## OLIVE CULTIVATION.

OF the various food products, or vegetable liquids, perhaps those most extensively shown at the Paris Exhibition are wine and oil. These two seem to follow the progress of civilization and settlement, whenever the climate is suitable. Olive oil is shown in a very large number of the foreign sections, and the wide and extensive progress it has made over the world is exemplified now by one French exhibitor, who exhibits samples from the following widely-separated districts: the Gold Coast of Africa, Melbourne and Adelaide, Chili, Guatemala, Guayaquil, Mexico, Venezuela, La Plata, New Orleans, Philadelphia and New York, Canada, India, Cochin China, Reunion, Mauritius, Japan, Polynesia, Havana, Guadaloupe, Martinique, Trinidad, Hayti, the Black Sea coast, the Levant, Spain, Portugal, and France.

But these are not all the seats of production, and are merely cited to show how widespread is the culture of the olive at the present day.

Taking the French official catalogue, and turning to the alimentary products, "class 69, oils and fatty substances," there will be found over six hundred exhibitors of olive oil specially named, besides numerous collective exhibits, and many others also are included under the general term "comestible" or edible oils. There is much substitution, however, carried on in this respect at the present day by the sale to the public of refined cotton-seed oil, sesame, and other oils, in place of olive oil. The number of exhibitors of olive oil under each country as given by Mr. P. L. Simmons in the *Journal of the Society of Arts*, are as follows: Portugal, 448; Algeria, 128; Italy, 8; France, 12; Spain, 5; California, 4; Japan, 1; total, 606. There are two or three exhibitors also from Tunis, and in the French section there is a collective exhibit of edible oils made by sixty-seven producers and dealers from Salon, Bouches du Rhone.

The various uses of the olive for its fruit and its oil are well known. In ancient Greece the tree received all the honors, and had almost a sacred character. This was in consequence of its being the chief production of the country, and its produce the main source of public food.

From olden times the people of the Mediterranean coasts have made the olive their principal culture, and it is there the oil industry chiefly centres, — in Spain, Portugal, Italy, Greece, and France, on the northern coast; and Morocco, Algeria, and Tunis, on the southern shores.

The olive has been cultivated in those regions from time immemorial, as the bounteous gift of heaven and the emblem of peace and plenty. Olive oil takes there the place of butter. Spain has about 3,000,000 acres under olives, Italy 2,250,000, and France about 330,000, of which 15,000 acres are in the district of Nice. Olive oil in the country of Nice forms now four-fifths of the agricultural produce.

The varieties of the olive are very numerous. The naturalist Risso, in 1826, described forty distinct varieties, and these have since been increased to forty-five.

In the countries where it is indigenous, the olive tree attains gigantic proportions. It reaches, occasionally, sixty feet high, with a circumference of trunk of twelve feet, and these trees are supposed to have attained the age of one thousand years. Certain varieties grow more rapidly than others, and some differ from each other in the nature of the wood, the foliage, and the quality of the fruit. There are large olives and small olives, pointed, oval, round, and curved fruit, and of all colors, ranging from white to black, and from green to red. The flavor of the fruit is mild, sharp, or bitter. Hence, according to the variety, there is obtained sweet oil, light colored, and of exquisite flavor, up to dark green, thick, and of a bitter taste, strong and very unpleasant to the palate. Hence it follows that olive oil can be obtained pure, and also quite unfit for food purposes, only suitable for greasing machines and making soap. The green unripe olives, after remaining in a solution of salt for some time, to remove the bitter taste, are preserved in vinegar, with spices, in bottles or small barrels. Those of Tuscany and Lucca are considered the best, on account of their light-green color and strong flesh. In all parts of southern Europe they are in this form a daily food.

The ripe olives are gathered in the fall, when they are as large as common plums; their color is dark green, and the soft kernel has changed into a hard stone, which contains a savory almond. The flesh is spongy, and its little cells are filled with the mild oil, which pours out at the least pressure.

There is a fine collection of preserved olives shown by Hernanos & Company, of Barcelona. The finest oil is the so-called virgin oil, to obtain which the freshly gathered olives are put into little heaps, and by their own weight the oil is pressed out, and is caught in some vessel. It is clear like water, has a delicate nut-like taste, with little or no odor. When the fruits cease to give the oil by themselves, they are pressed with small milkstones. The oil gained by this process is also clear, and of a pleasant taste.

After this treatment the olives are still rich in oil, and the fruits are put in sacks; boiling water is poured over them, and they are pressed once more. The oil gained by this process is yellowish green, and has a sharp taste and an unpleasant smell, because it contains some mucilaginous matters.

At Marseilles, the great seat of the vegetable oil trade, the olive oils are classed into manufacturing oils for burning, for greasing machinery in factories, and for soap-making; refined oil; oil from the pulp or husks; and table or edible oil. The latter is divided into superfine, fine, half-fine, and ordinary. The table oil is refined by allowing it to run through layers of thin sheets of wadding into tin perforated boxes; the wadding absorbs all the thick particles, and leaves the oil perfectly clear and tasteless.

In the Spanish section, Signor José Gonzalo Priete, who has steam works at Lora del Rio, Seville, makes a display of an imitation olive tree silvered, from the branches of which are suspended six glass globes, filled with the different qualities of pure olive oil.

The Tuscans were the first who exported olive oil largely, and thus it has obtained the name of Florence oil. It would be a curious fact to ascertain the number of olive trees which exist in the different countries bordering on the Mediterranean, — Tunis has over four millions, Algeria three millions, Nice one million, Syria several millions, while the number in Spain, Portugal, Italy, Greece, Morocco, and Turkey is unknown.

The Union of Proprietors of Nice is a limited society, with a capital of about a hundred thousand dollars, which, by its statistics, binds itself to deal only in pure olive oil. It has about twenty-six plantations and presses in different parts of the district. The company makes a fine display of olive oil.

It may be stated, in conclusion, that the olive crop is a very variable and uncertain one; one that yields a profit does not perhaps occur for six or eight years.

## HEALTH MATTERS.

### Report of the Paris Commission on Consumption.

THE permanent commission, appointed last year by the Congress for the Study of Tuberculosis, has just presented its report, through M. Villemin, chairman. This report embodies certain instructions to the public, which the commission deems of sufficient importance for general adoption. *The Boston Medical and Surgical Journal* summarizes this report, a comparison of which with that issued in New York, and previously referred to, is of interest.

Tuberculosis is, of all diseases, that which has the most victims, especially in the cities. More than one-fourth of the mortality of Paris during the year 1884 was from tuberculosis in some of its forms. Tuberculosis is a parasitic, virulent, contagious, transmissible disease, caused by Koch's bacillus. The microbe penetrates the organism by food, by air of respiration, and through the skin and mucous membranes by abrasions, excoriations, and divers ulcerations. Certain diseases, as measles, chronic bronchitis, pneumonia; certain constitutional states due to diabetes, alcoholism, syphilis, predispose to tuberculosis.

The cause of tuberculosis being known, there is but little difficulty in preventing its dissemination and propagation, if proper prophylactic means are taken. The parasite of tuberculosis may infect the milk, muscles, and blood of animals which serve for the food of man. Raw meat, underdone meat, blood, may contain the living germ of tuberculosis, and should be interdicted. For the same reasons, milk should be boiled before being ingested. By

reason of the dangers which attend the use of raw milk, the protection of young children, who are so susceptible to tuberculosis, should earnestly engage the attention of mothers and nurses.

By reason of the dangers which attend the use of butchers' meat, which may come from animals that were tuberculous, though having every appearance of health, the public should insist that the inspection of all meats, as required by the law, should be rigorously enforced. The only sure way of avoiding the dangers arising from meat derived from tuberculous animals, is to subject such meat to a thorough cooking, which shall include the entire substance in depth, as well as the surface. Meats completely roasted, boiled, or broiled are alone safe.

As the germ of tuberculosis may be transmitted from the tuberculous to the healthy man, by sputa, pus, dried mucosities, clothing, or other objects impregnated with fine tuberculous particles, it is necessary for the public, in order to be protected against the contagion: —

(1) To know that, the sputa of phthisical patients being the most formidable agents of the transmission of tuberculosis, there is danger in allowing these expectorated matters to be deposited on the ground, on carpets, on drapery, screens, towels, handkerchiefs, clothing, and bed linen.

(2) To be pursuaded that the use of spittoons is obligatory on all phthisical patients everywhere. Spittoons should always be emptied into the fire and cleansed with boiling water. They should never be emptied on dung heaps, on garden soil (where they may tubercularize fowl), nor into privies.

(3) To refrain from sleeping in the bed of a tuberculous patient; to remain as little as possible in a room occupied by such person. This caution is especially applicable to young children.

(4) To sequestrate from all places occupied by phthisical patients, individuals considered as predisposed to tuberculosis, children born of tuberculous parents, or that have lately had measles, small-pox, pneumonia, etc., and all diabetic patients.

(5) To avoid using objects which a phthisical patient may have contaminated — garments, bed-clothing, toilet-implements, playthings, etc., — till after previous disinfection, in the hot-air stove, by boiling water, sulphur fumigations, etc.

(6) To insist that the rooms of hotels, furnished houses, cottages occupied by phthisical patients at watering-places or winter stations, shall be equipped and tapestried in such a way that disinfection may be easily and completely effected after the departure of each patient. It would be better that these apartments should have no hangings or tapestry, and that they should be whitewashed. The floors should be bare, either oiled or painted. Hotels and furnished cottages in which such hygienic precautions and measures of disinfection are taken should alone be patronized by the public.

At the meeting of the Academy of Medicine, Aug. 6, 1889, this report was discussed. Dujardin-Beaumetz was in favor of suppressing entirely the sections pertaining to raw meat and raw milk. There is nothing that proves the possibility, in man at least, of the transmission of tuberculosis by butchers' meat. As for milk, if it be true that it may on certain occasions contain bacilli, we must not forget that in order that milk may be thus contaminated the cow must not only be tuberculous, but must also have tuberculous mammitis.

Germain Sée did not believe in the communication of tuberculosis by the air of respiration. The bacillus cannot live in the air. It never develops and multiplies outside of the organism of man or the animal. In the open air it dies rapidly, as, in order to live, it needs a temperature of 30° C. The matter of atmospheric contagion is a bugaboo, which has already wrought trouble in families by causing the poor consumptive to be treated like a leper, — shunned and abandoned by his nearest relatives. It has been demonstrated experimentally that air taken three or four yards from the bed of a consumptive patient does not contain a single bacillus; but if the air exhaled by a phthisical person is inoffensive, the sputa are not so, and too much pains cannot be taken to disinfect and destroy all expectorated matters.

With regard to the prohibition of meat and blood, it is a fact, said Professor Sée, that the blood is never virulent, and animal flesh, according to recent experiments (Nocard, of Alfort), far from containing bacilli, destroys them by the muscular juice which the flesh contains. Hence, there is no necessity, in order to destroy the bacillus, to boil meat to a pap, to forbid roast meat, or underdone meat, or even raw meat. If we were to hearken to the commission, he thought we should be deprived of some of our best alimentary products, and nothing would be served on our tables that was not spoiled to the taste by over-cooking, as well as rendered more indigestible thereby.

With regard to the care that should be taken of those that were hereditarily predisposed to tuberculosis, he thought that excessive precaution was an evil; the best prophylactic is gymnastic exercises and hydrotherapy.

Professor Sée did not think persons especially liable to tuberculosis, who had been subject to colds, bronchitis, or who had had pneumonia, measles, whooping-cough, or small pox. On the contrary, he had found such persons remarkably exempt from tubercular diseases.

### Tuberculous Meat.

Simultaneously with the report of the permanent commission of the French congress on tuberculosis, says the journal before quoted, we have before us a voluminous report from Glasgow, giving the proceedings at trial, under petitions of the Glasgow local authority, against two butchers who exposed for sale, for human food, the carcasses of two tuberculous animals. Among those giving testimony at the trial we find the well-known names of Dr. J. B. Russell, medical officer of health for Glasgow since 1872; Joseph Coats, pathologist to the Royal Infirmary of Glasgow, and Professor J. McCall, Principal of the Glasgow Veterinary College. In addition, there were the medical officers for Edinburgh and Greenock, and for Leeds, Birmingham, and Hull; three other veterinary pathologists besides McCall; and Mr. Mayland, as a bacteriologist and pathologist in addition to Dr. Coats. There were, in all, fifteen witnesses for the prosecution and nineteen for the defence. The conclusions of the French congress, as well as of the Brussels veterinary congress of 1883, and of a departmental committee of the privy council, were frequently referred to in the course of the testimony.

The cases were test cases, brought to enable the medical officers of Glasgow to apply the same stringent standards as were already enforced in Edinburgh and Greenock.

The evidence showed that, in regard to one of the animals, "there were tubercles in the substance of the lungs themselves, in both the costal and pulmonary pleura, in the pleura connected with the diaphragm, and further in the cavity of the body inclosing the respiratory organs;" there was tubercular deposit in the lymphatics, and tubercular bacilli were found in the inguinal gland. In regard to the other, it was shown that there was active tuberculosis in the lungs and pleura, and bacilli were found in the prepectoral gland. The question before the court was, whether the meat of these animals after the carcasses had been "stripped" was "unfit for the food of man."

The prosecution laid down five propositions, and asked for conviction upon their acceptance by the court. (1) The disease called tuberculosis, whatever form it may assume, whether phthisis, or scrofula, or struma, is a widespread disease amongst animals and man, and to it may be attributed a large percentage of the deaths in the community, and a very large proportion of the ill health. (2) That the disease known as tuberculosis now, is identical in man and in the lower animals. (3) The disease is communicable from the lower animals to man, by, amongst other means, inhalation and ingestion. (4) The disease tuberculosis is due to the active presence of a specific organism known as the bacillus tuberculosis. (5) Given the signs of tuberculosis upon certain specific organs of an animal, you may and ought reasonably to infer that the virus of the disease is in other portions of the carcass of the animal, where there may be no outward and visible signs to indicate its presence.

The defence held that no one has ever yet heard of a case of tuberculosis contracted from the ingestion of tuberculous meat; but in the case of milk, the disease has been traced, and if in the latter, why not in the former; that cooking was a sufficient safeguard, and if people preferred to eat partially cooked meat, they should be allowed to take whatever infinitesimal risks might exist; that, even

when the bacillus enters the alimentary canal, there must be a degenerated condition of the tissues before it can find lodgment and fructify; that to a healthy person, therefore, the danger is perfectly visionary; that the alimentary canal is the least favorable channel for entrance into the system; that the disease in these cases was so localized as not to affect the flesh in general; that, in any case, the danger to health and life must be extremely small, too small to justify the exclusion from the market or destruction of large amounts of good, wholesome food.

The prosecution pointed out the inherent difficulty of proving, as a matter of fact, and not merely as a matter of opinion, the actual communication of tuberculosis to human beings by the ingestion of the flesh of tuberculous animals; and adduced evidence that the flesh of animals affected with tuberculosis, more or less, and offered for sale for food in Glasgow, is one half per cent in the year.

In summing up the evidence and the arguments, the court held that whether ingestion be or be not the commonest way in which tuberculosis is communicated, it must certainly be regarded as one mode of its communication; except on the footing that the meat was the medium of the transmission of the disease, it would be unnecessary and wasteful to exclude from the food-supply the carcasses of animals suffering from tuberculosis, however generalized and extensive; but the previously existent practice in Glasgow and elsewhere of condemning extensively diseased animals, clearly showed that the transmissibility of the disease by ingestion had long been recognized, and the evidence leads to the conclusion that it would not be proper to trust to cooking as a sufficient protection; that every animal suffering from tuberculosis, however limited in degree or apparently in locality, probably ought to be condemned, and that such condemnation would not cause a loss of food of more than one-quarter of one per cent; but, in the present instances, the disease, having extended to the lympathic glands, was undoubtedly generalized.

The number and character of the witnesses, the clearness of statement of the counsel, the respectability of the court, and the Scotch reputation for shrewd, practical common sense, give the report and result of this trial a considerable interest, as bearing upon the present position of science and practice in regard to the questions involved. Should it ultimately appear, as we see by the published abstract of a paper, to be read at the approaching meeting of the Association of American Physicians, Dr. H. C. Ernst thinks he is in a position to prove, that the milk from a cow suffering from tuberculosis is dangerous as an article of food, no matter where the pathological change may be situated, and that Koch's limitation of the danger to tuberculosis of the lacteal tract was too restricted, then the position of those who condemn the meat, even of locally infected animals, would be greatly strengthened.

THE AIR IN EDINBURGH THEATRES. — An interesting account has been given by Mr. Cosmo J. Burton of the amount of carbonic acid and organic matter in Theatre Royal and Royal Lyceum Theatre in Edinburgh. At the time of the experiments the theatres were by no means full; nevertheless, the temperature was from ten to fifteen degrees above that recorded immediately before the houses were opened, while carbonic acid was multiplied from three to five times. Mr. Burton remarks, as quoted by the *Lancet*, that the vitiation of the air proceeds with extraordinary rapidity at first, but the rate of change soon decreases, till towards the end of the performance the air becomes little or no worse, and, indeed, in a few instances it appeared to slightly improve. The atmosphere of all parts of the theatre was not equally vitiated. The air of the gallery was considerably worse than that of any other part of the house; the amphitheatre, dress circle, and pit did not come in the same order as to degree of impurity in the experiments, but the pit was always worse than the dress circle. The late Dr. Parkes stated that headache and vertigo are produced when the amount of carbonic acid in the air of respiration is not more than from fifteen to thirty volumes per ten thousand, and the experience of some theatres leads to the suspicion that Mr. Burton's results are not special to Edinburgh. The facts as to all theatres ought to be known; for the public had much better lose an evening's enjoyment than submit to the enforced inhalation of a polluted atmosphere for a number of hours.

## NOTES AND NEWS.

IT is stated by the *Scientific American* that carefully repeated experiments made by an English navigator at Santander, on the north coast of Spain, showed the crest of the sea waves in a prolonged and heavy gale of wind to be forty-two feet high; and allowing the same for the depth between the waves, would make the height eighty-four feet from crest to base. The length from crest to crest wes found to be three hundred and eighty-six feet. Other estimates of the waves in the South Atlantic during great storms give a height of fifty feet for the crests and four hundred feet for length. In the North Sea the height of crest seldom exceeds ten feet and the length one hundred and fifty feet.

— At a recent meeting of the Paris Academy of Sciences, M. Benger described the curious effects of an electric discharge which struck a silvered mirror during a terrific thunderstorm near Prague, on June 9, 1889. The mirror shows over ten points at which the electric fluid penetrated through its gilded frame, volatilizing and transferring the gold to the anterior face of the glass, while on the opposite side the volatilization of the silver coating produced the most beautiful electric figures. These figures show that there occurred repeated and successive discharges, as also indicated by recent photographs of flashes taken with the oscillating camera obscura.

— In a recent letter from Paris to the *Engineering and Mining Journal*, Mr. George F. Kunz says it may be interesting to know that the following minerals are exhibited in and are for sale in quantity in the Norwegian section of the Paris Exposition at the following rates per pound: Molybdenite, 32 cents; Gadolinite, $2.54; Zircon, $1.27; Cerite, 32 cents; Orthite, 13 cents; Rutile, 20 cents; Thorite, $10.54; Yttrotitanite, 20 cents; Columbite, 94 cents. In reference to the occurrence and the use of vanadic and molybdic acids, both of these acids have until recently been considered rare. Since they, however, replace phosphoric acid in the lead ores of New Mexico and Arizona in the minerals wulfenite, vanadinite, etc., which exist there in quantities, they can be obtained at much less cost than they could before.

— "The great development in electricity will be, I am firmly convinced," said Mr. Edison to an interviewer in Paris, "in discovering a more economical process of producing it. At present we only get from coal consumed about four or five per cent of its latent electricity. The rest is wasted in heating water, expanding steam, pushing pistons, turning wheels, and finally causing a dynamo-machine to operate. A process will ultimately be found for extracting ninety to ninety-five per cent of the latent electricity directly from the coal. Then steam engines will be abolished, and that day is not far off now. Already we can get electricity direct from coal to the amount of ninety per cent, but only for experimental purposes. When I was on shipboard coming over I used to sit on deck by the hour and watch the waves. It made me positively savage to think of all that power going to waste. But we'll chain it up one of these days, along with Niagara Falls and the winds. That will be the electric millennium."

— It is stated in the *Metallarbeiter* that iron can be coppered by dipping it into melted copper, the surface of which is protected by a melted layer of cryolite and phosphoric acid, the articles to be thus treated being heated at the same temperature as the melted copper. Another process consists in dipping the articles into a melted mixture of one part of chloride or fluorine of copper, five or six parts of cryolite, and a little chloride of barium. If the article, when immersed, is connected with the negative pole of a battery, the process is hastened. A third method consists in dipping the articles in a solution of oxalate of copper and bicarbonate of soda, dissolved in ten or fifteen parts of water, acidified with organic gas.

— If London is the metropolis of the land of fogs, there is much consolation to be found in the fact that in spite of its smoke and its fogs it is not only one of the healthiest cities in the world, but is growing healthier every year. According to the official statistics for the quarter ending June last, as stated by a leading London newspaper, the annual deaths are only at the rate of sixteen per thousand. If some overcrowded and notoriously unhealthy dis-