Poison Mushrooms.

Mr. J. A. Palmer has a paper on poisoning by mushrooms in the *Moniteur Scientifique*. He states that there are three different ways in which mushrooms may act as a poison. First, they may produce the effects of indigestible matter, as when the hard coriaceous species is eaten; and even the edible mushroom may cause a similar result, for when it is decomposing it gives off sulphureted hydrogen gas in quantity sufficient to induce vomiting. Second, mushrooms may be gelatinous or acrid. Third, a subtle alkaloid, without smell or taste, is contained in some mushrooms, as, for instance, in the group of the amanitæ, and is called amanitin. No antidote has yet been discovered for this poison, and to it most of the cases of death following the eating of mushrooms is due. It is at first slow in its action, but after the lapse of eight to fifteen hours, the patient experiences stupefaction, nausea, and diarrhea. Delirium follows, and then death. Mushrooms containing amanitin will impart poisonous properties to wholesome varieties, if both happen to be placed in the same vessel. The poison can be absorbed by the pores of the skin. Mr. Palmer carried in his hand some amanitæ wrapped up in paper, and, notwithstanding the protection which the wrapper should have afforded, he was seized with alarming symptoms.

THE MARA.

The mara, or Patagonian cavy, as it is sometimes called, is a pretty little animal, which is remarkably swift for short distances, but it is so easily fatigued that it can be run down by a man on horseback. It is more tamable than the agouti, which it somewhat resembles, and is often kept in a state of domestication, being permitted to range the house and premises at will. It is generally found in couples, a male and his mate, occupying the same "form." It does not seem to burrow, nor to keep very close to its retreat. It is fond of crouching in a form like our common hare. It is about thirty inches in length, and about nineteen inches high at the crupper, which is the most elevated part of the animal. At the shoulders it hardly exceeds sixteen inches.

The fur of this animal is soft and warm, and from the contrasting colors of black, white, and golden brown, presents a very handsome appearance.

This beautiful little animal is not found further north than 37°. The dry and stony deserts of Patagonia are its home.

The Spectrum of Sodium.

Mr. J. N. Lockyer, F.R.S., says: I have lately been engaged in studying the spectrum of sodium under new experimental conditions. In anticipation of a detailed communication I take leave to state that the vapor given off from the metal, after slow distillation in a vacuum for some time, shows the red and green lines without any trace whatever of the yellow one. Hydrogen is given off in large quantities, and at times the C line and the red "structure"

are seen alone. After this treatment the metal, even when red hot, volatilizes with great difficulty.

SCARUS QUACAMAIA, OR GREAT AMERICAN PARROT FISH.
BY DANIEL C. BEARD.

There is probably no more curious and beautiful fish in American waters than the great parrot fish; yet, after hav-

SCARUS QUACAMAIA, OR GREAT AMERICAN PARROT FISH.

ing spent nearly a day in a diligent search at the library, the writer was unable to find any account of the *S. quacamaia* beyond the bare mention of the fact that such a fish existed, but there are many careful drawings and accounts of the European *scarus*, a smaller and less elegant creature inhabiting the Mediterranean Sea.

The specimen from which the annexed illustration was made came from Campeachy Bay, Mexico, and is now in the possession of Mr. Blackford, of Fulton Market; it measures, from tip of its beak to tip of its tail, three feet one inch, and its greatest vertical width is thirteen inches. In form it is not unlike the common "sheephead;" its dorsal

and caudal fins terminate in long points, and the other fins have the same tendency. There are nine spiny and ten articulate dorsal rays; two spiny and eight articulate anal rays. There was no way of ascertaining its weight, but when alive it could have weighed not less than forty or fifty pounds. The most striking peculiarity of this fish is its dental anatomy. Its odd looking mouth or beak is composed of a bony structure of a bluish-green color, excepting the teeth upon the cutting edge, which are white and polished. These teeth, from the inside, have the appearance of being rather long single shafts set edge to edge (see illustration). Upon the outside, however, their compound structure is at once detected; the cutting edge of each jaw is composed of about fourteen irregular scallops or undulations, each of which is composed of about eight well defined teeth, with five or six very indistinct ones as a base. The four teeth which form the rim are white; the four crowded below are tinted with green, making a pretty green and white mosaic work; the green gradually grows darker until it merges into the uniform color of the bony beak or jaw.

The teeth of fishes offer a more striking series of varieties than that of any other class of animals. First, the sturgeon and the whole order of *Lophobranchii* are without teeth; the myxinoids have only a single tooth; and, lastly, are those fish whose mouths are filled with countless numbers of fangs or points, as the pike. The dental organs are always an important and almost a sure key to the habits of an animal; for from the form, construction, and position of the teeth an accurate and definite conclusion can be reached as to the kind of food eaten. So in the curious arrangement of the mouth of the parrot fish we see that the teeth grow in crowds, new ones being always ready to take the place of the old ones that are worn away, from which fact it would be natural to infer that the teeth are much worn in masticating the food, and that the food must be hard. This inference is proved to be correct upon learning that their food is the lithophytes that cover the bottom of the sea like a brilliant garden of many colored flowers. The sensitive little creatures upon which these fish feed, retire, when touched, into their calcareous suits of armor, and the fish must therefore be provided with suitable instruments for either crushing or digging out their prey from their stony coverings.

Although we may laugh in derision at the ignorance and superstition of the ancients when they attribute to the scarus a voice, the habit of sleeping at night and ruminating by day, we must acknowledge that there was some logic in their method of reasoning, for the parrot fish certainly browses upon the corals much after the manner of ruminating animals. Until a comparatively recent date the corals were believed to be vegetables, and the little creatures themselves the flowers. Imagine this beautifully decorated fish with its brilliant hues, sailing through the transparent sea, browsing upon the richly colored corals, among gorgeous anemones and shell fish, and you have a submarine pastoral sketch on which even a Turner might exhaust his palette in colors.

THE MARA.—(Dolichotis Patagonicus.)

The Giant Birds of New Zealand.

The Museum of Natural History in Central Park has now within its cases a very perfect series of specimens of some of the most wonderful creatures of prehistoric life yet discovered by science. These are the moas, or monster birds of New Zealand. They occupy a case in the extreme end of the Geological Hall, and owing to their massive proportions, look more like the monstrous remains of different quadrupeds than the sum total of one biped. Even the smallest bones equal or exceed in size the bones of the largest horse. In a recent letter, Mr. C. N. B. Munston says that "a leg bone of a moa, with a large piece of flesh adhering to it, was found some time ago in a cave in the province of Otago, and is now in the Otago Museum, Dunedin, N. Z." This seems to settle the vexed question as to whether the birds are actually extinct or not; but the truth of the statement is strongly contested—Dr. Haast, of the Canterbury Museum, declaring with one party, namely, that the creature has been extinct for hundreds of years, and Dr. Hector, director of the Colonial Museum, that a few moas may yet exist on the grassy slopes of the southern Alps, between the limit of the bush and snow line.

The thought of birds so huge swarming in the low lands suggests the tales of the Arabian Nights, and the "roc" seems almost a possibility. The moas, however, were wingless, and, notwithstanding their enormous strength, were evidently destroyed by man, if we may believe the story of the excavations made by Dr. Haast, which resulted in the fine collection now in the museum.

The place where the birds were first found was almost inaccessible, and when the cavity now called the Moa Bone Point Cave was enlarged by the waves of the sea the estuary of Heathcote-Avon in its present condition did not exist. Close to this cavity on its western side was a hard, doleritic lava stream, through which the summer road now passes to the sea. Masses of rock were detached by the surf, forming a ridge which gradually loses itself in the sand.

The formation of this ridge principally took place when this part of the peninsula was twelve or fifteen feet lower than at present, the upper line of boulders being about sixteen feet above the present high water mark. When the land rose again the sea was cut off by this boulder ridge from the entrance of the cave, across which lay a huge rock, protecting it and preventing it from being filled up by the deposits of drift sands now forming on the flat close to it. A second and lower line of boulders was formed in front of the former, about five feet above the present high water mark, with a small terraced space behind it. Since then other deposits forming in the Heathcote-Avon estuary have created a small belt in front of this last line of boulders, brought into its present condition by the action of the open sea. So it will be seen that nature has done its best to protect this treasure. Notwithstanding the constant changes of land and sea, the cave retained its individuality, the huge rocks and ledges thrown across its mouth by the fierce waves completely guarded its entrance, and repelled the invasion of the elements.

The entrance of the cave in which were found the remains is about forty feet from the summer road, which has an altitude of 1,859 feet above high water mark, and is nearly 5 feet lower, or 1,854 feet above high water, taking the level of the surface as a guide. An opening, which is about 30 feet broad by 8 feet high, much narrowed, however, by a huge rock, leads into the cave, of which the floor slopes gently down. The cave consists of three compartments, of which the first one is by far the largest. It runs nearly due north and south, is 102 feet long by 72 feet wide toward the middle, and about 24 feet high. From this cave's termination through a small passage, a second cave is reached, which is 18 feet long and 14 feet wide, and about 11 feet high, its direction being north by west to south by east. At its southern end a small passage, 3 feet high by about 2 feet 6 inches broad, leads into a third or inner chamber, which is more than 22 feet long, with an average width of 16 feet, and about 20 feet high, running like the principal cave, due north and south. Its floor is about 8 feet above high water mark.

Near the surface, and trodden in, lay many objects which showed that the cave had been inhabited as a dwelling place at some remote time. This entire stratum was removed by a systematic digging of trenches by the natives under the direction of Mr. Haast, and among the objects recovered were (1) cockle, periwinkle, and muscle shells common in the neighboring estuary; (2) a layer of ashes with pieces of flax, cabbage tree leaves, charred wood, etc; (3) ashes and dirt beds composed of the dropping of goats and cattle, introduced into Canterbury by the Europeans in 1839, and a few pieces of moa bones; (4) a layer of agglomerate beds consisting of rocks that had evidently fallen from the roof. Between the layers of shells were found pieces of wood, partly charred pieces of wooden implements of Maori manufacture, plaitings made of *Phormium tenax*, and pieces of two broken polished stone implements, while close to the bottom of the trench moa bones were found representing several species. Mr. Haast, in noticing this, says: "I could not divest myself of the conviction that in and below the agglomerate beds remains proving human occupancy would be found."

In a few days the men turned over a deposit covering an area about 20 by 30 feet wide, and advancing in a south-westerly direction, found the remains of a monster bird. The massive limbs, larger than those of the heaviest ox, had evidently been broken to extract the marrow. Evidences of

industry were not wanting, as pieces of timber polished and planed down by stone implements, and upon one a red coating was still visible. Among the other objects of wood exhumed were several pieces of "toa," a thin and long wooden spear made of "tarra," a tree that only grows in the northern part of the Northern Islands. This spear is used by the Maori natives for shooting birds. For this purpose they form, as it were, a short tube around it with one hand, through which, after taking aim, they propel the thin spear suddenly with the other. The greatest part of a whaka-kai, a wooden disk made of pukatta, used for placing fat birds in so as not to lose the oil, or for the preparation of the juice of the topahulie, and many more implements of household use, were also found.

In this search human remains were not found, and it was not until two or three strata had been removed that they were discovered; but at last a Maori skeleton was found a few feet from the southwest wall. The aborigines who placed the body there had dug through the shell bed about 8 inches, then through the dirt 2 inches, and 4 inches through the agglomerate deposit. They had then excavated the marine sands for several feet and placed the corpse in a sitting position, bound with flax, the face toward the wall of the rock. It was evident that the burial had taken place long before Europeans came to the place. The skeleton, which was articulated by Mr. Fuller, stands in the Canterbury Museum, and belongs to a man past middle age, and more than six feet in height. The ulna of the left arm was broken, and was only partly healed when he died; and letting imagination run rife, we can suppose that he was killed by the blow of a moa's "hoof"—an unbirdlike term, but appropriate to the facts of the case.

Judging by the molars of this unfortunate Maori, moa on toast was by no means a tender dish, as the teeth were worn and twisted into almost Quilpian ugliness. Most of the premolars were missing in the lower jaw, the alveoli (tooth socket) being quite absorbed. In the upper jaw, the first molar on the right side and the first on the left are twisted upward, their anterior surfaces adhered to the alveoli, which were developed in a slight bony outgrowth. Owing to a very remarkable distortion of the left molar, mastication was performed with its outer surface, which was worn. The condition of this specimen, its evident age, and that of the surrounding objects, points to the truth of the theory of Mr. Haast, that the dinornis became extinct at an extremely remote period.

The birds were found in many positions. Some in swamps where they had herded together in their flight, and like the mastodon, had been swallowed by the soft ooze that was to perpetuate their name in future ages. The natives now living attribute the first Maori to the Wattaha, the first immigrants who preceded the natives called Ngaimamoe, who preceded Ngotekwu, the present inhabitants. The fact that these remains are assigned to a remote period of Maori occupation by the natives themselves, considered in connection with the great distance between the lower and upper shell beds, goes far to prove that many centuries must have elapsed since the moa became extinct.

The fine collection of these huge creatures now at the Park represents a variety of genera. They were set up by Dr. Haast, and the trustees of the American Museum purchased them by telegraph, outbidding the agent of the British Museum. It is the most perfect collection extant. Their huge forms certainly tell a wondrous tale of the degeneracy of power in the march of time.—C. F., in *Evening Post*.

Petroleum.

The amount of crude petroleum produced has been steadily increased, with only two exceptions, from year to year, until it has reached 7,149,778 barrels in the first five months of the present year. At the same ratio for the balance of the year a production of 17,500,000 barrels will be obtained in 1879.

The rate of increase in the production has been, up to the present time (June 1st), about 315 per cent. The question of controlling the production has for all these years been one of the greatest importance to the trade; but all plans proposed and all attempts made in that direction have thus far proved ineffectual in restraining the producers from opening up new territories and producing the oil wherever found, without regard to the law of supply and demand, which every good business man is bound to respect and ready to apply in all other pursuits of life.

Taking it for granted that the production cannot be reduced while the Bradford field with its flowing wells tempts the operator, also while West Virginia, Kentucky, Tennessee, and California are attracting both the capitalist and the operator to their wonderful petroleum fields, which promise to rival Pennsylvania in the production of petroleum at no very distant day, it is apparent that the attention of all parties interested in the trade should be turned to and concentrated upon increasing the consumption of the product.

As a result of careful computation it has been ascertained that the exports of petroleum from the United States constituted about 66 per cent of the production, and that the home consumption required about 22 per cent more, making the total consumption 88 per cent of the production for the year 1878, leaving a surplus of 12 per cent. By concentrated action on the part of producers, shippers, and dealers, having in view the increase of consumption at home and abroad, the 12 per cent surplus, which is now increasing, the stock would soon be worked off at paying prices and a sound continuous market be secured for our present large production

and to cover any increase in production that is likely to be obtained in the future.

A very important point to be considered in increasing the consumption is new uses to which the article may be applied; not forgetting, however, that its present uses as an illuminator, lubricator, and for fuel purposes should be extended and increased at home and all over the habitable globe.

The number of producing wells at the close of May was 11,045. Total production in May, 1,621,672 barrels. Daily average for the month, 52,312 barrels.

The shipments in May out of the producing regions were 195,281 barrels more than in the preceding month. The total shipments of crude, and refined reduced to crude equivalent, by railroad, river, and pipes to the following points were 1,331,469 barrels:

New York took.....	886,818 bbls.
Pittsburg ".....	108,456 "
Cleveland ".....	112,280 "
Philadelphia ".....	131,479 "
Boston ".....	8,353 "
Baltimore ".....	40,627 "
Richmond ".....	.....
Ohio River refiners took.....	13,161 "
Other local points ".....	30,410 "

Total shipments .. 1,331,469

Included in the above shipments there were 128,149 barrels of refined from Titusville and Oil City, which is equal to 192,377 barrels of crude.

The stock in the producing regions has been increased during the month 290,203 barrels, making the total stock at the close of the month 6,956,814 barrels, and is held by pipe companies, tankers, and operators.—*Stonell's Petroleum Reporter*.

The Water Tower.

This invention of Mr. Logan, a practical machinist of Baltimore, having been brought to the attention of the New York Commissioners, they invited an exhibition in this city, and Chief Bates was instructed to furnish every convenience for a thorough test of the apparatus. The test was in every way satisfactory, and all who witnessed the operation of the machine, says the *Fireman's Journal*, expressed the opinion that it was a practical and desirable adjunct to fire departments.

The water tower consists of three sections of iron pipe mounted on a truck; these sections being fitted together horizontally are raised to a perpendicular position by turning a wheel, an operation easily performed by one man; at the upper end of the tower is a flexible play pipe, to which was affixed a 1½ inch nozzle; at the base of the tower are connections for two lines of hose. Engine No. 20 was at a hydrant at Washington Square, and connected to the tower by two lines of hose. When water was first put through the hose, a coupling flew off and had to be sent to the repair shop to be readjusted. Meantime the steamer played through one line of hose, a splendid fire stream being projected through the tower, the nozzle of which was fifty-one feet above the ground. One man on the truck had perfect control of the stream, and by means of a simple gearing was able to depress or elevate the stream, or turn it in any direction, sweeping the horizon at all points and freely sprinkling the promiscuous crowd that had assembled. At a height of twenty-eight feet a branch pipe is placed and two streams were thrown at the same time, being handled with equal ease and facility by one man. Subsequently the tower was lowered and a short section substituted, having a 1½ inch nozzle and a height of thirty-seven feet. Two lines of hose were connected, and two streams thrown from the tower to a great height and a great distance horizontally.

The ease with which the machine was handled and its effectiveness excited the admiration of all beholders. Firemen, especially, were enthusiastic regarding it, but wanted to see one seventy instead of fifty feet high, and a 2 inch nozzle substituted for the smaller one. The advantages offered by this machine are the getting of a solid stream high in the air before it leaves the nozzle without the aid of ladders, and the ease with which it is controlled by one man. Of course no greater power is exerted than is furnished by the engines, but half a dozen streams could be siamesed into it if necessary. At the test the highest water pressure obtained was 170 pounds, while the owner claims that the tower will sustain a pressure of 300 pounds at the nozzle. As Commissioner King remarked, a 2½ inch stream delivered at that height under such pressure would be bound to make a black mark on any fire against which it was projected. It would also be of great value in "wetting down" buildings contiguous to a fire, as its range would enable it to sweep both sides of the street and keep the buildings wet from curb to cornice.

The Electric Light in Mining.

The first electric light employed in our Western mines was placed on the Deer Creek placer claim of the Excelsior Water Company at Smartsville, Nevada, on the 10th of last April. A 12,000 candle power Brush machine was put in operation, and three lights of 3,000 candle power each were placed in prominent positions upon the claim. Although the night was very dark the lights shed a brilliant light around and enabled the miners to work as readily as during the day. Until this experiment the mines had to shut down during the night, but now the company expects to work both night and day. Nevada and Yuba counties have many hydraulic mining companies, and several of them have announced their desire to use the new light if the Excelsior Company is thoroughly satisfied with their machine. The cost of lighting the claim by electricity is said to be 16 cents an hour.

A Powerful Spectroscope.

In the young science of spectroscopy, as in others, an important element of progress is the improvement of instruments for dealing with the phenomena presented, and many minds are engaged on this. A new spectroscope of remarkable power has just been brought to the notice of the French Academy by M. Thollon. Its chief feature is the use of sulphide of carbon prisms, which are closed laterally, not by plates with parallel faces, but by prisms of the form of Amici's—i. e., having curved sides meeting at an angle (which, however, is much smaller than Amici's prism). The refringent angles of these prisms are in an opposite direction to that of the sulphide prism. Two of these compound prisms are substituted by M. Thollon for the simple prisms in a spectroscope, which he formerly described to the Academy. Without going into further details, we may simply state that an enormous dispersion is obtained; with a magnifying power of 15 to 20 times, the spectrum has a length of 15 meters. The angular distance of the D lines of sodium is about 12', whereas that produced by M. Cassiot was only 3' 6". This instrument should throw considerable light on the structure of the spectrum, and M. Thollon has already noticed some interesting facts. The lines of sodium and magnesium present a dark nucleus passing into a nebulosity, which becomes gradually merged in the continuous spectrum. Many lines have been split up, and all that have been thus resolved have been found to belong to two different substances. One of the hydrogen lines presents a nebulosity without a nucleus. M. Thollon remarks on the magnificence of the spectrum of carbon from the electric arc, observed with the new instrument. The spectra of iron, copper, and magnesium in the same arc were also seen with admirable clearness and brilliancy. These new spectroscopes have been constructed for M. Thollon by the able optician, M. Laurent.

Lighting the Capitol by Electricity.

The arrangements for lighting the capitol building with a new electric light are nearly completed. The experiment has already been made in the hall of the House of Representatives, and a single light placed on the front row of the reporters' gallery and over the Speaker's chair made the whole hall so light that print could be easily read at the points furthest from the burner. The plan is to place four lights in the hall, and it is now believed that they will be a very great improvement upon the present arrangement of gas burners.

Three electric machines have been purchased under the appropriations for lighting the interior of the building, and it is in contemplation to place another in position for the purpose of supplying a light of vast power upon the top of the dome. It is claimed by the inventors that a burner can be constructed there which shall have a very appreciable effect upon a large area of the city. It is claimed that with the steam power of the heating and ventilating apparatus in each wing of the building, a dynamo-electric machine of 175,000 candle power can be run.

Purification of Water.

During the hot weather, says the *Brewers' Guardian*, great care should be taken to insure a supply of pure water for brewing. Many of the organic contaminations which are quiescent and harmless in winter, become dangerously active in hot weather. Unless the water is naturally very pure, it should be artificially purified by filtration. Sand will mechanically remove impurities, but more than this is required; animal charcoal is perhaps the best filtering medium, but even this material will not completely remove all impurities. A quantity of scrap iron placed in the water will most effectually remove organic matter, but the water must necessarily be subsequently passed through a bed of sand and gravel to separate all the oxide of iron which is formed.

Welding of Nickel and Cobalt to Iron and Steel.

Herr. Fleitmann has succeeded in obtaining cast nickel in a malleable and ductile form, while cobalt prepared in the same manner possessed such hardness when cold that he thinks it could be used for cutting instruments, while hot it is both malleable and ductile. His process consists in add-

ing to the fused metal, through a hole in the lid of the crucible, $\frac{1}{8}$ per cent of metallic magnesium, which possesses a remarkable power of destroying carbonic oxide. Cobalt prepared in this manner possesses none of the reddish color attributed to it in the text-books, but excels nickel in whiteness and brilliancy. He also welded these metals to iron and steel at a white heat, and strips thus welded were rolled out to the finest number without separating from each other.

Advice to Bathers.

With a view of diminishing the loss of life which annually occurs from drowning, the Royal Humane Society of England issues the following seasonable advice to bathers: "Avoid bathing within two hours after a meal, or when exhausted by fatigue or from any other cause, or when the body is cooling after perspiration, and avoid bathing altogether in the open air if, after being a short time in the water, there is a sense of chilliness, with numbness of the hands and feet, but bathe when the body is warm, provided no time is lost in getting into the water. Avoid chilling the body by sitting or standing undressed on the banks or in boats, after having been in the water, or remaining too long in the water, but leave the water immediately there is the slightest feeling of chilliness. The vigorous and strong may bathe early in the morning on an empty stomach, but the young and those who are weak had better bathe two or three hours after a meal; the best time for such is from two to three hours after breakfast. Those who are subject to attacks of giddiness or faintness, and who suffer from palpitation and other sense of discomfort at the heart, should not bathe without first consulting their medical adviser."

ANCIENT KEYS.*

The engraving shows several keys from the Munich National Museum which belong to the 17th and 18th centuries. They are drawn half real size by Professor C. Reiss, of Stuttgart. The locksmith's art which, at the expense of decorative treatment, is almost entirely absorbed in our days by

KEYS FROM THE MUNICH NATIONAL MUSEUM.

the complication of mechanism, showed itself formerly most particularly in the artistic form of the key. We find everywhere in museums and collections of industrial art a great number of specimens of most elaborate and delicate workmanship. This domain of small art, however restricted, is well worthy of attention.

Economical Steam Engine.

The Corliss engine at the French Exhibition of 1878 consumed only one kilogramme (2.2 lb.) of coal per horse power per hour. A similar engine of 700 horse power, constructed by M. Farcot, for the drainage at Asnières, consumes only six tenths as much. M. Tresca, in recommending, on behalf of the committee of the French Academy, that the Montyon prize should be awarded to the inventor of this engine, stated three special advantages which it possessed: A form of construction which establishes a great firmness between the cylinder and the chief arbor, with the least consumption of material; the separation of the orifices of admission and emission, to the great advantage of the permanence of temperature in the steam at its entrance into the cylinder; and a system of distribution commanded by a central platform for the four openings by means of springs and cams, which secure the opening and closing of the orifices. While claiming for Cavé the principle of separation between the orifices and conduits of admission and escape, the com-

* From the *Workshop*. Willmer & Rogers News Company, agents, 31 Beekman street, New York.

mittee consider that Corliss' applications of the principle, the precision of action, and the economy of his engines entitled him to the Montyon prize of one thousand francs, and the Academy awarded the prize accordingly.

On Public Speaking.

It may perhaps be of use to those anxious to become orators to know that from some cause or other almost all speakers occasionally not only lose the thread of their argument, but lose all knowledge of what they are talking about. I have seen this occur, says a writer in one of our English contemporaries, with many of our most experienced orators. When it happens they repeat a few vague generalizations until their thoughts come back to them, and then they fall back again into their speech. Thus their temporary wool-gathering escapes detection, except by those who watch them very closely. An inexperienced speaker, instead of doing this, pauses, gets confused, and sits down in despair. Another great mistake of budding speakers, and indeed of many who are in full bloom, is to speak too quickly. A person who wishes to be heard can hardly speak too slowly. He should pronounce not only each word, but every syllable of each word distinctly. Mr. Bright once said that nothing had cost him more trouble than to learn to speak slowly. A clear, deliberate utterance of every syllable, with pauses to mark the stops at the end of each sentence, does not produce the effect of tediousness, but the reverse.

A Long Trance.

The *British Medical Journal* reports a notable case of trance in the London hospital. The patient is a woman twenty-seven years of age, of rather small stature, and weak mental capacity. She was admitted on April 3, on account of symptoms connected with extensive disease of the heart, for which she had been treated as an in-patient in 1877. When admitted there was marked aphonia; she complained of great precordial pain, and frequently expressed her firm idea that "she was going to be married." At this time she had no difficulty in taking liquids; no marked nervous symptoms were present beyond the loss of voice. About May 7 prostration became marked, without any signs specially attributable to the heart disease, and she evinced great disinclination to take food of any kind. In a few days she fell rather suddenly into a state of trance, in which condition she has remained ever since. At first she could be induced with difficulty to take liquids, but soon she would not swallow even such food, and nutrient enemata had to be given. For a few days she would reply to questions by monosyllables, but later gave no sign of consciousness, remaining perfectly passive and motionless, and could not be roused. There was never

any kind of convulsive seizure, local paralysis, or sign of any further lesion connected with the heart disease: the pulse remained full throughout. No reflex action was obtained on tickling the feet, and she seemed quite insensible to pricking or pinching the skin. The temperature remained normal. For three days she was fed by an elastic catheter passed through the nostrils to the pharynx—a proceeding which she made some attempt at resisting. This condition differs from catalepsy in its lifelessness; but for the performance of the organic functions there is no muscular rigidity; the limbs, when raised, fall as if lifeless, and, if placed in certain attitudes, are not retained fixed as in catalepsy. At present the patient remains in the state described, giving no signs of consciousness; her condition appears to be exactly that of the famous Welsh fasting girl, and there is no sign of special disturbance resulting from her heart disease.

PHOTOGRAPHIC RIFLE.—M. Marey having expressed a wish for the invention of a photographic rifle which could take instantaneous views of birds in their flight, Capt. Eugene Vassel proposes a small dark rifle chamber of 2.27 inches interior diameter, surmounted by a proper level and sight. By means of Muybridge's, Janssen's, or other contrivances for taking instantaneous pictures, he thinks that small views might be easily taken which could be subsequently enlarged. He also proposes a photographic revolver for taking a series of successive attitudes at a single operation.—*La Nature*.