

toms, followed by recession before breaking down finally occurs.

Liquefaction is invariably followed, soon or late, by spontaneous evacuation through the skin, or other route, unless the abscess be evacuated by incision. A sinus remains which persists until all of the remaining tuberculous material is discharged, which is usually a long time.

When a number of glands are involved in the same group they may coalesce and discharge through a single tract, leaving but a single sinus; or there may be as many sinuses as there are diseased glands.

Cases which have a secondary infection superadded run a much more rapid course.

Finally, in rare instances, the breaking down of the gland is followed by absorption of the fluid, and spontaneous cure results by caseation and calcification.

Diagnosis.—The presence of enlarged lymph glands, without apparent cause, running a subacute or chronic course, especially if situated in the neck, is presumptive evidence of tuberculous adenitis. A tuberculous family history or tuberculous surroundings add strength to this view.

The conditions from which this must be distinguished are:

1. Simple adenitis, if such a term may be employed, but more properly an adenitis in which the dose of poison has been relatively small, and the gland has been able to dispose of it successfully; this form tends to undergo resolution.

2. A pyogenic adenitis. In this affection, which may be of the same type as the foregoing, the poison is present in larger dose; the tendency of the inflammation is toward early suppuration.

3. Syphilitic glandular enlargement will be recognized by the general and symmetrical distribution of the affected glands, especially the post-cervical and the inguinal, by the painless character of the affection, by the presence of other signs, and by the history.

4. Carcinomatous glands, secondary to epithelial cancers of the lips, tongue, etc., must be suspected if such a lesion exists or has been previously removed; hence the importance of inquiry in every case at middle age or later.

5. Glanders and other specific infections not already mentioned will be readily recognized by the presence of the primary focus of disease.

6. Bubonic plague need only be mentioned to put the surgeon on guard if the disease happens to exist in the particular locality, or if the individual has come from an infected district.

7. Lymphosarcoma may be indistinguishable from tuberculous disease of the gland in the early stages. In the later course of the case the malignant character will usually become manifest. It is sometimes proper to remove a gland for microscopic diagnosis.

8. Hodgkin's disease in the beginning presents no distinctive symptoms. It is rare before puberty; three-fourths of the cases occur in men; and the deep chain of cervical glands is apt to be the first affected. Later, the glandular enlargement becomes general, and other signs of the constitutional nature of the condition appear. The glands may be hard or soft to the touch. They very rarely suppurate.

Pathology.—See the article on *Lymph Nodes, Diseases of.*
Treatment.—The treatment of tuberculous lymph nodes may be described under the following heads: (1) The prevention of further infection; (2) rest of the part affected; (3) local applications; (4) constitutional treatment; and (5) surgical treatment.

The Prevention of Further Infection.—Before discussing the treatment of tuberculous glands something should be said on the subject of prophylaxis. In speaking of the etiology, it was stated that the disease was caused by the absorption of tubercle bacilli from some part of the surface of the body. As the majority of examples of the affection occur in the cervical glands, it will be proper to speak particularly of these. Begin by making a careful examination of every region that might furnish the in-

fection—lesions of the scalp or face, carious teeth, ulcers of the lips, tongue, or cheeks, and particularly disease of the tonsils, nasopharyngeal catarrh, and adenoids. Nothing could be more irrational than to dose the patient with cod-liver oil, iron, etc., and to paint the skin with iodine while he is daily absorbing more germs. Even the effect of sea air and sunshine will prove futile under such circumstances. Therefore first treat the local infection at the neck, in order to stop further absorption. To this end, have all carious teeth properly filled or extracted, remove adenoids, treat a nasopharyngeal catarrh, and, above all, restore the tonsils to a healthy condition, or excise them if need be, and then take up the treatment of the enlarged glands.

Rest of the Part Affected.—The first principle in the treatment of inflammatory affections is to secure rest of all the structures involved. The more acute the inflammation the more imperative this rule becomes. This course is just as necessary in treating inflammation of lymph nodes as it is in treating inflammation of other structures. For the purpose of keeping the structures of the neck at rest, in cases of cervical adenitis, a kind of "stock" should be worn. This is made of pasteboard and should be cut to fit the particular individual. The two ends meet at the back of the neck. The lower edge should rest on the clavicles, the upper margin is high at the sides, and cut out for the chin just sufficiently to permit the head to maintain a normal position. It need not be high at the back. Having carefully fitted the pasteboard to the neck, and being assured that it is of proper dimensions, the surgeon should have it lightly padded and covered with either white or black silk as preferred, and provided at the back with tapes for tying it in position. It should be worn during the night as well as during the day. If properly made it prevents rotation of the head as well as flexion and extension. In addition to affording rest to the inflamed part it serves to maintain an even temperature of the surface, which is doubtless a factor of definite value. Appropriate means for placing the important structures at rest in adenitis occurring in other parts of the body will readily suggest themselves.

Local Applications.—This is perhaps the least important part of this subject. It is probable that many of the local applications in common use are quite inert, while the most efficient have but a feeble influence. Of all the remedies employed the compounds of iodine seem to have best stood the test of time. A very efficient form of exhibiting this remedy is the ointment of the iodide of lead or of iodide of cadmium, or the compound iodine ointment, all of which are official in the Pharmacopœia. The ointment may be well rubbed into the affected region twice daily, covered with lint and waxed paper, and, if the neck is involved, the stock applied. The tincture of iodine is less efficient than the ointment, but may be liberally applied in some of the mildest cases, especially if spread well around the whole area involved.

Ichthyol in ointment (ten to fifty per cent.) or solution (five to fifteen per cent.) is highly recommended by some. The writer does not favor the practice of injecting antiseptic or irritating substances into the centre of an inflamed gland. It does not seem to be based upon a rational foundation, and besides he has not seen sufficient benefit follow the treatment to warrant its employment.

Up to a certain point the tendency of every inflamed gland is to undergo resolution and return to a condition nearly if not quite approaching the normal. If, therefore, the further absorption of poison be prevented and the parts put at rest, the symptoms will subside without any other measures.

Constitutional Treatment.—Other conditions being equal, the rapidity of improvement in the cases that undergo resolution will be in direct proportion to the health and vigor of the individual. This is to be explained by the well-known fact that the phagocytes of an individual in robust health are infinitely more efficient in destroying infections than when he is in an enfeebled state. Therefore, as an adjunct to the other measures mentioned, the patient should be instructed to lead a healthful out-of-

door life. The tubercle bacillus is killed by the direct rays of the sun, and it cannot be doubted that the effect of sunlight in increasing the resistance of persons to tuberculous infection is very great. Hence a residence at the seashore, or in the country where the individual may be in the open air all day, is to be advised. The time devoted to rest and sleep should exceed that proper for a healthy individual. Unless some special indication exists, a generous diet is to be advised. If, however, in addition to this, a liberal quantity of milk, not less than a quart a day for an adult, and an abundance of cream and butter be taken, the best results will be obtained. In other words, "forced feeding" is to be practised; at the same time the limits of the patient's digestive power must be carefully respected.

The indications for internal medication are simple. For anaemia, iron or manganese is the sheet anchor. The hypophosphites deservedly enjoy a good reputation. Arsenic given to the limits of toleration is highly indorsed by some writers, and really appears to be of invaluable service in many cases. Cod-liver oil is still very largely employed when the nutrition is poor, and perhaps nothing can be said against this practice if the stomach tolerates it well, although many prefer to administer fat in the form of cream and butter. It has not been demonstrated that cod-liver oil exerts any specific influence upon tuberculous subjects.

If the digestion is poor, pepsin or other artificial aid should be given.

Surgical Treatment.—It is frequently a matter of some moment to decide when surgical measures are necessary in these cases. Whenever a gland or group of glands is enlarging rapidly, or when the local signs of inflammation indicate that pus is either present or forming, operation should not be longer delayed. In the absence of these acute symptoms one may safely wait for as long a time as two or three months, during which the other methods of treatment may be given a thorough trial. If at the end of this time there is no improvement, the removal of the affected gland should be advised. During the time mentioned, any increase in the local symptoms would be an indication for operation without further delay. On the other hand, the simpler forms of infection which have a tendency to undergo resolution would have disappeared. Manifestations that remain after this length of time are apt to be due to tubercle, sarcoma, or Hodgkin's disease.

It is impossible to distinguish in the early stages between these three conditions, but it is equally proper to remove the affected glands in either case, for then a definite diagnosis can be made by a microscopical examination.

In operating for the removal of enlarged glands of the neck, the incision should be made sufficiently free to give proper access to the tumor, and at the same time it should be so placed as to produce the least deformity. The usual principles governing surgical operations apply to the solid forms of these tumors. As the majority of these operations will be for tuberculous glands, it should be emphasized that satisfactory results will only follow thorough removal. Before the glands have broken down this will be a task of comparative ease. After abscesses have formed, however, the dissection is much more tedious, and the chance of obtaining a radical cure is much diminished. In neglected cases and those in which early breaking down has occurred, it has been a common practice to incise the fluctuating swelling and treat it as an ordinary abscess. It will be found in many of these cases that the pus comes from a suppurating gland beneath the deep fascia, and that the discharge has worked its way through the latter and has appeared beneath the skin. With this knowledge, it is our duty in these cases, after incising the abscess, to explore carefully in all directions for any evidence of a track leading to a deeper focus of suppuration. If such be found, it must be followed up and treated in the usual way. The deep glands of the neck lie in close apposition to the great blood-vessels, and when the seat of disease they are particularly prone to in-

volve the internal jugular vein. In all operations, the important anatomical structures which lie in apposition with the glands must be kept in mind and avoided if possible. If the internal jugular vein is distinctly involved, a ligature may be applied on either side of the part affected and the section removed. In order to get better access, if the disease is extensive, the sterno-mastoid muscle may be divided and sutured again after the mass has been removed. In the absence of pus these wounds may be closed without drainage, but when suppuration is present suitable drainage must be provided.

Alfred C. Wood.

LYSIDIN—ethylene-ethenyl-diamine, methyl glyoxalidin ($\text{NCH}_2\text{.NHCH}_2\text{.CCH}_3$)—a reddish-white, very hygroscopic crystalline mass of mouse-like odor and alkaline reaction, is prepared by acting on ethylene-diamine hydrochloride with sodium acetate, and separation by caustic alkali. It is freely soluble in water and alcohol, is insoluble in ether, decomposes silver nitrate, and with ferric, zinc, and mercuric chlorides and iodides forms precipitates which are soluble in excess of lysidin. One gram of lysidin requires for neutralization 5 c.c. normal hydrochloric-acid solution. The drug, on account of its hygroscopic nature, is marketed only in fifty-per-cent. aqueous solution, a pale-yellow liquid with soapy feel.

Lysidin is a near relative of piperazin, and, like the latter, has a noteworthy value in gouty conditions. Goodbody considers it more powerful than piperazin as a solvent for uric acid, and Gompertz, Grawitz, and others give favorable reports of its action. The dose is 2 to 10 c.c. (3 ss.—iiss.) of the solution daily, given with large quantities of water.

Lysidin bitartrate is a soluble white crystalline salt of lysidin of about one-third the strength of the latter.

W. A. Bastedo.

LYSOFORM is an odorless, clear, yellowish, soapy liquid containing formaldehyde, and miscible in all proportions with water (slightly cloudy) and alcohol. Symanski, to make a comparative study of lysoform with lysol, mixed urine with bouillon, incubated it for three days, and added 0.1 to 1.0 c.c. of lysol and lysoform, respectively, to 100 c.c. Platings were made after twenty-four, thirty-six, and seventy-two hours. In 0.5-1 c.c. mixtures the lysol plates were sterile, while cultures were obtained from all of the lysoform plates; the strong lysoform solutions were about equal in antiseptic power to the weak lysol solutions. Spore-forming anthrax bacilli were killed by two- to three-per-cent. lysol, and by three- to five-per-cent. lysoform. Lysoform had but little antiseptic power on albuminous fluids, but possessed the greatest deodorizing power. Inoculated into mice and guinea-pigs it is very little poisonous. For cystitis, Simmons recommends injections of 10-30 c.c. (3 iiss.—3 i.) of two-per-cent. solution, and for chronic gonorrhœa one-per-cent. Strassmann uses it as a vaginal douche, and in two- to four-per-cent. aqueous or alcoholic solution as a disinfectant for the hands.

W. A. Bastedo.

LYSOL.—This is a proprietary preparation of cresol introduced to supersede creolin, the best-known solution of this valuable disinfectant. The advantages claimed for lysol over the other cresol compounds are that it forms a clear solution when mixed with water, contains a greater amount of cresol, and is perfectly free from injurious qualities. It is said to be prepared by dissolving the cresols, which distil between 190° C. and 200° C. in fatty matter and subsequently saponifying by the addition of alcohol. It is a brown, oily-looking, clear liquid, with a feeble, aromatic, creosote-like odor. It is said to contain fifty per cent. of cresol. Its solution forms a soapy, frothing fluid, which becomes turbid only when mixed with hard water, the extent depending upon the quantity of lime salt present; this turbidity increases upon standing for some time. Lysol mixes freely with alcohol, glycerin, chloroform, and benzene.

For surgical purposes it is used in different degrees of

strength. For disinfecting the hands and cleansing the body of the patient, a five-per-cent. solution is used by rubbing into the parts thoroughly, and then washing it off in a solution of one or two per cent. For disinfecting instruments and for irrigation during an operation a one- or two-per-cent. solution is prepared, and for gynecological and obstetrical purposes a solution of one-half per cent. is sufficient.

On mucous surfaces, when used in stronger solution than two per cent., it causes a burning and painful sensation which lasts for some time, but otherwise is perfectly uniritating.

Lysol was recommended for internal administration as an antiseptic remedy, but has not proved of much service. In Europe it is more frequently used as an antiseptic injection in disturbances of the lower bowel, a solution of the strength of one per cent. being employed.

Beaumont Small.

LYSOL, POISONING BY.—Lysol is a coal-tar product containing a considerable amount of cresols (methylphenols) which by conversion into sodium salts have been rendered soluble in water. It is used a good deal as an antiseptic wash, and cases frequently occur in which it is the cause of poisoning by being mistaken for other substances in use in the sick-room. Out of 18 cases recently collected from current literature, 13 were from internal and 5 from external use of the remedy. Nine of the cases resulted fatally: 5 children and 1 adult after internal use and 2 children and 1 adult after external application of the pure lysol when the 1-per-cent. solution had been ordered. The largest dose from which recovery is recorded is 60 gm. (about gr. 925) in the case of a woman and 25 gm. (gr. 385) in a four-year-old child. The smallest doses that have proved fatal were a teaspoonful (about 4.3 gm. or gr. 70) in children between five and eight years old.

The recent cases show that the prompt washing out of the stomach freely with water has been attended with satisfactory results, while the neglect of this was usually fatal. The solution should never be used externally in strength greater than one per cent., nor more than 0.5 per cent. internally.

The following recently reported case will serve to show the general nature of severe lysol poisoning. A child of nearly two years old drank a teaspoonful of lysol at 8 P.M. Milk was given at once, but unconsciousness soon supervened without cramps or vomiting. At 8:15 when the physician saw the child, the pulse was 160, small and irregular, cyanosis marked; corneal and pupillary reflexes were absent. The mouth contained considerable mucus, and the mucous surface was corroded, as was also the skin at the corners of the mouth and on the chin. At 8:30 P.M. the stomach was washed out with water until the effluent had no odor of lysol. Camphor and ether injections were used. The child improved, consciousness returned, but there were several attacks of vomiting during the night. Next morning, the temperature was 102.2° F. and pulse 120, moderately strong, but dyspnoea developed, the oedema of the lung increased, unconsciousness again supervened, and the patient died at 3 P.M., nineteen hours after taking the poison.

The local effects of lysol will resemble those of phenol in some respects, but the corrosive effects will be less marked. On the other hand, the general effects of lysol are well-marked features of its action, and death may occur without extensive local injury. The above case was treated by washing out the stomach, but rather late and after much lysol had been absorbed.

Henry Leffmann.

LYSULFOL is a thick black viscous liquid containing lysol and sulphur. It is miscible with water and is used by Rumpf in skin diseases.

W. A. Bastedo.

MACE.—*Macis. Banda Mace.* The arilode of the seed of *Myristica fragrans* Houttuyn (fam. *Myristicaceae*). The origin and preparation of mace are fully explained

under *Nutmeg*. It occurs in narrow bands, 2.5 cm. (1 inch) or more long, somewhat branched and lobed above, united into broader bands below; orange-brown, exuding fat when scratched or pressed; odor fragrant; taste warm and aromatic. In the ground condition, mace is almost always grossly adulterated, especially with the wild or Bombay mace, from *Myristica Malabarica*. This is longer and more slender, of much darker color, softer, weaker, and more flexible and contains very little volatile oil, but a good deal of resin, by means of which its powder is readily distinguished. Curcuma, ginger, and similar substances are also considerably used in the adulteration of mace, and are readily distinguished by a similar resinous nature, as well as by their starches.

A good mace contains eight per cent. or more of volatile oil, a large amount of fat, very little resin, a little sugar, and other ordinary vegetable constituents. It is free from starch. The ash should not exceed two per cent. and in a clean article is considerably less.

The volatile oil of mace is slightly heavier than that of nutmeg and is soluble in three parts of alcohol. It is of complex composition, being identical in this respect with oil of nutmeg, except that its content of terpene is somewhat smaller. Owing to this practical identity of the two oils and the greater cheapness of oil of nutmeg, it happens that commercial "oil of mace" is almost without exception oil of nutmeg.

The action, uses, and dosage of mace are those of nutmeg.

Henry H. Rusby.

MADDER.—*Rubia.* The root of *Rubia tinctoria* L. (fam. *Rubiaceae*). *Rubia* is a perennial herb, native of the Orient and extensively cultivated there. The dried root is cylindrical, elongated, 0.3 to 1 cm. ($\frac{1}{4}$ to $\frac{3}{8}$ inch) in diameter, externally dark reddish-brown, internally somewhat lighter to pink. It is of soft texture, slight odor, and a sweetish, slightly astringent and bitter taste, tingling the saliva red. It is of complex composition, the source of its coloring matter being one or more glucosides which are decomposed by various processes employed in forming it. The drug has entirely lost its place as a medicinal agent and is now exclusively used for dyeing. Even this use has largely declined under the influence of the aniline dyes.

Henry H. Rusby.

MADEIRA.—The island of Madeira, the largest of the group of islands bearing that name, lies off the Morocco coast of Africa at a distance of about three hundred and sixty miles, and about three hundred miles to the north of the Canaries. It is one of the best types of the warm moist climates, and some fifty or more years ago was considered by the English the ideal climate for pulmonary tuberculosis and other lung diseases: much in the same way as Florida in this country was formerly regarded as the Mecca for consumptives. The extent of the island is about thirty miles from east to west, and thirteen miles wide. Extending from one end to the other is a range of mountains averaging 4,000 feet in height, with a maximum of 6,100 feet (Pico Ruivo, in the centre of the island). The side ridges of this central chain extend to the coast in every direction, usually terminating in lofty headlands. The north coast is more precipitous and wilder than the south. The soil is fertile, and on the mountain slopes are gardens with luxuriant semitropical vegetation and vineyards.

Madeira belongs to Portugal and "the inhabitants are of Portuguese descent, with some admixture of Moorish and negro" (Solly). The population of the two inhabited islands, Madeira and Porto Santo, is about 134,000. Funchal, the capital and largest town of Madeira (population 22,000), lies upon the south coast, and is built around the curving shore of a bay, extending up the encircling hillside to a height of 350 feet or more above sea level. It is sheltered from the northerly winds, which are prevalent, by the mountain chain, and is the usual place of residence selected by invalids resorting to the island during the season which extends from September to May, though one can spend the summer comfortably

ANNUAL AVERAGES.

	Latitude.	TEMPERATURE. (DEGREES FAHRENHEIT.)			Relative Humidity.	Rainfall.	Cloudy Days.
		Mean for January.	Mean for July.	Mean Annual.			
Madeira	32°30' N.	60.4°	71.1°	66.2°	70.75%	29.0	110.0
Jupiter, Fla.	26°57' N.	63.4	80.5	73.4	82.	62.1	79.8
Key West	24°34' N.	70.3	84.	77.5	73.9	40.8	59.1
Jacksonville	30°20' N.	55.8	82.5	69.2	72.	54.6	85.1
Santa Barbara	34°28' N.	51.2	66.8	60.7	73.	17.6	71.
San Diego	32°43' N.	53.6	67.1	60.4	72.9	9.49	87.2
Bermuda	32°15' N.	62.5	79.8	70.8	80.	62.54	83.
Nassau	25°5' N.	69.	87.	78.7		56.	
			Summer.			Oct. to May.	
Mentone	43°46' N.	49.3	73.	60.	72.	25.61	80.
Cairo	30°3' N.	53.6	77.9	70.2	58.4	1.22	40.
Aiken	33°32' N.	44.15	78.8	61.61	59.65	48.	

on the island by going up into the mountains. The scenery is very attractive and varied. The roads are very steep, so that wheeled vehicles are rarely used, but in their place palanquins, sledges, and portable hammocks. The sanitation and water are good. The accommodations are excellent, there being several English hotels and furnished villas called "quintas" for rent, situated at various elevations. There are also English and Scotch churches, and an English club and library. There are good fishing and sea-bathing all the year round, the temperature of the water in winter being from 60° to 70° F.

Madeira is reached by steam from Liverpool, London, Southampton, and Plymouth, and from various other ports on the Continent, and is also frequently a point of call by steamers from New York taking the southern route.

As has been said, the climate of Madeira is a mild, moist, marine one, and is consequently a very equable one, not only in the daily but also in the yearly range. The average mean daily range for the year is 9.2° F. and the mean nycthemeral range during the six months, November to April, is only 10° F. The mean monthly range of temperature for each of the five months—November to March—is as follows:

November, 16°; December, 16.9°; January, 16.9°; February, 18.7°; March, 18.9°. The mean annual temperature is 66.2°, and for the winter 61.6°. The extreme range of temperature is from 90.8° to 46.22° F., for eight years of observation.

At Funchal frost and snow are wholly unknown, but snow falls on the mountains once or twice during the winter, very seldom, however, below the altitude of two thousand feet. The mean annual relative humidity is given as from 70 to 75 per cent., and for the five months from November to March, 71 per cent., according to Kisch. During spring and autumn the relative humidity is least. The mean annual rainfall is 29 inches, of which 66 per cent. falls in the four months, November to February. In the winter six months there are on an average fifty rainy days. Lombard gives the number of cloudy days per annum as 110, and of fair and clear days as 189. The prevailing winds are from the north, north-east, and northwest. Generally there are no high winds at Funchal, but occasionally it is visited by the "leste," a hot dry wind blowing from the Morocco coast, chiefly in the spring and autumn.

In the above table the climate of Madeira is compared with various other warm marine climates and with the dry climates of Cairo and Aiken.

The climate of Madeira is not suited, in the writer's opinion, for pulmonary tuberculosis generally, although occasionally individual cases may do well, as in almost any climate. No warm, moist marine climate can be considered favorable for the arrest or cure of this disease, and experience, especially that at Madeira, confirms this statement. For cases of chronic laryngitis with scanty expectoration, chronic bronchitis and emphysema, how-

ever, such a climate is favorable, as well as for that large class of cases characterized by debility. "The feeble, flickering lamp burns longer there than in a more stimulating and tonic air, and now and then it seems to gather renewed power, and burns up again with some of its old lustre." For delicate scrofulous children such a mild marine climate is of value. Kisch regards rheumatism and gout, and also a tendency to diarrhoea and to albuminuria, as contraindicating the Madeira climate.

The American in search of health would rarely seek Madeira, owing to the long and expensive journey which he would be obliged to take. Moreover, he has nearer at hand in Florida, Southern California, and the West Indies, similar or more favorable climates.

Edward O. Otis.

MADRUGA SPRINGS.—These springs are situated in the town of the same name at a distance of about forty-five miles from Havana, Cuba, with which the town is connected by railroad. The number of springs is quite large, but up to the present only three of them have been employed for medicinal purposes, their names being, Paila, Templado, and Tigre.

These springs have been well known for many years and have enjoyed a well-merited fame, but for a long period they were neglected. Finally, the people of the neighborhood formed an association which furnished the necessary funds for erecting the buildings which now exist on the site of the springs. These buildings are substantial in character, made of stone, and roofed with tiles in the picturesque manner of the country.

The building at the Paila is thirty-six feet long by eighteen feet in width, and in the middle there is a partition wall which serves to divide the building into two almost equal parts. One side is devoted to the use of women and children, while the other division is for men bathers. The water that fills both of these tanks issues from a spring located in a well six feet wide by nine feet deep.

The water of this spring is clear, transparent, and has a strong odor of sulphureted hydrogen. This odor is lost on boiling the water or when it is allowed to cool. The temperature of the water is about 23° C.; in reaction it is somewhat alkaline.

The analysis of the water of this spring, according to Dr. Aenlle, yields the following results:

	Gms. per Litre.
Sulphurous acid	.228
Carbonic acid	.112
Carbonate of magnesium	.078
Carbonate of calcium	.485
Sulphate of calcium	.284
Chloride of sodium	.098
Carbonate of iron	.008
Chloride of magnesium	.018
Oxide of aluminum	.013
Organic matter	.049
Total	1.474