at Matadi, — a point which is easily reached by sea-going steamers, and where inexpensive works will easily enable those steamers to unload their cargoes on wagons. The terminus of the railway at the Stanley Pool will be at Ndolo, at a little distance above Kinchassa, and also above all the rapids which hinder navigation in the cataract region. Beyond this point light-draught vessels can ascend the Kongo and its affluents for an uninterrupted length of 11,500 kilometres. Ndolo is admirably situated for the building of spacious quays.

Matadi and Ndolo will be the two principal stations. A second-class station will be erected in the district of Kimpésé, where travellers will stop, as two days will be required to pass the distance between Matadi and Stanley Pool. The trains will not run by night. Three other stations will be established along the line, — one at the Lufu, another at the Inkissi, and a third at Ntampa, — thus dividing the total distance between the Lower Kongo and the Stanley Pool into five sections of an average length of 85 kilometres each; each section being itself divided into four sub-sections by three halting-places, with water-tank and crossing-way.

To sum up, the general estimate of the scheme demands a capital of 25,000,000 francs, which will be sufficient to build the road, purchase the rolling stock, cover the general expenses both in Europe and Africa, and meanwhile pay the interest on capital during the construction of the railway, which, according to estimate, will occupy four years.

The figure of 60,000 francs, or more exactly 58,500 francs per kilometre, for the Kongo Railroad, is a maximum price, which has only been reached, on the one hand, because the construction really does, on one portion of the track, involve some difficulties; on the other hand, because the highest valuation has been adopted. When we look to the matter closely, we must even admit that the price we have named is a high one; for, as a matter of fact, the Kongo Railway is an exceptionally easy undertaking. The laying-out of its course was only influenced by purely topographical considerations; and the surveyors had no troublesome allowances to make for connecting the road with any particular establishment for industrial, commercial, or even political purposes. There were no lands to purchase, besides which (and this is an important item, to which I call your full attention) there are and there will be no side profits to be allowed for. The undertaking is, and will remain, completely independent from speculation; the cost of the railway, such as we give it, being strictly that established by the estimates.

Furthermore, the proposed railway is not a wide-gauge railway, but a narrow-gauge railway, adapting itself to all the variations of the ground it will travel over, and exactly befitting the commercial position of a country yet in its infancy. I remember the graphic words used by one of my colleagues on the Board of the Compagnie du Commerce et l'Industrie while we were discussing the width of the road, and I will repeat it to you. "What we want," he said (and we all agreed with him), "is a good and substantial iron track, where locomotives and wagons may be set rolling."

The transport-power of the Kongo Railway, with its seventy-five centimetres gauge, between "bourrelets," will meet all present requirements, and will meet them for a large number of years to come.

The construction of the Kongo Railway will be proceeded with by the Compagnie du Chemin de Fer du Congo, commanding a registered capital of £1,000,000 sterling, of which one-fifth has been subscribed by English capitalists, thanks to the spirited enterprise and the great authority of Sir William Mackinnon.

Thanks to the disinterested intervention of the Belgian Government, who have subscribed £400,000 worth of shares which will never bear more than 3½ per cent interest, and who forfeit all excess of profit in favor of the other shares, it will only require, in order that the ordinary capital invested in the undertaking may reap a return of 8 per cent, that our receipts shall reach 3,000,000 francs, — an amount which, according to the terms laid down by the contract for the early period of the undertaking, will certainly be realized if the up traffic reaches 2,250 tons, if passenger traffic reaches the total figure of 300 up and down passengers, and if the railway in its down journey carries 200 tons of ivory, 600 tons of gutta-percha, and 3,000 tons of miscellaneous goods, paying only 100 francs for carriage. These figures will undoubtedly be reached from the beginning. Even at the present time, 1,800 tons are carried up the Kongo. We only, therefore, provide for an increase of 450 tons within four years. The 200 tons of ivory above mentioned merely represent what is actually conveyed by native carriers. As to the 600 tons of gutta-percha, one single branch of the Compagnie du Haut Congo — the Luébo branch — is in a position to purchase 240 tons per annum; and the 300 remaining tons will be provided by palm-oil, gums, wood for building-purposes, etc.

The opportunities afforded to communication by the 11,500 kilometres of practicable waterway of the Upper Kongo and its tributaries will, indeed, enable us to drain towards the Stanley Pool, for carriage by the railway, the various exchangeable commodities which the immense territories of the Upper Kongo abundantly produce.

HEALTH MATTERS.

A Physiological Study of Absinthe.

As commonly met with, absinthe only contains about thirty minims of essence of absinthe to the litre, the remainder consisting of alcohol, together with from sixteen to a hundred drops each of the essence of anise-seed and star anise-seed, coriander, fennel, peppermint, angelica, hyssop, and mélisse; and the color is given by fresh parsley or nettles. Cadiac and Meunier, as reported in *The Medical Analectic*, recently undertook to investigate the action of the various components of the liqueur, in order to ascertain to which of them its peculiarly intoxicating effects were due. They found that hyssop induces epileptiform attacks in ten-grain doses, while fennel induces visual troubles and languor. Poisonous doses of coriander give rise to sudden anæsthesia and muscular convulsions. Mélisse determines a passing stimulation, followed by lassitude and sleepiness. Both varieties of anise-seed possess powerfully stimulating properties, with consecutive visual troubles, muscular inco-ordination, and dulness of sensation, with abrogation of the will and heavy sleep.

Although not, strictly speaking, poisonous, anise-seed is a violent excitant of the nerve-centres, even in the relatively small quantities contained in the usual allowance of the liqueur. If the dose be increased, epileptiform attacks are induced. A litre of ordinary absinthe only contains about thirty drops of the essence, — a dose which, if taken all at once, only gives rise to powerful mental stimulation, increasing the appetite and facilitating digestion. Moreover, it leaves behind it neither depression nor somnolence. The sum total of the effects of the blend is a sensation of comfort and physical and mental activity, followed by lassitude and indisposition to exertion, and, in large doses, to epileptiform attacks. The authors are disposed to attribute the major part of the injurious effects to the collateral essences, and seriously recommend manufacturers to discard the use of several of these, and of anise-seed in particular.

THE NATIVE EGYPTIAN AS A SUBJECT FOR SURGICAL OPERATION. — The native Egyptian is an extremely good subject for surgical operation. Clot Bey, the founder of modern medicine in Egypt, has it that "it requires as much surgery to kill one Egyptian as seven Europeans. In the native hospitals, the man whose thigh has been amputated at two o'clock is sitting up and lively at six." Shock is almost entirely unknown, and dread of an impending operation quite an exception. In explanation may be noted the resignation inculcated by their religion; the very small proportion of meat in, and the total absence of alcohol from, their diet; and in general their regular, abstemious, out-of-door life.

THE DISEASED-MEAT SCARE. — The *Medical Record* comments editorially on Dr. Behrend's article, which has excited much talk and learned editorial writing in the daily press. It says, "But it is yet entirely unproved that the meat of tuberculous cattle ever caused tuberculosis in man. Bovine tuberculosis is generally pulmonary. Tuberculous bacilli are found sometimes in the glands, but practically never in blood or muscle, except in acute general infection. Even if the bacilli do get in meat-muscle, Nocard, who is an ingenious and skilful bacteriologist, has shown that they are destroyed or digested in the tissue. And Nocard has positively

affirmed that one can safely eat the flesh of tuberculous animals the tubercles of which are limited to the viscera and lymphatics. High temperatures destroy the bacillus also, and therefore thorough cooking would make even tuberculous tissue safe. Dr. Behrend ought to know, also, that tuberculous meat can only infect the body through the alimentary tract; but Koch has shown that adult bacilli are destroyed in the stomach, and that the spore bacilli can only get through alive by a narrow margin. But, furthermore, if tuberculous meat were so dangerous, there should be more primary intestinal tuberculosis. In adults this disease is a great rarity, and practically it may be ignored. Even including infants, it does not make up ten per cent of tubercular diseases. We venture to say, therefore, that the 375,000 Londoners who possibly ate the presumably tuberculous meat digested it and its bacillus, and were the better for their repast. It must be very evident, we think, that the danger to adults from eating flesh of tuberculous cattle is so extraordinarily remote that it may be practically ignored. The liver, "lights," and glands of such cattle, however, are perhaps not so safe, and sausage made up from meat seriously affected may not be free from danger. We advise, therefore, as we have done, the governmental inspection of slaughter-houses; but we much more seriously urge the supervision of milk. This, it is known, can carry the tuberculous virus, and, being consumed uncooked by delicate and growing children, is a far more dangerous product than the flesh of tuberculous cattle."

SAWDUST AS A DRESSING FOR WOUNDS. — *Cosmos* suggests the use of fine soft sawdust as a dressing for wounds, and as a vehicle for medicaments or antiseptics. It says that the dust, freed from splinters and sharp bits of wood by sifting, when used alone and dry, makes a clean and grateful dressing; that it readily takes up and holds the discharges without packing or adhering; and that it is easily rendered antiseptic by any of the methods used in preparing antiseptic cotton or wool. The *St. Louis Medical and Surgical Journal* suggests that our yellow pine sawdust, rich as it is in turpentine, would prove of itself a valuable antiseptic application.

DANGER IN SILK THREAD. — Silk thread, says *Sanitary News*, is soaked in acetate of lead to increase its weight, and persons who pass it through the mouth in threading needles, and then bite it off with the teeth, have suffered from lead-poisoning.

SOME DOMESTIC REMEDIES IN THE TRANSVAAL. — Mr. Walter H. Haw, in a letter to *The Lancet* upon medical practice in the Transvaal, gives the following list of remedies in which the Boers have the most implicit faith, and to which they recur in many of the ills of themselves and their families: 1. Cow-dung poultices. 2. Stink blaar (*Datura stramonium*) leaves applied for the relief of pain. These act well, and are often used. 3. Prickly-pear leaves skinned and applied. 4. For children, a young goat killed and opened, the child being put in bodily after removal of the viscera, — a good poultice, probably. 5. Rimpis (threads) of eel-skin worn round the painful joints in chronic rheumatism. This was described to me by a man who was wearing one round almost every joint of his body as being a splendid remedy. 6. Rimpis of the tanned skin of a tame goat worn as above for sprains, etc. 7. The finely chopped hair of a black cat, which should not have the faintest trace of white about it, — a remedy for convulsions. 8. A spoonful of dog's blood taken from the ear, for "buur en de mag" ("inflammation of the bowels"). 9. For snake-bite repeated fowl poultices.

EFFECT OF CANNON-FIRING ON THE EIFFEL TOWER. — Of all the indispositions (and there are many) created by the exhibition, according to the Paris correspondent of *The Lancet*, the most curious is that which is caused by the firing of the cannon on the Eiffel Tower. Evvry evening at ten o'clock, when the gun is fired for the last time in the day, it is not unusual to see produced a sort of frenzy among the young female visitors to the exhibition. Under the already strong impression produced by the illuminations, the luminous fountains, etc., when the gun is fired, they seem to be seized with a veritable panic. It appears to them that a sudden catastrophe, such as a great fire, has taken place. Cries of admiration escape from some, and of terror from others, when fainting, attacks of hysteria and of prostration, occur. The subject has attracted the attention of Professor Charcot and other physicians.

POISONING BY POTATOES. — In *The Therapeutic Gazette* is an account of serious symptoms of poisoning which occurred in a hundred and one members of a battalion of French infantry. The symptoms were headache, dilatation of the pupils, colic, diarrhœa, sweating, fever, pain in the epigastrium, vertigo, nausea, thirst, troubles of vision, and cramps. The poison was evidently contained in the food, and, after successive eliminations, suspicion rested upon the potatoes, which were withheld for forty-eight hours, with the result that no new cases developed. It was found on examination that the potatoes simply consisted of sprouts, which, as is well known, contain solanine, an alkaloid of a poisonous character, and which produces results similar to those detailed above.

"AMMINOL" FOR THE DISINFECTION OF SEWAGE. — A new method of precipitating sewage has been tested at Wimbledon, England. The *London Times* now devotes a large amount of space to the consideration of this new disinfectant method, which was discovered by Mr. Wollheim of London, and which, in the opinion of *Medical News*, bids fair to revolutionize the sewage question. The disinfecting power of amminol gas is such, that, when introduced into sewage, it very quickly destroys the microbes of putrefaction and of many diseases. The odor of sewage is almost instantly displaced by that of the re-agent, and in less than an hour the sewage thus treated is both deodorized and sterilized. It is reported that Dr. Klein has in part confirmed the claims of the discoverer, in so far that one sample of sewage examined by him was found to be absolutely sterile after having been treated by the amminol method. If this alleged discovery should be verified, it will undoubtedly become one of the most useful discoveries of the present day, and must materially influence the future of sanitary practice.

VARIATIONS IN THE COMPOSITION OF MILK. — From the results of about fifty thousand analyses made in the laboratory of the Danish Dairy Supply Company, and reported in the *Medical and Surgical Reporter*, it is found that the dry matter less fat is an almost constant value (8.7 to 8.8). The fluctuations in total solids depend almost entirely on variations of the fat. The evening milk contains more fat and more total solids than the morning milk. In October and November the milk is richer in fat and total solids than in other parts of the year.

HOW DRUNKARDS ARE TREATED IN NORWAY. — The London correspondent of the *American Practitioner and News* says that a well-known medical man, who has recently been in Norway, gives a glowing description of their manner of treating dipsomaniacs. An habitual drunkard in Sweden and Norway is treated as a criminal in this sense, that his inordinate love of strong drink renders him liable to imprisonment, and while in confinement it appears he is cured of his bad propensities on a plan which, though simple enough, is said to produce marvellous effects. From the day the confined drunkard is incarcerated, no nourishment is served to him or her but bread and wine. The bread, however, it should be said, cannot be eaten apart from the wine, but is steeped in a bowl of it, and left to soak thus an hour or more before the meal is served to the delinquent. The first day the habitual toper takes his food in this shape without the slightest repugnance; the second day he finds it less agreeable to his palate, and very quickly he evinces a positive aversion to it. Generally, the doctor states, eight or ten days of this regimen is more than sufficient to make a man loathe the very sight of wine, and even refuse the prison dish set before him. This manner of curing drunken habits is said to succeed almost without exception, and men or women who have undergone the treatment not only rarely return to their evil ways, but from sheer disgust they frequently become total abstainers afterward.

THE VENOM OF SNAKES. — The venom of the rattlesnake has been frequently made the subject of study, and, while its action as a poison has been generally conceded, some writers have endeavored to prove its efficacy as a drug. Surgeon L. A. Waddell, M.B., says the *Lancet*, has recently been availing himself of his opportunities as a deputy sanitary commissioner in Bengal to de-

termine a point about which it would seem that much uncertainty existed, — the curious question of the effect of serpent-venom on the serpents themselves. In a paper he has published he quotes the contradictory conclusions arrived at by previous experimenters, and endeavors to show, that, from the accounts of the experiments, it by no means followed that death, when it occurred, was the result of auto-toxic action. Accordingly, he felt that the question was still open, and proceeded to some very interesting investigations, conducted under different conditions of temperature and season, verifying his results by control experiments upon other animals and by *post-mortem* examination of the snakes he employed. In every case the fresh venom was injected into the cobra with an ordinary hypodermic syringe; the serpents operated upon were all healthy, and had recently been caught; the snakes were kept under observation from nine to fifteen days subsequently, and were then killed. The experiments generally confirm and extend the principle formulated by Fontana in 1765, that the venom is neither a poison to the snake itself nor to those of its own species. This immunity is not to be explained upon the mere fact of the animal being cold-blooded, or upon the anatomical conformation of ophidians, since most, if not all, of the non-venomous snakes are susceptible to venom. Surgeon Waddell suggests that it may result from a toleration established through frequent imbibition of the venom in the modified or attenuated form which it assumes when mixed with salivary and gastric juices and absorbed through the alimentary canal; and in support of this hypothesis he mentions the popular belief that certain snake-charmers, by a process of inoculation with venom, gain protection against the bite of a particular species of venomous snake. If this hypothesis can be verified by further experiments, it will go far towards affording indications for combating the action of the venom on man. The subject is of such importance, and the experiments detailed appear so conclusive, that we look forward with interest to the further prosecution of this inquiry.

NOTES AND NEWS.

A SCHEME for bridging the English Channel has actually been discussed by the Iron and Steel Institute of Great Britain. The cost is set by the projectors at $170,000,000. The danger to navigation, aside from any considerations of cost, is likely to be enough of an objection to prevent the accomplishment of the project for many years to come.

— The International Medical Congress, we learn from *Nature*, will meet next year in Berlin, from Aug. 4 to Aug. 10. Inquiries by intending visitors should be addressed to the general secretary, Dr. Lassar, Karl Strasse, Berlin. The congress will be divided into eighteen sections, and the official languages will be German, English, and French.

— According to *Nature*, the Ethnographic Congress, which held meetings of its various sections every day of the week ending Oct. 5, in Paris, brought its proceedings to a close on Monday afternoon, Oct. 7, in one of the large halls of the College of France. It was decided that the congress should hold its next meeting at Bucharest in the autumn of 1890.

— At the first regular meeting of the Boston Society of Arts, held at the Institute of Technology, Oct. 10, the paper of the evening, as we learn from the *Boston Medical and Surgical Journal*, was upon "Biological or Chemical Water-Analysis," by Professor W. T. Sedgwick of the institute. He analyzed different waters, claiming that one-third of a teaspoonful of Cochituate water, tested by the gelatine process, contains sixty to one hundred bacteria, and yet is as pure as the average water. The State Board of Health was highly commended for its practical system of analyzing water. After an interesting exhibition of filtered waters and vegetable deposits through sand, the meeting was adjourned.

— The Philadelphia *Inquirer's* Pittsburgh special, Oct. 15, says, "That the natural-gas supply in that and adjoining districts has passed its zenith, and is now upon the wane, can no longer be satisfactorily denied. The reason usually given was that new mains were being laid to the wells, or that the size of those already down was being increased. These changes have all been made, and still the desired fuel does not pour through in the necessary quantities. This state of affairs was first noticed the latter part of last winter; but the coming of warm weather relieved the pressure for domestic purposes, and nothing was heard of a shortage during the summer months. But with the first appearance of a change of temperature this fall the trouble recommenced in an aggravated form. The last move of the natural-gas companies has been to ask the big mills to run only at night, when the demand upon the fuel for other purposes would be slight. Many of the establishments have decided to return to the use of coal, and some have already done so."

— The British consul-general at Constantinople, in his last report, refers to the declining commercial importance of that city. Its trade has suffered considerably since 1878, and more particularly during the past two years. Large wholesale houses which formerly did business with Persia and central Asia, and acted as middlemen between European manufacturers and the merchants of those parts, have in recent years lost their customers, and are gradually disappearing from the city. This is owing, in a measure, to new and more direct routes having been thrown open to markets that were formerly supplied from constantinople, and also to the fact that produce which used to go to the Turkish capital for shipment to Europe is now despatched direct from the outports. Persia, which previously drew a considerable part of her imports from Constantinople, has latterly commenced to make use of Bushire, and the entire import trade of lower Persia is at present centred in that place. The provinces of Azerbijan and Mazanderan alone continue to take their supplies by way of Constantinople, and then only when Russian competition permits of their doing so. The export trade of the city has suffered in a similar way. The produce of Turkish Kurdistan, estimated to amount to an annual value of £320,000, which two years ago went through the capital, is now shipped from Bagdad, — a route which is considered to be less expensive and safer. As regards Persian trade especially, Mr. Fawcett observes that during the years 1887–88 it was not satisfactory.

— Two items which appeared on p. 250 of our issue of the 11th inst. — one in relation to the deepest hole in the world, and the other touching the effect of gas on asphalt pavements — should have been credited to *The Engineering and Building Record*. A feature of this journal in which many of our readers would be interested is the insert architectural drawing given each week. These drawings are remarkably well chosen, and are reproduced and printed especially well.

— The *Engineering and Mining Journal* announces that a movement has been started to erect a monument to the joint memories of Fulton and Ericsson in Trinity Churchyard, New York. The idea originated out of an application which has been made, and which is likely to be granted, for the interment of the great Swedish inventor's remains in the Livingston Manor vault, which would, as it happens, place them immediately next to the grave of Robert Fulton, so that a joint memorial would seem to be especially appropriate.

— The National Council of the Phi Beta Kappa Society, at its triennial meeting at Saratoga in September, appointed a committee to consider means of securing, in connection with the proposed national commemoration of the discovery of America in 1892, "a proper representation of the intellectual life of the American people, as manifested by their progress in science and literature." The committee was instructed especially to consider, according to *The Publishers' Weekly*, the preparation of a "monumental work," to comprise a series of monographs on the progress of our people, during the four centuries since the discovery by Columbus, in science and literature. The committee was authorized to offer two prizes, of $3,000 each, "for the best general essays on the progress of science and literature respectively; such essays to embrace a philosophical discussion of the development in the past and of the outlook for the future." The committee appointed is a thoroughly competent and admirably representative one, its members being Bishop Henry C. Potter, chairman; President Eliot of Harvard University; President Dwight of Yale; President Gilman of Johns Hopkins; President Adams of Cornell; President Angell of the University of Michigan; and President Northrup of the University of Minnesota.