule, in a space bounded by the superficial perineal fascia in front, the vagina internally, and the ascending ramus of the ischium externally. Each gland is bean-shaped, usually not more than half an inch long, but sometimes (especially in prostitutes) as large as an almond. When in its normal condition it is not generally to be felt on palpation, but the mouth of its duct, of a size sufficient to admit a bristle, may commonly be seen at the bottom of the furrow which separates the ostium vaginae from the lower end of the labium minus. The duct is rather more than half an



FIG. 477.—The Vulvo-Vaginal Gland and Its Excretory Duct. (After Huguier.) a, a, Section of the labium minus and nympha; b, the gland; c, its excretory duct; e, its orifice in the vulvo-caruncular furrow; f, the bulb of the vagina; g, the ischio-public ramus.

inch long. According to Tiedemann, the gland may wholly disappear in advanced age.

The accompanying illustration (Fig. 477), from Huguier, shows a dissection of the parts in the immediate neighborhood of Bartholin's gland, while the second cut (Fig. 478), taken from Henle, shows a front view, in section, of the external genitals of a new-born female infant

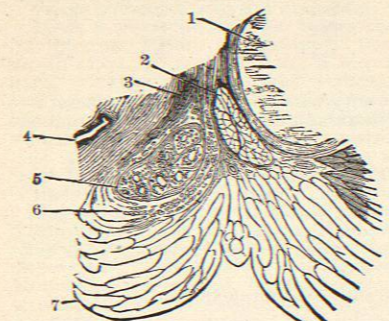


FIG. 478.—1, A section of the lower part of the descending ramus of the pubic bone; 2, the ischio-cavernosus muscle; 3, the bulbo-cavernosus muscle (in longitudinal section); 4, the vagina; 5, Bartholin's gland; 6, the bulbo-cavernosus muscle (in oblique and transverse section); 7, the labium pudendi. (After Henle.)

in the region of the posterior commissure of the labia pudendi (left half of the posterior cut surface).

The gland is considered to be the analogue of Méry's gland in the male. It furnishes a whitish mucous secretion, the purpose of which is to lubricate the vulva in the act of coitus. This secretion is sometimes ejected in a jet, as the result of titillation of the vulva or erotic excitement, in the waking state or during sleep.

PATHOLOGY.—Affections of the vulvo-vaginal gland and those of its excretory duct, taken together, are exceedingly common. In general, it is the duct alone that is affected, at least in the first instance. Common inflammation, which is apt to end in the formation of pus, is one of these diseases, and inflammation may be the cause or the consequence of a distention of the duct due to retained secretion. But a still more important affection is suppurative due to gonorrhœal infection.

Dilatation of the Excretory Duct.—This condition, the so-called retention cyst, is undoubtedly often mistaken for a swelling of the gland itself, but its comparatively superficial situation is sufficient to distinguish it from the latter. Unless accompanied by inflammation or œdema of the surrounding tissue of the labium, it ought not to be confounded with any other affection, and, even when one of those complications is present, it requires to be diagnosed only from hæmatoma and from a sero-purulent form of infiltration of the labium that sometimes takes place during the lying-in period. It may be distinguished from hæmatoma by the fact of its gradual formation, and, less readily, from puerperal infiltration by the same feature, which, however, becomes very significant when coupled with the patient's general condition and the history of the case.

The affection is most common on the left side—its immediate cause being an obstruction at the orifice of the duct; the conditions leading to the latter occurrence are various. It is very common in newly married women and in prostitutes, which fact tends to show its frequent origin in a sort of traumatism due to excessive coitus. Gonorrhœa, also, may readily give rise to it, or any catarrhal affection of the vulva, including eczema. Besides, the urine may be of so irritating a quality as readily to set up quite enough irritation at the mouth of the duct to lead to obstruction. Another cause mentioned by writers is the encroachment of condylomata upon the opening of the duct.

This form of disease tends to induce acute inflammation, and, if this does not occur, it is prone to relapse. The swelling is not always painful in itself, but it constitutes a certain impediment to coitus, and is always a source of annoyance to the patient.

Very commonly the retained secretion may be squeezed out through the orifice of the duct, and in some instances

no further obstruction takes place for a considerable length of time. In general, however, dilatation by means of graduated probes is required. If this proves ineffectual or unusually difficult, it is best to cut into the swelling and pass the probes from the wound. In this case the cavity should be dressed antiseptically. When repeated relapses occur, a portion of the wall may be cut out and the remainder of the cavity cauterized, with a view of inducing suppuration and obliteration. Tincture of iodine or nitrate of silver will usually answer the purpose, but in stubborn cases good results have been secured with chloride of zinc.

Deeper-seated retention cysts, due to obstruction of the radicles of the duct within the gland itself, are much less common. In some instances they reach a very great size, extending down on the perineum and up by the side of the vagina, so high even as to press the uterus out of its natural situation, and they may be complicated with an effusion of blood into the cavity. In their treatment, it is best to remove the entire gland and its duct.

True inflammation, either of the gland or of its duct, commonly ends in suppuration, and the pain is apt to be severe, with some constitutional reaction. The abscess usually breaks on the inner side of the labium, giving exit to dirty, stinking pus. It is to be treated like ordinary abscesses; at first with poultices, and, when fluctuation is evident, by means of a free opening, preferably on the inner aspect, and the cavity should be stuffed with antiseptic gauze. When the abscess is left to itself several openings may form, fistulous tracts may remain for a long time, and undermining may occur, as with buboes. These features call for the same treatment as in other parts of the body.

Pain and hyperæsthesia of the gland are said to be the occasional result of the repeated discharge of its secretion, in consequence of erotic dreams. *Frank P. Foster.*

BARTLETT SPRINGS.—Lake County, California.

POST-OFFICE.—Bartlett Springs. Hotel.

ACCESS.—Since May 1, 1892, the springs are reached from San Francisco by two routes. First, via San Francisco and Northern Pacific Railroad. Leave San Francisco by the Tiburon Ferry, arriving at Pieta at 11:50 A.M. Thence by stage to Lakeport, arriving 4:15 P.M. Thence by steamer *City of Lakeport* across Clear Lake, disembarking at Bartlett station at 5:45 P.M. Thence by a second six-in-hand stage to springs, arriving at 8 P.M.—a beautiful and picturesque route throughout. Second, leave San Francisco via Oakland Ferry, 8 A.M., arriving at Colusa Junction at 1:25 P.M. Change to Colusa Railroad. A ride of forty-five minutes brings the visitor to Bites at 2:10 P.M. Thence take Miller and Long's stage-coach thirty-five miles to springs, arriving at 9 P.M.

These springs have been known for upward of twenty-five years and have become widely noted as a health resort. No more pure and invigorating climate can be found than that of Lake County; and the Bartlett springs, being located in a cañon, with high mountains on the north and south, are particularly well located to resist sudden changes of temperature. The thermometer shows a mean of 85° F. in the summer and is never below 20° F. in the winter; the elevation is twenty-three hundred feet above the sea level, and the surrounding scenery is grand and inspiring. On the springs property, consisting of eight hundred acres, can be found hundreds of mineral springs, no two having exactly the same composition. The following analysis of the principal spring, by Mr. George E. Colby, shows an alkaline-carbonated water of moderate strength, which possesses, especially in the sodium, calcium, and magnesium compounds, active remedial agents.

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Sodium chloride	0.50
Sodium bicarbonate	1.05
Potassium bicarbonate	.39
Magnesium carbonate	6.32
Calcium carbonate	30.14

Solids.		Grains.
Calcium phosphate	.....	0.49
Calcium sulphate	.....	.63
Iron compounds	.....	Traces.
Silica	.....	3.47
Lithium	.....	Traces.
Borium carbonate	.....	.05
Strontium	.....	.00
Boric acid	.....	Traces.
Organic matter	.....	Traces.
Total	.....	43.34
Gases.		Cubic inches.
Free carbonic acid	.....	24.21
Ammonia	.....	Faint trace.
Temperature of water	.....	54° F.

Dr. Winslow Anderson's analysis shows slightly more solids per gallon and a somewhat smaller proportion of carbonic acid. There are other well-known springs here, including the "Soda," "Iron," "Sweet," and "Gas" springs. A feature of great interest in the neighborhood is the gas tunnel, running eighty feet into the mountain-side. A large flow of carbonic acid gas issues steadily from the mouth of the tunnel. It rises to a height of eighteen feet above the ground and by force of gravity rolls down the mountain-side in considerable volume. Many small animals and reptiles, including birds, squirrels, lizards, etc., in trying to cross its path become asphyxiated. Skeletons of some of the victims may be seen for quite a distance from the tunnel's mouth. The waters of Bartlett Springs are highly recommended in chronic rheumatism, gout, sciatica, calculous diseases, dyspepsia, and chronic alcoholism. They are bottled and have an extensive sale on the Pacific coast.

James K. Crook.

BASEDOW'S DISEASE. See *Exophthalmic Goitre*.

BASIL L.—(fam. *Labiatae*.) *Ocimum Basilicum* L., the common garden basil, is an annual Asiatic mint, cultivated in kitchen gardens in Europe and America. It is from 30 to 50 cm. high, with branched quadrangular stems, and ovate or oblong serrated leaves. The flowers are usually in clusters of six, with an irregular calyx, having the upper lobe large, ovate, and decurrent. The corolla tube is very short; the stamens four, and declined. In fruit the calyx is reflexed. The plant has a mint-like and agreeable odor. The drug consists of the dried herb, and consequently answers to the above description. It contains about one and a half per cent. of *essential oil*, consisting mostly of a stearoptene, basil camphor, which readily crystallizes in the oil upon standing in the cold.

The use of basil is culinary rather than medicinal; it has the carminative qualities of the order, and may be used for the same general purposes. Its chief use is as a flavor. Dose of an infusion, *ad libitum*; of the oil, from 2 to 5 dgm. (0.2 to 0.5 gm. = ℥. iij. to viij.).

W. P. Bolles.

BASSIA OIL. See *Palm Oil*.

BATH, ENGLAND.—A town of 53,761 inhabitants, beautifully situated in the valley of the Avon, on the slopes of surrounding hills, one hundred and seven miles southwest from London. Bath has been a town of much reputation for its thermal springs ever since the days of the Roman occupation, and extensive Roman remains still exist there. Throughout English literature frequent mention is made of Bath, and it has had various vicissitudes of fortune; having been at one time one of the most fashionable watering places of England, and then degenerating into a quiet and somewhat neglected residential town for retired and invalided officials. Quite recently, however, the reputation of the place has again been rising. Owing to its sheltered position, being surrounded by hills, Bath affords an excellent winter residence, and a course of treatment can be taken at any season of the year; although May, September, and October are considered the best months.

The following meteorological data are taken from

"Climates and Baths of Great Britain," 1895, to which the writer is indebted for the facts contained in this article:

OBSERVATIONS FOR 20 YEARS (1866-1885). (FAHRENHEIT SCALE.)

Seasons.	Mean.	Highest.	Lowest.	Range.
Spring	48.4°	51.2°	45.8°	5.4°
Summer	60.3	63.5	58.1	5.4
Autumn	50.7	52.3	48.5	3.8
Winter	41.4	46.3	36.4	9.9

Thirteen out of twenty winters had a mean temperature above 40° F. The mean annual rainfall was 32+ inches. Autumn is the wettest, and spring the driest season. The thermal waters are derived from three springs: the Hot Bath, of 120° F.; the King's Bath, of 117° F.; and the Cross Bath, of 104° F. They are the hottest baths of any in Great Britain, those of Buxton coming next. The waters come under the head of "simple thermal," and the analysis, according to Mr. Attfield,* is as follows:

ONE IMPERIAL GALLON CONTAINS:	
Solids.	Grains.
Calcium carbonate	7.85
Calcium sulphate	94.11
Calcium nitrate	.56
Magnesium carbonate	.56
Magnesium chloride	15.24
Sodium chloride	15.19
Sodium sulphate	23.16
Potassium sulphate	6.70
Ammonium nitrate	1.06
Ferrous carbonate	1.22
Silica carbonate	2.71
Total	168.36
Traces of rubidium, lithium, and strontium.	
Dissolved gas per imp. pints.	
Oxygen	0.74
Nitrogen	4.60

There are various establishments for the application of these waters: (1) The King's and Queen's Public and Private Baths adjoining the Grand Pump Room; and adjoining the King's Bath is the Roman Bath. (2) The Royal Private and Hot Baths. The hot bath here is an open one holding 7,570 gallons. (3) The New Royal Private and Swimming Baths attached to the Grand Pump Room Hotel. (4) The Cross Bath, a cheap public one. All these establishments belong to the corporation of Bath.

In connection with these baths provisions are made for giving the "massage douches" like those at Aix-les-Bains, reclining douche baths, Berthollet's local vapor baths, the "Scottish douche," sitz baths, and various sprays and pulverizations for nasal and faucal troubles. There is also the umbrella spray chamber wherein strong but thin streams of hot mineral water play upon a metallic dome and are pulverized. The room in consequence becomes filled with a sort of mist, and is used for patients suffering from chronic catarrh of the respiratory passages. There are also swimming baths of various temperatures.

Originally the general method of using the waters externally was by immersion in deep cisterns, the patient standing in them covered with water up to his neck. Covered in this fashion he could move about to promote flexibility of the joints. These immersion baths are still in vogue, the temperature varying from 98° to 104° F. There are other baths arranged for patients in a reclining instead of an erect position, and also arrangements whereby helpless patients can be lowered into the water, like the impotent man at the pool of Bethesda. A fountain in the Grand Pump Room supplies water for drinking, the amount usually drunk being from four ounces to half a pint twice a day.

"Special virtue is claimed for the Bath treatment in diseases which involve the articular structures (chronic rheumatism), and sufferers from such diseases constitute a very large proportion of the patients who seek relief at Bath." In gout and gouty affections the Bath treatment

appears to be especially efficacious. In anæmia, neuralgia, and many diseases of the skin it is of undoubted value. It is also used in various other maladies, as those of the digestive, respiratory, and nervous systems. It is contra-indicated in all acute diseases with high temperature, in pulmonary affections, in tuberculous affections of the joints, and in heart disease.

The accommodations are abundant, varied, and good. From a personal visit the writer can attest to the attractiveness of Bath as a place of temporary residence; its situation, as has been said, is beautiful, and the city itself, with its crescents and terraces, its abbey church and its fine Victoria Park, and all its interesting history, has much to divert one. There are also pleasant excursions in the neighborhood.

Edward O. Otis.

BATH ALUM SPRINGS.—Bath County, Virginia.

POST-OFFICE.—Bath Alum. Hotel and cottages. This resort is situated midway between Millboro on the main line and Hot Springs on the valley branch of the Chesapeake and Ohio Railroad, being ten miles from either point. The location is at the base of Worm Springs Mountain in a rugged, broken section of country. The weather during the season from May to November is characteristically clear, bracing, and delightful, with few disagreeable days. The springs are five in number. We present the following analysis of Spring No. 2, which is fairly representative of the group, by Prof. W. H. Taylor:

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Sodium sulphate	1.13
Calcium sulphate	1.71
Lithium sulphate	Trace.
Magnesium sulphate	.46
Potassium sulphate	.34
Ammonium sulphate	29.99
Aluminum sulphate	Trace.
Manganese sulphate	.03
Iron persulphate	26.78
Sodium chloride	.11
Silica	1.35
Sulphuric acid	2.88
Total	65.38

Spring No. 1 contains 4.65 cubic inches of carbonic acid gas per United States gallon.

It will be seen that the waters are strongly aluminous and chalybeate with a fair proportion of free acid. They are astringent and tonic in their effects. Thus they have been found useful in chronic disorders and relaxed conditions of the mucous membranes, in skin diseases, and in general debility.

J. K. Crook.

BATTEY'S OPERATION. See *Ovariotomy*.

BAYACURU.—The root of *Statice Brasiliensis* Boiss. (fam. *Plumbaginaceae*), a seashore plant of the southern Atlantic. Containing twelve and one-half per cent. of tannin, this is a valuable astringent. There is no good authority for its use in other directions.

H. H. Rusby.

BAYBERRY.—*Candleberry*. Wax *Myrtle*. These names and various aboriginal and foreign equivalents are applied to various species of the peculiar genus *Myrica* (fam. *Myricaceae*), but especially to the *M. cerifera* L., a very abundant, medium-sized shrub growing on and near the Atlantic coast of the United States. Its leaves are strongly and very pleasantly fragrant, and have been used for their aromatic stimulant properties. The bark contains a considerable percentage of tannin, as well as a small amount of the volatile oil, some resin, and an amaroid. It has been considerably used in ℥. xxx. doses as an astringent and tonic and also locally for its astringent effects. The fruits are thickly coated with wax, so as to impart a conspicuous bluish-white color to them, and, through their abundance, to the entire plant when in the leafless state. This wax has been removed and has found its way more or less into commerce.

H. H. Rusby.

BAY LEAVES.—Under this name three distinct leaves have come to be known. One of them, the Cherry Laurel—*Prunus Lauro-Cerasus* L. (fam. *Rosaceae*)—is to be regarded quite as a spurious article, with composition (yielding prussic acid) and properties quite distinct. These leaves are about six inches long, sharply serrate, have one or more pairs of depressed glands near the stem on the under side, yield the bitter-almond odor when macerated, and have the same taste. Both of the others properly bear the name, and they agree closely in composition and properties. The Royal Bay, or European laurel, is the leaf of *Laurus nobilis* L. (fam. *Lauraceae*). It is usually less than four inches in length, oblong, acute at both ends, obtusish, very thick, pale green, entire, but with the margin peculiarly crisped or wavy at right angles with the surface. It lacks the large basal glands of the last, as well as its bitter-almond odor and taste. This is the leaf usually used as bay in cooking. The third, our official bay leaf, or wild clove leaf, is from *Myrcia acris* D.C. (fam. *Myrtaceae*), and yields the oil a description of which follows. These leaves, about as long as the last, are twice as broad. They are of a dark green or brown, somewhat glossy, rather thin, and have very numerous, fine, straight parallel secondary veins.

H. H. Rusby.

BAY OIL OF.—OLEUM MYRCLE. "A volatile oil distilled from the leaves of *Myrcia acris* D.C. (fam. *Myrtaceae*)" (U. S. P.).

The oil is usually distilled in the West Indies, and imported into the United States in bottles, although of late an increasing quantity has been distilled from the dried leaves, imported here. The oil thus obtained is not quite so bright and fragrant as the best imported, but is much better than the common grades. Oil of bay is thus described in the Pharmacopœia: "It is a brownish or dark brown liquid, of an aromatic, somewhat clove-like odor, a pungent, spicy taste, and a slightly acid reaction. Specific gravity about 0.975 to 0.990." It is a mixture of light hydrocarbons with *eugenol* (see *Cloves*).

Its medicinal qualities are those of the stimulating oils in general (allspice, cajuput, cloves, etc.), but it is only employed as a grateful perfume. Bay rum, which is the form in which it is generally used, was originally made by distilling rum from the fresh leaves and branches. But this imported perfume is now generally substituted by a simple solution of the oil in cologne spirit or alcohol, flavored or not according to the taste of the manufacturer. As it is considerably used about the sick, a formula is furnished by the Pharmacopœia, as follows: "Spiritus Myrciæ, oil of myrcia, 16 parts; oil of orange peel, 1 part; oil of pimento, 1 part; alcohol, 1,220 parts; water, a sufficient quantity."

W. P. Bolles.

B. B. MINERAL SPRINGS.—Pike County, Missouri. POST-OFFICE.—Bowling Green. Hotels, etc., in Bowling Green.

ACCESS.—Via Chicago and Alton and St. Louis and Hillsborough Railroad to Bowling Green. These springs are two in number. They do not appear to be used extensively as a resort, but their waters are widely sold in the Western States. The following analysis was made in 1887 by Dr. P. Schweitzer, Professor of Chemistry in the Missouri State University:

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Magnesium sulphate	669.47
Sodium sulphate	61.04
Calcium sulphate	80.17
Aluminum sulphate	18.31
Silica	2.63
Lithium chloride	.29
Total	831.94

This is a very strong sulphated-saline water, with excellent purgative properties, containing, as it does, the sulphates of both magnesia and soda. As a laxative it is recommended in wineglassful doses at bedtime, the stomach being empty. It is said to possess tonic effects