of every variety occur in the fibroma, usually after prolonged duration of the tumor.

1. *Mucoid degeneration* is the more frequent, and is characterized by the formation of large cysts containing thick, viscid fluid. The process begins with an increase in the cellular constituents of the tumor, associated with a mucoid degeneration of the intercellular substance which thereby undergoes softening and is reduced to a fluid state. The cells in the degenerated area then disappear, the resulting space being occupied by the fluid. This degeneration may readily be confused with

2. *Œdematous infiltration*, a condition due to disturbances of circulation within the tumor; here the ground substance of the growth becomes soaked with fluid, the fibrillæ are pressed apart, and the tumor becomes soft and spongy, upon section presenting the appearances seen in gelatinous infiltration of the skin or in the umbilical cord.

3. *Fatty degeneration* occurs infrequently in the central part of the larger fibromata; the region involved becomes yellow, soft, and ultimately may be converted into a cavity filled with fatty detritus. Such an area of softening, if it extend to the surface of a fibroma situated near a free surface, may lead to ulceration.

4. *Calcification* is sometimes seen, at first in small and circumscribed areas, latterly in perhaps a large part of the tumor. The capsule of the tumor may be in great part calcified.

5. *Ossification* is common in fibromata developed from the periosteum, and occasional in those originating elsewhere.

Combination with other Tumors.—The fibroma is frequently in combination with other members of the connective-tissue group of tumors. It is most often seen in association with *sarcoma* in the form of a tumor parts of which are made up exclusively of spindle cells and parts of fibrous connective tissue, with elsewhere intermediate gradations; such a tumor is known as a *fibro-sarcoma*. Another combination often met with is the *myxo-fibroma*, which is a more common tumor than simple fibroma; here, in addition to fibrous connective tissue, the tumor contains myxomatous tissue consisting of branched and stellate cells embedded in a mucoid matrix. Association of fibroma with *hæmangioma* is seen in fibrous connective-tissue tumors containing large, intercommunicating venous sinuses; and with *lymphangioma* in such tumors of that class as show marked development of their connective-tissue elements. Combination with *myoma* is seen in the common tumor of the uterus; connective-tissue formation is here usually subsequent to the hyaline degeneration of portions of the primary constituents of the tumor. (For Neuro-fibroma, see *Neuroma*.)

Etiology.—Fibromata may develop at any time of life, and are sometimes congenital; they occur more frequently after the twentieth year than during childhood, but are not common in old age. The fibromata of the breast, like myomata of the uterus, occur most frequently between the thirtieth and the fortieth years; they are as common in nulliparous women as in those who have borne children.

As to the cause of this class of tumors there is little to be said. Irritation is often supposed to stand in causal relation with the origin of fibromata, but there are no better grounds for regarding mechanical injury as a factor in the development of this than of any other tumor. One of the forms of keloid, the cicatricial, is consequent upon injury to the skin, but that fact does not explain why the scar tissue in which it develops should become hyperplastic. It is possible that a predisposition to tumor formation may in this case exist in the skin, which becomes manifest as a weakening of the physiological resistance of the surrounding tissues toward the growing reparative tissue, or in a tendency on the part of the connective tissue to assume this special mode of growth. There is some evidence of a family predisposition to keloid formation (Aschoff).

Diagnosis. — Clinical Significance.—The clinical diagnosis of fibroma in a majority of instances presents little difficulty. The hard fibroma offers distinguishing characteristics in its circumscribed form and in its dense and homogeneous consistence. From the *sarcomata* as a class it may be differentiated by its relatively slow rate of growth. From *scirrhous carcinoma* it is usually distinguishable; save in those instances in which the fibroma is so situated as to cause pressure, by the absence of pain, by the mobility of the tumor, and by freedom from involvement of overlying skin. The differentiation of hard fibroma from *fibrous induration* of glands offers more difficulty, and is often attended with error. In such cases an important aid to diagnosis lies in the clinical history of a previous inflammatory process. The soft fibromata, or such of the hard type as have undergone degeneration with subsequent softening, may easily be mistaken for *lipomata* or for *cysts*.

Histological diagnosis offers little difficulty save when the tumor presents an appearance intermediate between fibroma and sarcoma, or when there is a question of fibroid induration, or of scirrhous carcinoma containing but few epithelial elements.

The clinical significance of the fibroma is comparatively slight. An essentially benign tumor, it is harmful only when its position is such as to result in pressure upon surrounding and possibly vital parts, or in the obstruction of important natural canals. Fibromata of the skin, from their exposed situation, are liable to trauma, and if injured may become the seat of ulceration.

George Burgess Magrath.

FIG.—Ficus. "The fleshy receptacle of *Ficus Carica* L. (fam. *Moraceæ*) bearing fruit upon its inner surface" (U. S. P.). This fruit can scarcely be regarded as a medicinal substance, though nutrient, and, like most sugary fruits, slightly laxative. It is retained in the Pharmacopœia merely because of its entering into the *Confectio Sennæ*, but it seems likely that both it and the latter little-used remedy will shortly be dropped. Figs are commonly combined with purgatives. One method is to turn them inside out and stuff them with senna leaves, the mass being then chewed and swallowed. Figs grow upon a large shrub or small tree, natives of the Orient, but cultivated in all warm countries, being hardy, with slight protection, as far north as Philadelphia. The dried fruit consists of nearly two-thirds its weight of sugar, some fat and gum, and small amounts of laxative salts. It is decidedly nutritious and has been known, in the fresh state, to constitute the chief food of armies for short periods. Besides the varieties distinguished by the names of the places from which they are exported, as Smyrna, Turkey, Greek, Marseilles, etc., figs are imported in two forms, known as "pulled" and natural. The former are rolled and kneaded until their structure is broken up and they have become soft and pliable; the solidly packed, layered, flattened figs are of this sort: the others are simply dried in the natural condition. These are oblong, rounded, and longitudinally wrinkled.

Henry H. Rusby.

FIGWORT. See *Scrophulariaceæ*.

FILARIA MEDINENSIS; FILARIA SANGUINIS HOMINIS. See *Nematodes*.

FILMOGEN (Liquor adhæsivus) is a solution of soluble cellulose nitrate in acetone, with the addition of a little castor oil. It is transparent, adhesive, and impervious to water, and resembles flexible collodion in its appearance and uses.

W. A. Bastedo.

FISSION.—(L. *fissio*, a cleaving, from *findere*, to split.) Fission is a process of multiplication in which the parent organism divides into two daughter organisms approximately equal in size and development; as distinguished from budding, in which the parent remains intact and the daughter organism is a new individual formed by a small outgrowth upon the parent. (See article *Budding*.)

Ordinary cell division is a process of fission, and, consequently, this is the usual method of reproduction among the unicellular organisms. The yeasts and some of the Protozoa, however, reproduce by a process more accurately described as budding. But the Bacteria, Protophyta, and nearly all of the Protozoa mutiply by fission and often with almost incredible rapidity. In the simpler forms there are no preparatory changes other than those ordinarily associated with cell division in these groups. But in the more highly differentiated Infusoria provided with permanent oral funnels, ciliated bands, etc., these structures may be duplicated in the two new individuals previous to their separation, a process analogous to what takes place in many multicellular organisms.

The multiplication of individuals by fission is unknown among plants above the very simple Schizophyta.

Among the Metazoa, on the other hand, this method of multiplication is common in some of the lower orders and may occur abnormally in so high a group as the vertebrates.

In a few cases fission occurs without any previous preparation. The adult animal tears its body apart by its own efforts. A wound is formed by the rupture of the tissues with a loss of the fluids of the body. This wound heals, and from its surface the missing parts of each of the new individuals are regenerated. The method has been observed in the genus Hydra, in two annelids, Lumbriculus and Ctenodrilus, and in certain star-fishes and ophiurans. In the latter the plane of fission passes through the disc dividing the mouth and the stomach, while to one part of the disc three arms remain attached, to the other, two; and each half regenerates the missing parts. But in one family of star-fishes, the Linckiidæ, the process is somewhat different. Here the five arms separate from the disc and then the disc regenerates five new arms, and each detached arm regenerates a disc and four new arms. Delage relates that he observed once the division of a sea anemone, *Anthea cereus*. The two parts of the body were extended as if trying to crawl in opposite directions. The intermediate portion became much constricted and finally ruptured. The whole operation occupied about two hours.

On the other hand, in most animals in which fission is a normal process of multiplication, it is preceded by preparatory changes which result in each of the new individuals being provided with a full complement of organs before separation takes place.

According to Parker, fission in the common sea anemone of the coast of New England, *Metridium marginatum*, is a slow process occupying many months. It begins with the division of the mouth and oral disc accompanied by the formation of new septa, and proceeds gradually toward the base. The final separation has not been observed, however.

In many worms fission takes place in what may be regarded as a larval stage, before the development of eggs and spermatozoa. This, according to Mensch, is the case with Autolytus, and it seems to be so with most of the worms in which fission occurs. In Antolotus and its allies an area of embryonic tissue appears at about the thirtieth segment, dividing the young worm into two parts. On the posterior part there is developed a new head. The tissues just in front of the head undergo degeneration, and by their own movements the two individuals are broken apart.

Among the jelly-fish of the group Scyphomedusæ fission is associated with the metamorphosis from the larval to the adult form. In Cassiopea, for example, the scyphistoma larva is a graceful little creature shaped like a wine glass and lives attached by its base to some solid body. When fully developed this larva becomes divided into two portions by a horizontal constriction. It is then called a strobila. The upper part of the strobila becomes transformed into a medusa, while new larval tentacles and the rudiment of a proboscis are developed on the lower part. Finally the narrow isthmus connecting these two parts undergoes degeneration and is at length ruptured by the violent swimming movements of the young medusa.

Fission may take place in an early embryonic stage of development. According to Kleinenberg this occurs normally in one of the earth worms, *Lumbricus trapezoides*, in which the embryo divides into two shortly after the gastrula stage and both develop into normal individuals. This has been observed to occur under abnormal conditions in the trout and the chick. If hen's eggs be incubated at a temperature slightly above normal a large proportion of the embryos will be found to show a tendency to the formation of double monsters and occasionally the area embryonalis will be found to contain two distinct embryos. A similar division of the embryo may occur in man. If incomplete, it will give rise to a double monster or to such cases as the Siamese twins and Millie-Christine. If the separation be complete the result will be a pair of twins of the same sex. In every case of fission all the individuals produced from a single ovum are of like sex.

In some of the lower forms of animal life fission may be normally incomplete, as in some corals, in which the individuals remain in organic union forming a colony, or cormus.

There are some animals in which a form of fission occurs in the fully mature adult, which does not serve to multiply the individual but for a more favorable dispersal of the sexual products. The formation of proglottides by the common tapeworm is an example. Another example is the palolo worm of Samoa, an annelid that burrows in the coral rock. When mature the posterior portion of the body, distended with eggs or spermatozoa, is separated off and swims on the surface of the water, where the sexual products are discharged. They occur at certain times in great abundance and are gathered by the natives, who relish them greatly as an article of food.

The relation between fission and budding is a very close one, so much so that Bock has argued that they are simply two forms of one fundamental process. In many sea anemones, for example, small fragments of the foot become detached and subsequently develop a mouth and tentacles and become complete individuals. Such cases make it difficult to draw a sharp line between fission and budding. In forms like Autolytus, mentioned above, the two processes are closely associated. For, after the original posterior part of the body is separated off, the embryonic area on the end of the anterior portion, or parent stock, may give rise to any number of new individuals by a continuous process of budding. Nevertheless in most cases the distinction between fission and budding is a clear one and is useful in practice.

Robert Payne Bigelow.

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FIXED OILS. See *Active Constituents of Plants*.

FLAG, BLUE.—Iris. "The rhizome and roots of *Iris versicolor* L. (fam. *Iridaceæ*)" (U. S. P). This is a very common swamp plant of eastern North America, erect,

about two or three feet high, with sword-shaped, equitant leaves and handsome blue flowers, marked in the centre with white and yellow stripes.

Rhizome of horizontal growth, branched, the branches 5 to 10 cm. (2 to 4 in.) long and 1 to 2 cm. (⅛ to ¾ in.) thick, cylindrical in the lower half, thence becoming vertically flattened toward the crown, where it is terminated by a circular scar; dark brown, wrinkled, annulate with the leaf-bases; fracture short, purplish; roots long, slender, simple, crowded near the flattened end; odor peculiar; taste pungent, acrid, and nauseous.

This drug was in use by the aborigines, and has been employed to a moderate extent by physicians for many years. The uncertainty and harshness of its action have, however, prevented its becoming a favorite. An acrid resin, fixed oil, tannin, gum, starch, etc., are given as its constituents.

It belongs to the resinous class of cathartics. When quite fresh, it is an irritant-emetico-cathartic, easily acting as a poison in over-doses. Upon drying and keeping, these harsh actions are continuously ameliorated, and after a year or more it becomes a reliable purgative, not excessively harsh if given properly diluted and with the drug well distributed through the excipient. It then ranks with jalap, leptandra, and similar drugs.

Dose of the powder, from 0.5 to 1.5 gm. An extract (*Extractum Iridis*), dose gr. i. to iij., and a fluid extract (*Extractum Iridis Fluidum*), dose ♏ x. to xxx., are official. A precipitated extract, "Irisin" or "Iridin," is in rather common use.

Henry H. Rusby.

FLAG, SWEET. See *Calamus.*

FLEABANE.—Erigeron. Several species of the large genus *Erigeron* L. (fam. *Compositæ*) have been official and largely used in medicine. Because of their inferiority, they gradually disappeared from use, with the exception of one, known as *E. Canadense* L. Botanists now accord this generic distinction from the others. It is known as *Canada Fleabane, Colts-tail, Pride-weed, Bitter-weed,* Blood-staunch, etc., the leaves and flowering tops of *Leptilon Canadense* (L.) Britton. The plant is a very tall and robust annual weed, exceedingly common and abundant in the eastern United States and Canada, and widely distributed over the entire world, in tropical as well as temperate regions. The hairy stem is from two to eight feet high, erect, slender, simple up to the inflorescence and densely clothed with ascending or nearly erect lanceolate leaves, from three to six inches in length. Above this the tawny, fluffy paniculate inflorescence strongly suggests the appearance of a colt's tail and gives the name. The drug contains much tannin, about one per cent. of the volatile oil next considered, and an amaroid. It is not remarkable that this should be one of the most valuable of all household remedies for controlling severe attacks of serous diarrhœa, as its oil powerfully stimulates the sympathetic abdominal nerves, while its tannin astringes locally. It is at the same time a good aromatic bitter. The country practice of giving it in infusion, in doses of ʒ ss.–i., is improved upon by giving 2 to 4 c.c. (fl. ʒ ss.–i.) of the fluid extract.

Henry H. Rusby.

FLEABANE, OIL OF.—Oil of Erigeron. Oleum Erigerontis (U. S. P.). A volatile oil distilled from the last, of a pale-yellow or brownish color, a peculiar, pleasant odor, and a warm, pungent taste. It has a spec. grav. of about 0.850, increasing with age to about 0.890, and consists chiefly of dextrogyrate limonene. It is quite a different substance as distilled, even when fresh, from what it is in the plant, as there is a portion which is destroyed by even a moderate heat. This fact, together with the absence of the other constituents of the herb, indicates the error of substituting the latter by the oil. The oil is, however, active. It belongs to the astringent class of volatile oils, acting like oil of turpentine in this respect, but without its irritating properties. It is administered for the same purposes as fleabane, and for the control of hemorrhages of the bowels and uterus, and for gonorrhœa. The dose is 0.3 to 1 (♏v. to xv.).

Henry H. Rusby.

FLORIDA.—Twenty years or more ago Florida was perhaps the most popular winter resort in this country for the consumptive. He was sent there in all stages of the disease, especially in the more advanced ones. It was the final resource when all else failed, and, in the majority of cases, proved to be an illusive one.

At the present day it is rare that the phthisio-therapeutist directs his consumptive patient to this region, although possessing a winter climate unexcelled in many of its characteristics by any region east of the Rocky Mountains. Why is this? In a word, it is because we now have a truer conception of the limitations of climate, in its application to pulmonary tuberculosis. The hygienic-dietetic treatment is the authoritative one, established on the firm foundation of experience; and in the execution of this treatment climate is but one factor, and perhaps not the most essential one. Formerly climate was supposed to be the great determining element in the treatment and all else was merely accessory; and further, a warm climate was considered to possess peculiar advantages for the consumptive.

It is natural that such should have been the idea entertained with the knowledge of the pathology of the disease then obtaining, and before the results of Brehmer and other German pioneers in the sanatorium treatment had become known or had indeed been determined. What more natural than that a consumptive depressed in mind and body should look to a warm, sunny, equable climate, with its semi-tropical attractions, as the El Dorado from whence he should receive renewed hope and health? Although Florida will continue to be a great and a popular health resort for many functional and organic diseases, and for the valetudinarian in general, as will be more fully discussed later, it will still also, in the writer's opinion, offer certain locations which possess the essential climatic conditions for the successful accomplishment of the hygienic-dietetic treatment of tuberculosis. If situated on the more elevated portions in the central part of the peninsula, it would seem that sanatoria would justify their existence. Or even if they are situated upon the coast at one side or the other, they should serve a good purpose, for at these points there surely would be pure air, an abundance of sunshine, and an equable temperature, with a freedom from high winds. The objections are the enervating character of a warm climate of this nature,—a climate that increases the anæmia usually found in phthisical patients, as Solly has observed,—and also the possibility of malaria, which is present in some of the resorts at certain seasons of the year, and to the influences of which the consumptive with his depressed vitality is peculiarly susceptible.

Such places as Winter Park, Orlando, Altamonte in the interior, and Tampa, Los Pinellas, and the Lake Worth district on the coast, would seem to be favorable for the experiment of the genuine open-air treatment of consumption.

As with all tropical or semi-tropical countries, however, the summer climate of Florida would hardly admit of a continuous residence, which is, in many cases at least, important if the best results are to be obtained, although in Southern Florida the difference between the summer and winter temperatures is comparatively slight. The rainfall, however, in the summer months is considerably higher.

The State of Florida may be described as consisting of a continental portion, immediately contiguous to the States of Georgia and Alabama,—its southwestern portion washed by the Gulf of Mexico,—and a peninsula portion washed by the Atlantic Ocean and Gulf of Mexico. Keating (Transactions of the American Climatological Association, 1885) divides Florida geographically into a north and a south portion, the boundary line being the 29th degree of latitude, and topographically into the lowlands on the rivers and coasts, and the interior highlands, with an altitude of from 100 to 300 feet. Below the 29th parallel, the climate, both in summer and in winter, differs from that of the region north. The cold northwest winds are tempered by the warm waters of the Gulf of Mexico, which prevent the sudden changes of temperature that sometimes occur in the northern portion. In summer the sea breezes from both sides of the peninsula temper the heat and the nights are generally cool (Solly).

The land (except the interior highlands before mentioned) is for the most part low, and there are many lakes, streams, and salt-water channels. The principal river is the St. John's, running north, and navigable for large steamers a distance of 198 miles to Enterprise, and for smaller ones about 70 miles further up the river, to Salt Lake. The soil is "as a rule sandy, very porous in hilly or undulating sections, but finer and more compact on level reaches. The character of the subsoil hard-pan varies greatly in different localities, being sometimes clay and sometimes lime rock, at variable depths of from only a few to ten or more feet from the surface" (J. P. Wall, in the *Climatologist*, October 15th, 1891).

The varieties of land are the pine land in the highlands, high hummock, low hummock, savanna, and swamp. "The pine-land regions are those in which the sandy soil predominates, and, for the residence of invalids, places possessing such sandy soil appear to be the most healthful" (Richards).

The climate is a mild, moist, warm one, with a goodly number of sunny days. The principal season begins in January and lasts until April, and thousands of visitors who desire for any reason to avoid the inclemency of a Northern winter and lead an outdoor life, frequent the numerous resorts. Enormous palatial hotels and many boarding houses and villas exist in various portions of the peninsula, at St. Augustine, Palm Beach, Tampa, Palatka, Altamonte, Magnolia, Enterprise, Titusville, and at many other places. The attractive spots where one may pleasantly spend the winter are almost innumerable. The outdoor attractions in this fascinating country are varied and numerous,—fishing, hunting, bathing, golf, sailing, riding, and all the many excursions by water, chief of which is the famous journey up the Ocklawaha River, where one passes through cypress forests with the graceful hanging moss, or through clusters of palm and palmetto trees, and all the varied vegetation of a tropical region. Alligators are frequently seen, and "birds of the most curious forms and brilliant plumage are everywhere conspicuous" (Appleton's "General Guide to the Southern States," 1899).

The orange groves are always a delight; and the cultivation of the many fruits, flowers, and vegetables which grow so luxuriantly in this climate render outdoor life on the land a constant source of pleasure and interest. "The sun shines so brightly, the air is so balmy, the songs of the birds are so enlivening, and the orange trees in their bloom, or laden with their golden fruit, lend such a charm to the outlook from the windows that the most indolent or most cold-blooded invalid feels little inclined to stay indoors" (Lente).

The climatic characteristics will now be considered somewhat in detail, and for this purpose the following meteorological tables have been arranged from the observations of the United States Weather Bureau.

Average Temperature.

	December.	January.	February.	March.	July.	Year.
Jacksonville	55.8	55.8	58.1	62.7	82.5	69.2
Jupiter	67.2	63.4	66.7	68.8	80.5	73.4
Tampa	62.2	58.6	63.1	66.4	81.5	71.6
Punta Rassa	64.5	64.7	66.2	68.6	81.3	73.4
Key West	70.1	70.3	71.8	73.6	84.0	77.5

Average Daily Range.

	December.	January.	February.	March.	July.	Year.
Jacksonville	17.0	16.7	16.4	17.4	16.1	
Jupiter	12.2	15.0	13.4	14.0	12.2	12.6
Tampa	18.0	19.8	17.1	18.9	16.1	17.7
Punta Rassa	13.5	12.7	12.9	13.4	13.0	
Key West	8.1	8.9	8.9	9.4	12.5	

Mean of Warmest Temperature.

Jacksonville	66.4	64.9	68.5	73.6	91.6	
Jupiter	73.3	70.9	73.4	75.9	86.6	79.7
Tampa	71.2	67.8	71.7	75.8	89.6	80.5
Punta Rassa	71.9	71.3	73.2	76.1	88.9	
Key West	75.3	75.4	77.1	78.9	91.3	

Mean of Coldest Temperature.

Jacksonville	49.4	48.2	52.1	56.2	75.5	
Jupiter	61.1	55.9	60.0	61.9	74.4	67.1
Tampa	53.2	48.0	54.6	56.9	73.5	62.8
Punta Rassa	58.4	58.6	60.3	62.7	75.9	
Key West	67.2	66.5	68.2	69.5	78.8	

Highest or Maximum Temperature.

Jacksonville	81.0	80.0	83.0	88.0	104.0	
Jupiter	82.0	80.0	84.7	85.5	91.0	93.0
Tampa	81.3	78.1	80.5	84.2	93.2	94.4
Punta Rassa	82.5	81.5	84.0	85.0	93.0	
Key West	88.0	90.0	87.0	89.0	97.0	

Lowest or Minimum Temperature.

Jacksonville	19.0	24.0	32.0	31.0	68.0	
Jupiter	41.0	38.5	39.8	44.8	69.1	32.7
Tampa	34.7	32.7	33.7	39.7	70.0	28.1
Punta Rassa	34.0	33.0	43.0	38.0	67.5	
Key West	44.0	48.0	55.0	53.0	72.7	

Average Relative Humidity.

Jacksonville	73.7	74.6	70.6	65.4	71.8	72.0
Jupiter, 8 A.M.	83.7	84.7	84.0	80.0	81.5	82.0
Tampa	83.4	81.6	83.8	80.0	82.4	81.2
Punta Rassa	75.3	77.6	75.3	72.1	75.7	74.9
Key West	78.7	79.7	76.6	70.5	70.3	73.9

Average Precipitation in Inches.

Jacksonville	2.89	3.28	3.45	3.13	5.18	54.68
Jupiter	2.88	3.43	2.72	2.59	5.35	62.14
Tampa	1.57	2.45	2.81	2.68	7.99	53.09
Punta Rassa	1.28	2.36	1.72	1.20	7.22	43.54
Key West	1.84	2.32	1.84	0.66	4.27	40.88

Prevailing Direction of Wind—From—

Jacksonville	N. E.	N. E.	N. E.	N. W.	S. W.	N. E.
Jupiter	N. W.	N. W.	S.	S.	S. E.	S. E.
Tampa	N.	N.	N. E.	S. E.	E.	N. E.
Punta Rassa	N. E.	N. E.	N. E.	N. E.	E.	N. E.
Key West	N. E.	N. E.	E.	E.	E.	E.

Average Hourly Velocity of Wind, in Miles.

Jacksonville	6.0	5.8	6.9	7.9	6.3	6.7
Jupiter	10.2	9.9	10.7	10.6	7.6	9.7
Tampa	6.0	6.0	6.9	6.7	5.2	6.1
Punta Rassa	10.3	10.2	10.7	12.0	8.2	10.1
Key West	11.2	10.8	10.4	11.2	7.5	9.7

AVERAGE NUMBER OF CLEAR DAYS.

	December.	January.	February.	March.	July.	Year.
Jacksonville	10.2	9.0	9.7	12.7	10.2	123.2
Jupiter	9.8	13.0	11.0	17.4	12.5	131.4
Tampa	12.1	9.5	8.4	11.7	7.0	115.0
Punta Rassa	12.1	9.8	11.5	14.7	3.4	102.9
Key West	11.0	11.3	11.7	15.8	5.7	113.4

AVERAGE NUMBER OF FAIR DAYS.

Jacksonville	12.0	12.8	10.4	13.0	16.0	156.7
Jupiter	14.1	11.0	11.1	9.7	13.4	153.8
Tampa	12.3	16.4	14.3	14.4	20.0	188.2
Punta Rassa	12.8	15.0	11.4	11.8	10.4	186.1
Key West	15.5	14.7	12.6	12.5	19.8	192.5

AVERAGE NUMBER CLEAR AND FAIR DAYS.

Jacksonville	22.2	21.8	20.1	15.7	26.2	279.9
Jupiter	23.9	24.0	22.1	27.1	25.9	285.2
Tampa	24.4	25.9	22.7	26.1	27.0	303.2
Punta Rassa	24.9	24.8	22.9	26.5	23.8	289.0
Key West	26.5	26.0	24.3	28.3	25.5	305.9

Five points are taken in various portions of the State to illustrate the different climatic factors: Jacksonville, on the St. John's River, about thirty miles from the Atlantic; Jupiter, on the Atlantic Coast, seventeen miles north of Palm Beach; Tampa, about twenty-five miles from the Gulf Coast, and about half-way down the peninsula; Punta Rassa on the Gulf Coast, almost opposite Palm Beach; and Key West at the extreme south, an island about sixty miles from the mainland.

In observing these climatic features the distinguishing characteristics are mildness and uniformity. It will be seen that the diurnal range for the coast stations is small, while that of Jacksonville and Tampa, further inland, is considerably greater, and least of all, as we should expect from its insular position, is that of Key West.

From the table of maximum and minimum temperatures it will be observed that for the four months from December to March inclusive the maximum ranges from 78.1° to 88° F., and the minimum from 19° to 44.8° F.; Key West excepted. "There is a possibility then of frost, snow and ice, although these phenomena are rare: they are the infrequent 'chances,' and occasionally a cold wave sweeps over the whole State, damaging or killing the orange trees, demanding fires indoors and winter clothing out." The relative humidity is high, characteristic of a marine climate, as this is: it is quite uniform throughout the year. "Of course, as might naturally be expected of a climate with the temperature and humidity of that of Florida, heavy dews in clear still nights are always present; and during the winter and spring fogs in the night and early morning are not uncommon. Fogs are, however, somewhat worse on the Atlantic Coast and along the St. John's River than on the Gulf side of the peninsula" ("The Climate of Florida," Dr. J. P. Wall, the *Climatologist*, November 15th, 1891). The mean annual rainfall may perhaps be considered high for a health resort, although about half occurs in the summer. For comparison the mean annual rainfall of various resorts is here given:

	Inches.		Inches.
Jacksonville, Fla.	54.6	Aiken, S. C.	48.0
Jupiter, Fla.	62.1	Thomasville, Ga.	51.5
Tampa, Fla.	53.0	Augusta, Ga.	44.0
Punta Rassa, Fla	43.5	San Diego, Cal.	10.0
Key West, Fla.	40.8	Los Angeles, Cal	18.0
Redlands, Cal.	15.0	Santa Barbara, Cal	18.0
Denver, Col	14.4	Cannes, France	25.0
Nice, France	32.0	Cairo, Egypt	15.0
New York, N. Y.	42.5		

The prevailing winds are from the east, bringing the pure air from the Atlantic Ocean. The hourly velocity is between six and ten miles, considerably less than that at Cape May. "With the Atlantic on the east and the Gulf of Mexico on the south and west the temperature of Florida, and especially that of the peninsula, is very much ameliorated by the constant sea breezes, and the climate rendered remarkably equable and genial. The regular alternation of land and sea breezes prevents, especially during the hot season, the discomforts and suffering of excessive heat which is usually associated with the wind in the lower latitudes of the North Temperate Zone" (Wall, *loc. cit.*).

The number of clear and fair days is about the same for each of the resorts under consideration, and the yearly average is large, equal to that of San Diego or of Santa Barbara. Three out of four days during the winter months are fair or clear. The average number of rainy days for the year is considerably higher than at Cannes, Nice, or San Remo; but, as before mentioned, the greater part of the rain comes in the summer. It is to be regretted that there are no meteorological data, so far as known to the writer, for points situated upon the elevated ridge in the interior. Such data would probably approximate more nearly to those of Jacksonville and Tampa, which are situated some miles from the coast, and the mean average daily range of these two places, as we have already observed, is considerably greater than is the case with the coast towns.

Of Winter Park, situated 133 miles south of Jacksonville, 40 miles west of the Atlantic Ocean and 80 miles east of the Gulf of Mexico, with an altitude of over one hundred feet, we are told that "the air is fine and dry, the country around being made up of high pine lands, that there are no marshes or stagnant ponds, but instead a chain of beautiful, clear-water lakes. The temperature of the winter days averages from 60° to 65° F. during the twenty-four hours. Occasionally there is a frost, and once in a while freezing temperature occurs at night, but none during the days. It rains very seldom during the winter months, but there are heavy dews night and morning." (Report on Health Resorts, Transactions of the American Climatological Association, 1895.)

The climate of Key West is "essentially tropical, and typically insular." As will be seen in the tables, July shows a much greater amount of precipitation than the winter months, and such is the case with the other summer months; there is practically a dry (winter) and a rainy (summer) season. From this fact, however, it must not be supposed that it rains most of the time in summer, for July, for instance, shows 25.5 clear and fair days, and the other summer months about the same proportion.

It will be also noticed that the temperature is remarkably equable, the mean of the warmest being 91.3°, and of the coldest 66.5° F.; the diurnal range is also very small. The city of Key West, the largest in the State next to Jacksonville (about 25,000 inhabitants), is situated upon a coral island of the same name, seven miles long and from one to two miles broad. There are no springs on the island, and the water supply is derived from rain water or from distillation.

The foliage and fruits are luxuriant and more or less tropical. The streets of the town are broad, the residences are shaded with tropical trees, palms and brilliant flowers grow in profusion, all giving the town a very picturesque appearance.

Key West is not known as a health resort, as are the other well-known resorts in Florida; it is said, however, to be healthy, and it at least possesses an ideal semi-tropical insular climate. Its sanitary condition is unknown to the writer. It is the most southern city of the United States. "The fishing and boating are unsurpassed, and there are a number of charming drives on the island."

The warmth, abundant sunshine, equable temperature, marine atmosphere, and all the varied charms of land and water will always render Florida one of the great winter resorts of the United States. It is easily accessible from the Northern States by rail or by boat, and it possesses an unrivalled system of hotels. As Dr. Wall truly says:

"To the vast majority of the valetudinarian class from other causes than consumption, the winter's sojourn in the mild marine climate of Florida will always be found a powerful adjunct in re-establishing the impaired health."

Finally, to the person who wants a *change* from the exhausting routine of city social or business life and who, from such or other reasons, has become "stale," to speak in athletic parlance, Florida offers a veritable paradise, provided a simple outdoor life is pursued and business and society are abandoned. The writer can speak from personal experience of the keen delight one experiences in the trip up the St. John's or Ocklawaha River; fishing in the Gulf of Mexico or hunting for sea-beans on the shore. With such novel surroundings, mere existence is a pleasure, and the subtile influences of the balmy atmosphere bring renewed health and strength of mind and body.

Edward O. Otis.

FLUKES. See *Trematoda.*

FLUOROFORM WATER (Fluoroformol) is a saturated (2.8 per cent.) aqueous solution of gaseous fluoroform (CHF_3). It is odorless and almost tasteless, but produces a local reaction on the tissues which is evidenced in the mouth by a stinging sensation. Besides its internal use in tuberculosis and acute pneumonia, Stepp of Nuremburg uses it topically as spray or inhalation for respiratory diseases, as local application for lupus, and as injection for tuberculous joints and sinuses. Internally the dose for a one-year child is 4.0 gm. (℥ i.), and for adult 15.0 gm. (℥ iv.) several times a day. One hundred grams have been taken in twenty-four hours without inconvenience (Stepp). *W. A. Bastedo.*

FŒTUS. See *Embryos.*

FOLLICULITIS DECALVANS.—This disease has been described under many names, such as alopécies cicatricielles innominées (Besnier), folliculite épilante (Quinquaud), acné decalvante (Lailler), ulerythema sycosiforme (Unna), and Brocq would include under it Kaposi's dermatitis papillaris capillitii.

SYMPTOMS.—It may affect the scalp alone, or the bearded portion of the face from which it may extend to

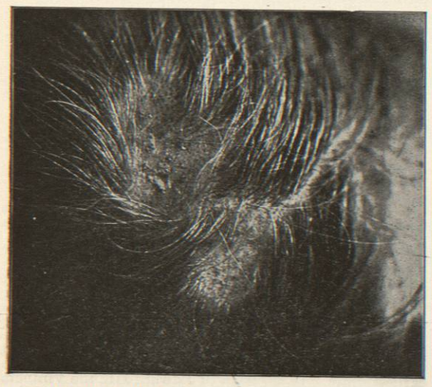

FIG. 2096.—Folliculitis Decalvans. Early stage. (Author's case.)

the scalp, while the hair of the pubes and axilla do not escape at times. Upon the scalp it takes one of two forms:

1. The *alopécie innominée* of Besnier. In this form we find one or more irregular, ill-defined bald patches about which are tufts of hair. Sometimes it will be noted that just beyond the circumscribing tufts of hair are other small bald patches showing the extension of the disease into neighboring parts. The scalp in the patches

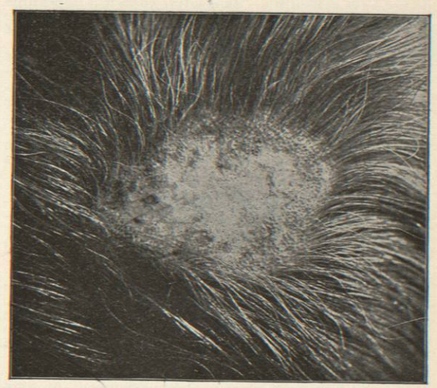

FIG. 2097.—Folliculitis Decalvans. A more advanced stage of the Disease. (Author's case.)

is cicatricial, thinned, slightly depressed, smooth or stippled over with follicular openings. Signs of active inflammation may be entirely wanting or confined to the mouths of the follicles. At other times there is a slight, diffused redness with furfuraceous desquamation; or there may be some very small and superficial pustules occupying the infundibula of the hair, which in a short time are transformed into depressions out of which the hair falls. As soon as the hair falls all signs of inflammation subside. The hair is permanently destroyed, and the scalp is gradually transformed into a mass of cicatricial tissue. New spots develop here and there in an erratic manner.

2. This is the *folliculite épilante* of Quinquaud. While the first form is confined to the scalp, the second may also affect the beard, pubes, and axilla. It differs from the first form in being accompanied by more marked inflammation. Like it it produces bald, smooth, irregularly shaped, cicatricial patches. These are scattered through the hair, and are of various sizes up to that of a silver quarter of a dollar. In them are some small red points, while about their edges and in their neighborhood are purulent points, miliary abscesses, and red papules, each with a hair in its centre. The folliculitis causes destruction of the hair which is permanent, giving rise to the cicatricial appearance. If there are a number of patches near each other they will be separated by tufts of sound hair. If the disease occurs on other parts than the scalp it will give rise to similar appearances.

Folliculitis decalvans is a chronic and progressive process, and it is impossible to say how great its ravages will be. It is usually slow in its progress.

ETIOLOGY.—Nothing positive is known of the cause of the disease. Some observers have found micro-organisms in relation with it, but we cannot as yet speak positively about these. Inasmuch as some of the cases yield to antisyphilitic treatment, it has been assumed that some of the cases are due to syphilis.

DIAGNOSIS.—Occurring on the scalp it must be diagnosed from alopecia areata and the baldness due to favus. From alopecia areata it is distinguished readily by the fact that it is cicatricial in character, while in alopecia

areata the skin is unaltered. Moreover, in the latter disease there are never signs of follicular inflammation. If there are favus crusts or evidences of folliculitis the diagnosis from favus is easy, as in folliculitis decalvans we do not have sulphur-yellow crusts, and in favus we do not have folliculitis. In inactive cases it is impossible to tell which disease we have, as both diseases produce baldness of the same general character. The history of the case will, however, enable us to decide.

TREATMENT.—Thus far, treatment has not been of much avail. Quinquaud recommends washing the patches with soap and water, and painting the scalp in their vicinity with tincture of iodine. Every morning the patches are to be bathed with hydrarg. biniodide, gr. i. (0.065): hydrarg. bichloride, gr. iv. (0.26); alcohol, ʒ ss. (16.); aquæ destillat. ad ʒ iv. (125). Of course the baldness is permanent, the scalp being converted into a cicatrix. *George T. Jackson.*

FOOD AND DRUG INSPECTION.—Modern Legislation Relative to Food and Drug Inspection.—The present article is chiefly devoted to the subject of legislation to provide protection against adulteration and to the amount of work accomplished under such laws.

Popular knowledge upon the subject of food adulteration is undoubtedly derived to a great extent from the occasional publications of the daily press, which are too often of a very sensational character, exaggerating not only the extent of adulteration, but also the comparative ratio of harmful adulteration to that which is merely fraudulent in its character. Fortunately these publications are not so common as they were a few years ago. It is but a few years since a public document, in commenting upon this subject, stated that "fraudulent adulteration is but little more common than injurious adulteration." An examination of the food supply of almost any community at the present day would undoubtedly show the incorrectness of this statement.

ENGLAND.—The history of food adulteration in England dates from a very early period. In the reign of King John, the price and size of the loaf of bread were regulated by law, and this law was afterward amended so as to provide penalties for adulteration, these consisting of fine, capital punishment, and the pillory. During the reign of Edward the Confessor punishment for brewing bad beer was publicly enforced, and in 1589 "this beverage could not be sold without the approval of official 'ale-tasters.'"

Addison says in the *Tatler* (1710): "These subtle philosophers are daily employed in the transmutation of liquors, and, by the power of magical drugs and incantations, raise under the streets of London the choicest products of the hills and valleys of France; they squeeze Bordeaux out of the sloe and draw champagne from an apple."

Modern agitation in England upon the subject of restricting food adulteration may be said to date from about the middle of the last century. From 1851 to 1854 the subject was often discussed in the columns of the *Lancet*, and a Parliamentary inquiry was finally ordered. After the report of the Committee of Investigation the first general English law was enacted, and was known as the Adulteration of Food Act of 1860. This act authorized the appointment of analysts by local boards, and made £5 the penalty for selling an adulterated article, the vendor knowing it to be such. For a second offence the offender's name and place of business could be published in addition to the fine. The Act was permissive as to the appointment of analysts, and was never satisfactorily enforced. In 1869, and again in 1871, bills were introduced in Parliament to improve the law, but failed to pass. In 1872, however, an act was passed which obliged the local boards to appoint analysts and provide for inspectors. The penalty for adulterating articles of food was fixed at £20 for a first offence, and for a second the name and residence of the delinquent could be published in a newspaper. The punishment for adulterating drugs was made £50 for a first offence, and for a second imprisonment not exceeding six months. Previous to 1874 there were various attempts to enforce this law, but without noticeable success, owing to the lack of recognized standards of purity, the disagreement of analysts, and the varying decisions of magistrates in regard to the meaning of the term adulteration. In 1874 a new Parliamentary investigation was ordered and more scientific examination made of the whole subject of adulteration than had been secured before. The report of the committee was reassuring, and was to the general effect that the public was more cheated than poisoned by the adulterations generally practised. In 1875 a carefully digested measure was passed by Parliament (38 and 39 Vic., c. 63), and this, with the amendments of 1878, 1879, and 1899, is now the law for Great Britain.

The principal provisions of the law are as follows:

First. No person shall mix, color, stain, or powder any article of food with any ingredient or material injurious to health, with intent that the same shall be sold in that state, and no person shall sell any such article under a penalty not to exceed £50 for the first offence, and every offence after a conviction shall be a misdemeanor, to be punished by imprisonment not to exceed six months.

Second. No person shall mix, color, stain, or powder any drug so as to affect injuriously the quality or potency of such drug, with the same penalties as provided in the case of food. Proprietary medicines and patented articles are excepted, as are also substances which are added merely to make the compound fit for carriage or consumption, and are not injurious to health.

Third. A person is not guilty, under the act, who proves that he did not know of the adulteration, and could not have obtained such knowledge with reasonable diligence.

Fourth. Mixtures containing articles not injurious to health, and not intended fraudulently to increase the bulk or weight, can be sold, if labels are affixed plainly stating that the substance is a mixture.

Fifth. Analysts are to be appointed, and any medical officer or private person can bring articles to be analyzed. The seller is to be informed that the article is purchased for analysis, and it is to be divided into three parts, one of which is to be kept by the seller if he desires, one given to the analyst, and one kept by the purchaser. A penalty of £10 is imposed for a refusal to sell.

Sixth. The seller cannot be convicted if the article sold is in the same state as when purchased by him, and he has a warranty from the manufacturer.

Seventh. A person forging a warranty is liable to two years' imprisonment. A false warranty makes the giver liable to a penalty of £20, and the same penalty is imposed for applying a warranty to a wrong article.

Eighth. A person upon whom a fine is imposed can recover the amount with costs from the person from whom he bought the adulterated article, if it was sold to him as of the quality for which he sold it to the last purchaser, and that he did not know it to be otherwise.

In addition to the general acts referred to, frequent statutes have been passed in regard to sophistications of special articles.

Adulterations of coffee were prohibited by acts passed in 1725, 1803, and 1822. Since the latter date there have been various Treasury regulations, the result of which was largely to permit the mixture of chicory and other ingredients with pure coffee, and in some cases an entire substitution of the imitations. Adulterations of tea were prohibited by an act passed in 1725, and other acts were passed in 1731, 1773, and 1824. Wines, liquors, ale, and beer have been the subject of frequent statutes from the earliest times. In the reign of Edward III., the Vintners Company was incorporated under the title of the "Wine Tonners," and power was given to examine wines and liquor offered for sale, and to confiscate any adulterated samples. They could also place the sellers in the pillory.

In the time of Queen Anne, the use of cocculus indicus was forbidden in brewing beer, and further legislation

was passed in 1816, 1830, and 1863. The Licensing Act of 1872 is the present law on the subject, and the penalties imposed are £20 for the first offence, and £100 for the second. Tobacco and snuff adulterations are mentioned only in the more recent Parliamentary acts. The laws on the subject were passed in 1843, 1862, and 1868.

The adulteration of seeds used in agriculture has been found to be a serious injury to the farmers of Great Britain, and by the act of 1869, the killing * or dyeing of seeds is punished by a fine of £5 for the first offence, and £50 for the second, together with the publication of the offender's name at the discretion of the justice. The adulteration of drugs is prohibited and punished by the general acts of 1860, 1872, and 1875, but there have been a number of special acts relating to the subject. In the city of London, by laws passed in the reigns of Henry VIII. and Queen Mary, power was given to the College of Physicians to search for defective or corrupted drugs and medicines, and to punish the offenders by imprisonment and fines not to exceed £20. This power still belongs to the College of Physicians, but has not been recently exercised. The Pharmaceutical Society of Great Britain, founded in 1841, has been very active and influential in securing the passage of the recent laws relating to drugs and their enforcement.

The organization of the British Society of Public Analysts has proved to be a decided stimulus to the work of food inspection. This society was established in 1874 and its work as a society, together with its publications, has aided very greatly in carrying out the provisions of the Food Acts in establishing standards of purity and in formulating definitions of adulteration.

In 1896, after several years' experience under the Food and Drug Acts of 1875 and later years, it was deemed necessary to make certain changes in the statutes, and a new Parliamentary inquiry was ordered. The committee having charge of the inquiry reported certain recommendations to the Parliament, and after discussion an amended act was passed (62 and 63 Victoria, chap. 51). One of the chief objects of this act was to secure the agricultural interests of the country against the fraudulent sale of oleomargarine.

Section 1 of this act provides penalties of £20 to £100 if, (*a*) margarine or margarine cheese are imported into the United Kingdom, except in packages conspicuously marked as "margarine" or "margarine cheese" as the case may require.

(*b*) If adulterated or impoverished butter, or adulterated or impoverished milk or cream, is so imported, except in packages or cans conspicuously marked with a name or description indicating that the butter or milk or cream has been so treated.

(*c*) If condensed, separated, or skimmed milk, except in tins or other receptacles bearing the labels, "Machine skimmed milk" or "skimmed milk" as the case may require, in large and legible type, or

(*d*) Any adulterated or impoverished article of food to which the law may be applied, unless the same is imported in packages or receptacles conspicuously marked with a name, or description indicating that the article has been so treated.

Under this act an article is deemed to be adulterated or impoverished if any part of it has been abstracted, so as to affect injuriously its quality, substance, or nature. It is not to be deemed adulterated, by the addition of preservatives or coloring matter if these do not render it injurious to health. Prosecutions are to be undertaken by the Commissioners of Customs.

By Section 2, the officers of the Local Government Board and of the Board of Agriculture are empowered to procure samples for analysis. Section 3 makes it the duty of local authorities to appoint public analysts. If the local authorities neglect their duties in relation to the food acts, the Local Government Board is authorized to enforce the law and to charge the expenses to the defaulting local authorities.

Public analysts must satisfy the board of their competency.

By section 4, the Board of Agriculture can make regulations concerning the standard quality of milk products.

Sections 5–8 relate to the sale of margarine and imitation cheese.

Section 9. Name and address of vendor to be inscribed on his vehicle.

Section 10. Division of samples taken for analysis.

Section 11. Receptacles to be properly labelled.

Section 12. Labels to be legibly printed.

Section 16. Provides penalties for obstruction and bribery.

Section 19. Proceedings to be instituted within twenty-eight days after sale.

Section 23 and 24 apply the act to Scotland and Ireland. This act became effective January 1st, 1900.

The following statement from the Twenty-eighth Annual Report of the Local Government Board of England for 1898–99, shows the advantages of food and drug inspection in England and Wales since the beginning of Operations under the Food and Drug Acts in 1876.

The total number of analyses of food and drug samples made in 1898 was 49,555 * or about 1,600 more than those of the previous year. The increase in the annual amount of work performed has been quite constant for the past twenty-two years. In the five years 1877–81 the average number of samples examined per year was 16,688 or one to every 1,520 of the population; in 1882–86 it rose to 21,772, or one in 1,237; in 1887–91, it was 26,846, or one in 1,060, and in 1898 it was 49,555, or one in 585. In London one sample was examined for every 353 persons, and in the provinces one for every 659. But in some quite populous districts, the provisions of the acts were imperfectly carried out, and in commenting upon the neglect of the authorities in these districts the Board says: "The degree, however, in which the acts were utilized was by no means uniform in different districts. Within the jurisdiction of ten County Councils, extending over an aggregate population of 910,032, only 180 samples were analyzed, or one sample a year for every 5,056 persons; and in sixteen boroughs, with an aggregate population of 405,239, only 68 samples were analyzed, or one for every 5,959 persons." †

RESULTS OF EXAMINATIONS MADE IN ENGLAND AND WALES BY THE PUBLIC ANALYSTS, UNDER THE FOOD AND DRUG ACTS, 1877–1898.

Character of samples.	Number of samples examined in 1898.	Adulterated.	Percentage of Adulteration.					
			1898.	1897.	Five-year Periods.			
					1892–1896.	1887–1891.	1882–1886.	1877–1881.
Milk	20,315	2,011	9.9	10.4	12.3	13.2	16.7	21.1
Bread	717	6	.8	1.4	.7	1.4	3.4	6.6
Flour	1,013	20	2.0	.0	.2	3.0	.5	2.5
Butter	9,375	998	10.6	10.3	10.8	13.4	17.9	13.9
Coffee	1,879	187	10.0	9.6	11.1	14.8	17.8	18.6
Sugar	584	17	2.9	7.5	3.9	4.6	....	1.2
Mustard	775	30	3.9	5.5	6.6	9.2	14.5	17.4
Confectionery, etc	488	14	2.9	5.3	3.2	3.2	2.7	2.8
Pepper	1,566	13	.8	.1	1.0	7.5	....	....
Tea	486	15	3.1	.2	.05	.1	....	....
Lard	1,421	2	.1	.7	3.6	7.9	....	....
Wine	84	2	2.4	2.4	4.7	4.7	4.4	14.2
Beer	256	1	.4	2.8	6.9	2.6	3.0	5.4
Spirits	4,872	603	12.4	15.1	17.6	18.5	22.3	24.9
Drugs	1,641	196	11.9	10.5	12.3	13.1	13.6	22.0
Other articles	4,083	204	5.0	7.1	8.3	7.5	....	....
Total	49,555	4,319	8.7	9.4	10.6	11.7	13.9	16.2

* This term "killing of seeds" is interpreted in the British Statutes (Chap. 112, 32 and 33 Victoria) as meaning "to destroy by artificial means the vitality or germinating power of such seeds."

* The Report of 1899–1900 (p. cxlv.) shows that 53,056 samples were examined in 1899, of which 9.4 per cent. were adulterated, and in 1900 62,858 samples were examined, of which 8.8 per cent. were adulterated.

† Report of Local Government Board, England, 1898–99.