

SLEEP BY ELECTRICITY

Many Experiments With the New Anaesthesia.

STUDIED FIVE YEARS

Work inspired by Professor Stephane Leduc, of France—Gone Far Along the Path of Experimentation—Leduc Twice Applied the Current to Himself.

Important experiments in the use of electricity as an anesthetic have been made recently before the Society of Chemical Surgery in the laboratory of experimental surgery in connection with the College of Physicians and Surgeons at Columbia University.

The work here has been inspired by Dr. Stephane Leduc of the College of Medicine, Nantes, France, who has gone far along the path of experimentation having twice applied the current to himself.

The current which produces the "electric sleep" as the French call it, is different from any previously known. There is a special apparatus for its application, the principal feature of which is an interrupter by means of which a maximum of more than 6,000 interruptions a minute may be given. The current is of low tension and constant direction—that is to say, a current which acts for a time, ceases, recommences and so on by regular intervals.

As soon as the interruptions cease the return to consciousness is immediate, and this return has no relation whatever in appearance or sensation to the return from unconsciousness induced by present anesthetics.

Electric sleep comes almost immediately within a minute or two after the current is turned on, while those who have witnessed the administration of chloroform, ether or any other anesthetic know that it is a process some-times taking half an hour or more, dependent upon the resisting power and general condition of the patient.

Experiments for local anesthesia by means of this interrupting current, which have formed part of the experiments at Columbia, were completely successful. It was shown that by placing an electrode over the median nerve in the wrist the whole body fell by that nerve was affected. The return to the "normal" was instantaneous with no condition of impaired circulation. Dogs were used in these experiments, rather than cats, rabbits or squirrels, for the reason that the dog's nervous system closely resembles the human, and its intelligence is of help in that it would show some resentment if it suffered and would run away from a further experimenting. Some of the dogs have been on the operating table five or six times, and do not apparently mind it in the least.

So far the one weak link in the chain of successful experimenting has been in the matter of respiration, the interrupting current when applied with too great intensity, leaving the heart action perfectly free, but paralyzing the breathing apparatus, an effect which has to be met by producing an artificial respiration, which is done by the application of another electric current.

All of the physicians at the laboratory agree that a new era in surgery is at hand when the old time horrors of the operating table will be a mere memory.

"There is no branch of medicine and surgery that it will not reach," they say. "The insomnia that comes from excessive pain, the terrible neuralgic spasms, the pangs of childbirth even—the attendant pains of which have always been one of the reproaches of medical science—all these and more will be relieved. When the anaesthetic properties of chloroform were announced, its discoverer was looked upon as a savior, and at his death a tablet was erected to his memory in Westminster Abbey; but just as we look back now with horror at the idea that the old time palliative to pain could be offered, so shortly we will look back with the same horror at the idea of using any of the present anesthetics and drugs that are employed."

Optics in Painting.
In order to avoid undesirable chemical mixtures, a few painters nowadays resort to the rather interesting expedient of putting little dabs of different colors alongside of each other (instead of combining them) in such a way as to produce the requisite optical effect when the picture is viewed from a distance. In other words, reliance is had in the principle of optics, the tints being fused by the eye.

Incidentally to the scientific examination of a vase-like picture, resort is sometimes had nowadays to the expedient of cutting from one of its sides a thin strip about a millimeter in width and a couple of inches long, which is then fastened to a number of smaller pieces for microscopic examination. When one of these pieces is placed beneath the microscope it may be observed in cross section; the touches made by the painter appear in parallel bands laid on in chronological order. "By this means," says Dr. Leduc, "we can determine the nature, the make-up, and the age of the several layers of painting."—The Saturday Review.

HOW OLIVE OIL IS MADE

Fruit is Crushed to a Paste From Which the Oil is Pressed.

The finest olive oil in the world is grown in Tuscany—the garden of Italy.

The trees blossom in Tuscany in the month of May. The fruit begins to ripen in November and is generally in full maturity by January.

It is a risky crop, maturing as it does during winter weather. A cold snap with frost may cause great damage to the fruit.

Sometimes the fruit remains on the trees till May, yielding a pale, very thin oil, appreciated in some quarters, but which speedily develops rancidity.

The process of extracting the oil is simple in the extreme, the fruit is first crushed in a mill to a uniform paste, then the paste is transferred to circular bags or receptacles made of vegetable fibre. A pile of these are placed in a press and the exuding oil flows into a tank below.

Essential conditions are that the mill should not revolve too fast, or it will overheat the olive paste and give a bad flavor to the oil; that the bed of the mill should not be of metal for the same reason.

Also the degree of pressure, when the object is to get the finest quality of oil—"oil from the pulp" as the term runs—must not be excessive. The finest olive oil is essentially a cold drawn oil. Heat is prejudicial to quality.

However, when all possible care has been taken in the process the fact remains that olive oil can be made only from freshly gathered, perfectly sound, ripe olives of the proper kind. The big fat olives of hot, subtropical climates can never yield a delicately flavored oil.

The newly made oil must be allowed to settle. It is then clarified simply by passing it through purified cotton wool in a suitable filter. Really fine olive oil calls for no other treatment whatever, chemical or otherwise, to render it fit for the table. On this point it is as well to be clear, as reference has been made before now to processes of refining olive oil so as to obtain a specially fine quality—one might as well try to "paint the lily or adorn the rose!"

After being brought to America, the clarified oil is preserved in warehouses in large slate lined tanks, holding up to 20,000 gallons each, wherein the oil is maintained at an equable temperature. For bottling and can filling purposes it is transferred by pipes from these large tanks to other smaller tanks in the packing rooms.

Politeness League in France.
A number of people in Paris have decided to form a league to encourage politeness in France. It will be known as the "League of Respect to Women." One of its founders in explaining his object said:

"For many years past we Frenchmen have been losing our old reputation for politeness. In fact, we are no longer as polite to women as are the English, or the Italian, or the Austrians. This is evidenced daily in a hundred little ways.

"For instance, a Frenchman will seldom if ever, think of giving up his seat in a tramcar or omnibus to a woman who may be standing on the platform outside. Men smoke in non-smoking compartments without as much as asking permission of any woman who may be present.

"Saluting women is much less respectful than formerly. We do not want to go back to the old and somewhat ridiculous form of ceremonious politeness which Frenchmen formerly showed toward women. But we do wish to keep alive, or rather to revive, something of the traditional French courtesy toward women, which, unfortunately, is fast dying out. Hence the formation of our league.

"We propose, if the omnibus and railroad companies will allow us, to stick up in the railway carriages, tramcars, omnibus stations and other public places a small placard. 'Be polite to women.'—Modern Society.

Humming Bird is Fearless.
So unafraid are humming birds of man that they will readily enter open windows or houses, if they see flowers within. I have even read of their visiting the artificial flowers on a lady's hat when she was walking out, and other writers speak of their taking sugar from between a person's lips.

In a room they become confused and, being so frail, are apt to injure themselves by striking against objects. More than once I or members of my family have caught the frightened little waifs for their good, and released them in the open air.

SOME FAMOUS SWINDLES

How Precious Stones and metals are made.

A SCIENTIFIC PROCESS

It is Quite Possible to Manufacture Diamonds—Much Roguery Taking Place in the Manufacture of Imitation Silver—Difficult to Detect Any of the Articles.

At the present time Sir Julius Wernher is prosecuting a Frenchman called Lemoine or alleged imposture, says the London Times. The Frenchman brought letters of introduction from two well-known London men of business, and said that he had discovered a method of making diamonds. In an initial experiment he produced a magnificent diamond from the crucible.

The experiment was related to the Board of Directors of the De Beers Company, but they would have nothing to do with it. Sir Julius Wernher, however, advanced £80,000 to the Frenchman, in order to build a diamond factory at Argeles near Pau. The building and factory have been erected close to a waterfall, but Sir Julius afterwards suspected that the man was a swindler. Lemoine declares that he possesses the secret of making diamonds artificially, but he refuses to divulge the operation or to perform any experiment before experts.

It has been said that there is more than a suspicion in Hattian Garden that large numbers of artificial diamonds are being placed on the market as real gems. It is quite possible to manufacture diamonds. Indeed, a famous Frenchman of Science, Moissan, made very large numbers by means of his electric furnace. His process was to dissolve lumps of sugar in molten iron, subjecting the solution to enormous pressure.

Lump sugar may be said to consist simply of water and diamond. It is the case that the diamond is merely crystallized carbon. There are three kinds of carbon—plumbago, graphite and diamond, the composition of all of which is identical. When charcoal is dissolved in molten iron, graphite is formed.

All the diamonds found in Borneo, Brazil, India, and South Africa, are made in much the same manner—that is, by the action of great heat and enormous pressure of the earth's interior causing the beautiful white stone to crystallize out.

By means of apparatus used by men of science it is possible to obtain a heat exceeding 40,000 degrees centigrade, and a pressure largely exceeding 100 tons to the square inch; that is to say similar heat and pressure as is used by Nature in producing diamonds. There is danger, however, in using such apparatus, as was shown when a Frenchman of science, was blown to pieces in 1893.

Imitation pearls are produced in enormous quantities, and they usually consist of little hollow glass globes filled with a substance yielded by certain small fish. The substance consists of iridescent white matter obtained from scales of the bleak, and sometimes of the roach and the dace. The supply of these scales varies, and great difficulty is experienced in packing them without doing damage to the lustre. As the scales are removed from the fish they are hermetically sealed in special cans.

Afterwards the scales are very carefully washed and put to soak in water; a sediment forms which is mixed with liquid ammonia and injected into the glass glob or bead, so as to coat it. The best beads then have the interiors filled with white wax or gum. To make the appearance more realistic the little bulbs have their glassy appearance removed by the action of the vapor of hydrofluoric acid. It is only the expert who can detect such imitation from the finest Oriental pearls, and they fetch high prices. It is believed that some specimens have been made that cannot be told from the real article.

Many frauds have been committed by means of the process of electrolysis, the power to manufacture gold. One of the simplest is the manufacture of a nail consisting one half of iron and the other of gold. The outside is then treated in such a way that the whole resembles a common nail. The result is that when people see the pure gold extracted from a seemingly common iron nail they have their avarice aroused, and are easily led to advance any sum which the knave pretends to be necessary for pursuing the process on a larger scale.

Much rogery is now taking place in the manufacture of imitation silver. An alloy of aluminum and zinc has been discovered which has the exact appearance of silver, takes a high polish, and possesses the same weight. It is very difficult indeed, to detect articles made from this substance.

A Thought.
I am coming to believe that there is work for everybody somewhere. It may not be the work we want, and it may not be the place in which we desire to stay, but it will supply creature comforts, and that is a great deal, says Home Chat. Most of us have to do unpleasant things from time to time, but it is quite possible to do them cheerfully.

GOLD STOLEN BY MINERS.

A Form of Theft Practiced Everywhere—Plundering in Siberia.

Statisticians compile tables of the world's production of gold yearly, but all admit that it is impossible to give accurate figures because not a little of the metal is stolen and never figures in the returns of production. In a country like China where the industry of gold mining is poorly organized and controlled, this source of error in the returns of output is very important.

Prof. de Launay, in his recent book on gold says that the gold industry in no country escapes the evil of thievery. Gold stealing goes on everywhere, but the extent of the evil varies according to the country and the efficiency of the supervision over miners.

Gold from its nature is easy to steal and to sell. In the Transvaal it is estimated that from 5 to 10 per cent of all the gold extracted from the area of the Witwatersrand are stolen.

The gold thief is able to steal on a larger scale in such a country as Siberia, where the miners are more isolated and corruption is more common. There the thieves even venture to tamper sometimes with work superintendents who for a share of the pickings will give favorable opportunities for stealing. According to Dr. Levats statements in his book on gold mining in eastern Siberia, the quality of gold stolen from Siberian mines is not less than 20 per cent of the entire output.

In 1896 4,000 adventurers drove the mining companies and their employees from the gold district of the Zeya River and washed out a large amount of gold before they finally fled on the approach of a regiment of Cossacks. Not a particle of the gold they mined has been included in the figures of production.

It was found also in 1890 that gold mining along the border between French Guiana and Brazil, where the placers were remarkably rich had been carried on for several years without any supervision whatever, and not an ounce of the gold was included in the statistics.

Unmarried Women and Cards.

Much doubt seems to exist on the correctness or the reverse of young married women having visiting cards of their own. A girl never has a card of her own in the best society. To do so argues one of three things—either that she has become an old maid or is in a business or a profession or has adopted a quite unique independence of character. To define the age when a single woman may have a card of her own is a matter of some difficulty. One girl becomes a mature woman at thirty, while another remains a mere bantling even after she has reached that milestone. Character has much to say on the subject, and a great deal also depends upon circumstances. Nowadays even girls in high position strike out in a line for themselves. They write, paint, go in for nursing or study music almost as a profession.

In such cases as these a girl would have many friends apart from her parent's circle, and might have a card of her own while she remains in the later twenties. But as a general rule, this flag of freedom should never be waved before a single woman has reached the age of thirty-five or forty, especially if she has a mother alive, on whose card her name could appear.

Switch Operated from Car.

The opening and closing of switches on street car tracks consumes a considerable amount of time when the motorman has to attend to the work himself. The other alternative is the employment of a regular switch tender and, of course, such an arrangement can only be used where an unusual amount of traffic warrants the expense. Some weeks ago these columns contained an account of an electrical device for controlling switches as operated from the car. Now, a Philadelphian comes forward with an invention which he asserts accomplishes the same results by mechanical means. In order to do this he replaces the ordinary switch by one which is provided with bearings upon which they rock readily and is thus turned with a much smaller expenditure of power. Each car is equipped with two levers or bars capable of being depressed so that they enter slots provided for them in the switch rails, which simple action rocks the rails upon their fullness and throws the switch open or shut, as the case may be.

The Groundhog Story.

February 2, or Candlemas Day, was a favorite holiday, marked by public gaiety and ceremonies in Europe during the Middle Ages. It is still marked there by the closing of banks and offices, but not otherwise outside of the reading of Church services. In the Church Calendar it is known as the Feast of Purification of the Virgin, and was first instituted by Pope Sergius about the year 854 A. D. The popular name of the day is derived from the early custom of lighting up the churches with candles and carrying these in procession on this festival.

As to the weather superstition that gives to Candlemas the name of "groundhog day," that is a world wide fable. In Germany it is the badger that breaks his winter nap on this day to essay the thankless task of weather prophecy; in France and Switzerland it is the marmot; in England the hedgehog.—The Housekeeper.

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