

veling clock, with its large bell, has had the last word to say of the hour of night, and is advantageously replacing all the clocks and night light arrangements that have been invented since centuries.—M. Planchon, in La Nature.

NEW CHEMIST'S WASH BOTTLE.

The wash bottle shown in the cuts represents one of a kind which I have used for three years, and it has proved so convenient, not only for hot water wash bottles, but also other wash bottles, that I think it will prove of interest to your chemical readers.

One cut represents the bottle complete; the other shows it in use, and also shows a large scale view of the valve. Its construction is obvious. The wire cross is a piece of rubber tubing. When the wire is depressed it squeezes the tubing against the wooden block on which it is mounted and thus closes it valve-fashion.

The middle finger controls the wire of the valve, allowing the free use of the first finger to direct the stream—a great improvement on other similar apparatus.

When the bottle is reversed, the middle finger also controls the stream issuing from the mouth tube—a very convenient feature.

After a short use of the bottle, one soon becomes accustomed to the mechanism, so that the mouth and hand work together. The air chamber ordinarily above the water is sufficient to eject the water for five or ten minutes, and with the hot water bottle it is only necessary to shake the water, and the steam liberated is ample to force the water from the top. Another great advantage is that one runs no risk of burning the mouth, as the valve prevents the steam returning until the mouth is removed.

GEO. C. JAMES, Chemist.

Inventions Reduce the Cost of Building.

The Real Estate Record commented some time ago upon the immense reduction that has been made within the last decade in the cost of building. Office buildings that cost \$1.50 per cubic foot, and even more, can be produced by modern methods for 30 or 40 cents a cubic foot. This reduction in cost is due in no slight measure to the employment of mechanical devices in building operations. The hod carrier, elevator, derrick, and other devices worked by steam, which have superseded the slow hand labor, are too well known to be mentioned. The employment of steam power in the mechanical operation of building has, however, by no means reached its limit. At the New York building, now erecting on the block front between Waverly Place and Washington Place, passers-by may see a steam stone crusher at work preparing material for the foundation. A few hands are able to do with precision an amount of work which formerly required a small regiment of men. On the line of the new Lexington Avenue cable road a cement stone mixer worked by steam is in operation, and attracts the attention of passers-by.

For Obesity.

Take no water or other fluid at any time, says the Medical Times and Register, except one cup of any desired hot drink, just before rising from the table. Use no liquids while eating. Avoid sugar, nuts, and pastry. Eat nothing between meals. Confine the diet to lean beef, mutton, chicken, turkey, fish, eggs, oysters, with one slice of stale bread well dipped, the bulk of the meal being of tomatoes, celery, spinach, turnips,

cabbage leaf, but not the fleshy mid-rib, and fresh or dried fruits, cooked without sugar, such as apples, peaches, plums, prunes, prunellas.

A little cheese is permissible; coffee, tea, skimmed milk or buttermilk after eating, as stated. Exercise should be taken, running being most effectual, before breakfast or before going to bed.

Healthfulness of Bicycling.

An interesting paper was read recently before the New York Academy of Medicine, on "The Influence of the Bicycle in Health and in Disease," and some very important statistics were presented. The paper warmly recommended the wheel as a means of

the well-known engine makers, Messrs. Robey & Co., Limited, of the Globe Works, Lincoln. The cylinders are placed side by side, with the fly wheel in the center. The diameter of the high pressure cylinder is 24 in., low pressure 40 in., and stroke 48 in.; and with a steam pressure of 100 lb. per square inch the engine will, when condensing, give off 900 indicated horse power. A condenser, of the injection type, worked by an extension of the low pressure piston rod through a rocking lever, is placed at the rear of the low pressure cylinder, and at a lower level; the air pumps are

single acting, two in number, each 23½ in. diameter. The main shaft is exceedingly massive, being 15½ in. diameter in the center, the main bearings being 12 in. diameter by 24 in. long, thus giving ample bearing surface.

The power is transmitted by means of a fly wheel, 18 ft. diameter, grooved for fourteen ropes, 1¼ in. diameter, and the rim is built up of ten segments, the latter being carried by ten arms, which are fastened in the central boss by double cotters. The main feature, however, in this engine is the trip valve gear, which is Richardson and Rowland's patent, and works with a smoothness and precision which leaves nothing to be desired. The inlet valves on the high pressure cylinder are of the double beat type, and are actuated by trip levers, which again receive their motion from a cross shaft driven from the main shaft of the engine by cut gear-

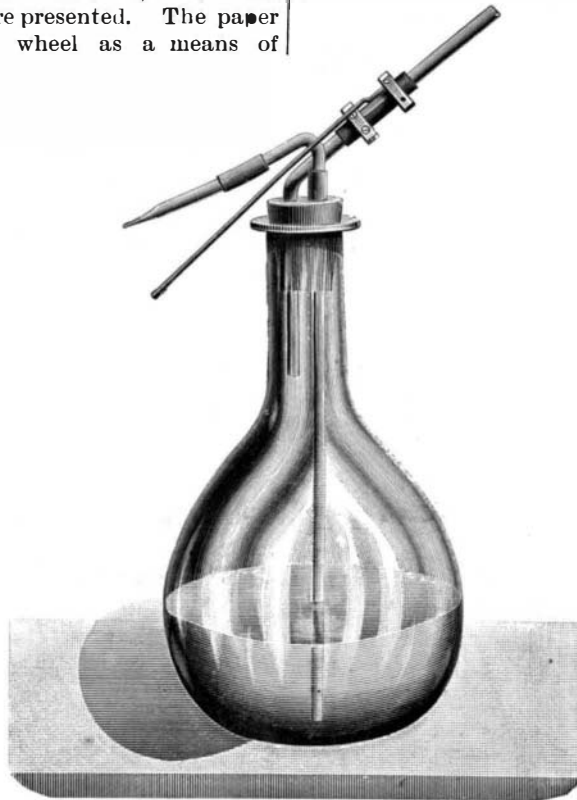
ing. The trippers which lift the valve are coupled to the governor, which by means of a simple motion adjusts the cut-off from zero to ¾, by sliding the tripper into longer or shorter communication with the tripping lever. This arrangement has been found in numerous examples to be most effective, and controls the speed of the engine within less than one per cent on ordinary variations in load. The exhaust valves are underneath the cylinders and have large openings with a very small movement, thus giving a free exhaust, and draining the cylinders effectually. A large receiver is situated between the two cylinders, into which the high pressure exhausts; here it is reheated by means of a live steam coil, and enters the low pressure cylinder at a slightly enhanced pressure.

The economy of steam consumption in this type of engine has been proved to be very considerable, and with the engine illustrated the consumption has been brought to the lowest practicable point. As a proof of the accurate balancing of all parts, the engine was erected on a temporary foundation of timber and moulding boxes, at a height of 10 ft. from the ground level, and on this slight foundation run at the full speed of 75 revolutions per minute, with scarcely any perceptible vibration. The engine is for driving a large mill in Russia, and has been specially designed to render transport easier, the girder bed being made in two halves, and bolted securely together, and a foot placed in the center, whereby absolute rigidity is obtained. The fly wheel has been turned dead true, a result seldom obtained with equal accuracy with so large a wheel. We are indebted to the Engineer, London, for our cut and the above particulars.

MORTUARY tables show that the average duration of the life of women, in European countries, is something less than that of men. Notwithstanding this fact, of the list of centenarians collected by the British Association a fraction over two-thirds were women.



WASH BOTTLE IN USE, WITH VIEW OF VALVE.

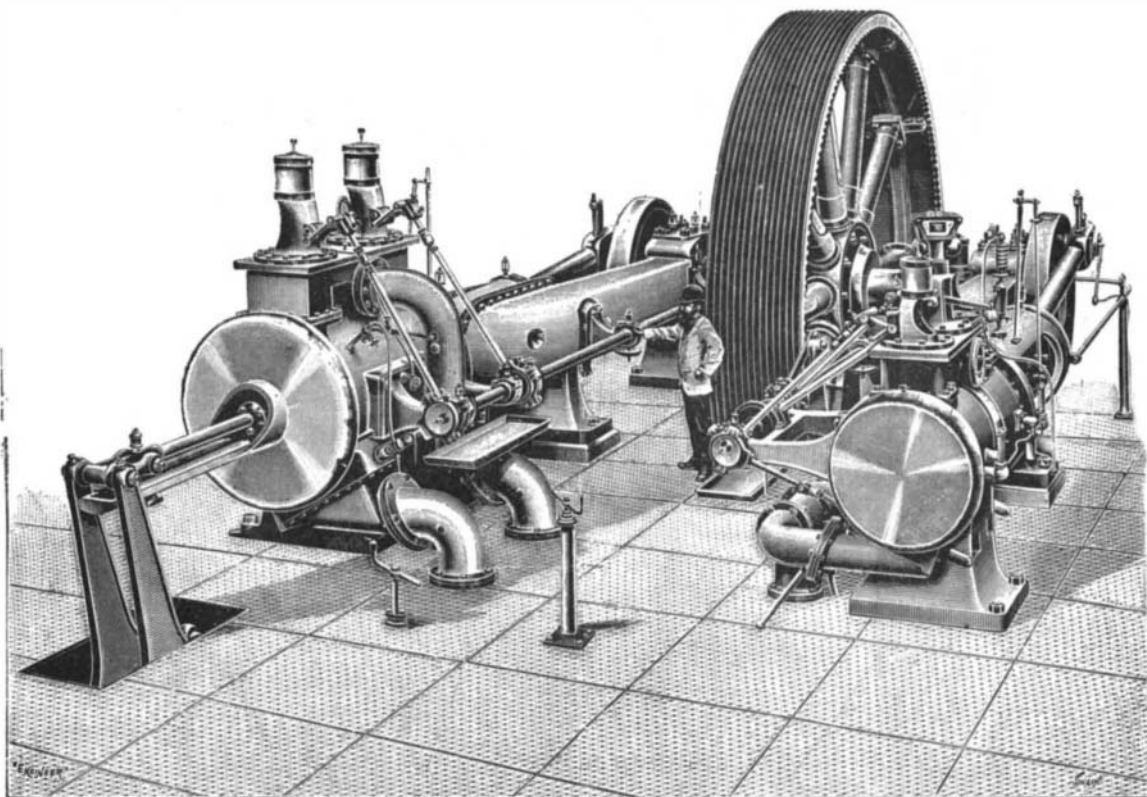


NEW WASH BOTTLE.

healthful exercise. The conclusions were based upon examinations of a number of men who had used the wheel constantly for periods varying from five to fifteen years. During this time each of these riders had ridden more than 5,000 miles and less than 30,000 miles. It was found that the average chest expansion of these riders was 1 4-7 inches. The chest of the average man expands only one inch. In the strength and general condition of the heart the bicyclists had a similar advantage, and a considerably increased lung power was also observed. There was also noticeable an harmonious development of all the muscles, and in no case was any deformation of the spinal column or other part to be found. The criticism that the continued use of the wheel merely develops the muscles of the legs at the expense of other parts was not found to be true in any of these cases. The writer of the paper, however, condemned long distance racing as injurious, and offered a general caution against excessive and exhaustive feats of bicycle riding.

NINE HUNDRED HORSE POWER COMPOUND ENGINE.

The engine here illustrated is a fine specimen of modern engineering, and has been manufactured by



NINE HUNDRED HORSE POWER COMPOUND ENGINE.

The Light of the Future.

Dr. Palaz, in his work on photometry, remarks that to improve the optical efficiency of light sources "there should only be produced such vibrations of the ether as are susceptible of affecting the retina," or vibrations having a wave length between 0.81μ and 0.36μ — μ being 0.001 mm. The problem thus is not a complicated one as far as its statement is concerned, and when we learn that the greater part of the energy of the voltaic arc is lost in heat at a wave length of only 1.16μ , we see that the question of producing "cold light" resolves itself into one of reducing this wave length less than 50 per cent. Unfortunately it too often happens that what to nature is but a minute interval in the course of a phenomenon is yet the entire extent that the powers of man are permitted to affect. In the present instance there is, however, a growing hope that human endeavor will finally succeed in so directing the motion of the ether that the numerically slight reduction necessary in the wave length of vibratory energy may be obtained. In this connection it is interesting to compare the various sources of light with relation to the proportion of their vibratory energy utilized in producing the sensation of light. As we know the amount of energy contained in a given weight or volume of oil and gas and also the corresponding amount of light produced, it is a simple matter to express the unit of light given by these illuminants in watts. We thus find that an oil flame requires about 42 watts of energy per candle power emitted, and the ordinary gas jet 93 watts; with the incandescent lamp and voltaic arc these figures are 3.1 and 0.8 watts respectively. Accepting the efficiency given by Weber of the incandescent lamp at normal candle power—1 per cent—the optical efficiencies of the above sources are, therefore, 0.07, 0.03, 1.0 and 4 per cent respectively, while Dr. Palaz quotes the efficiency of the magnesium lamp at 15 per cent and that of the Geissler tube at 32.7 per cent. The gas flame, therefore, dissipates 99.3 per cent of its energy in vibrations that do not produce the sensation of light, and the maximum dissipation occurs at a wave length of 1.6μ , the corresponding maximum of the voltaic arc being 1.16μ .

We see from the above that high optical efficiencies are obtained in three ways—by a high degree of incandescence of carbon and of magnesium and by vibratory motion set up in the ether by an electric discharge through a Geissler tube. With carbon as a material we cannot expect a greater efficiency of the arc lamp than at present, as it has been shown that the temperature of the crater cannot be increased (unless under pressure), since it now corresponds to the point of vaporization, while the incandescence of the carbon filament has also probably reached a practical limit. The only chance of improvement in this direction, then, seems to lie in the utilization of a material which may be raised to a higher temperature and incandescence than carbon, or, like magnesium, will at a given temperature give off a much larger number of luminous rays than carbon. The experiments of Tesla and Ebert in producing the requisite rate of etheric vibration by electrical instead of thermal means contain the greatest promise, even if the efficiency of the Geissler tube is merely attained in a practical light, and there is hope that it may extend much further than this. Finally, it is not impossible that we may even solve the mystery of the light of the firefly, which would be the most perfect solution of the problem. Langley finds that all of the radiations emitted from this source have a wave length between 0.45μ and 0.65μ , and therefore the optical efficiency is probably 100 per cent.—*Electrical World*.

International Copyright Abuses to be Reformed.

Representative Hicks, of Pennsylvania, has introduced in the House a bill aimed at the most flagrant abuse that has grown up under the international copyright law.

That law gives to foreign authors copyright on condition that their productions be published here from type set or plates made in the United States. The same condition is imposed in the case of musical compositions, photographs, and lithographs. The plates or negatives must be made in this country and the copies printed from them here.

But, curiously enough, no such requirement is made in the case of engravings or etchings. Foreign publishing houses have not been slow to take advantage of this omission by claiming copyright for engravings, etchings, drawings, woodcuts, etc., when neither the plates have been made nor even the copies printed in this country. Not only have they claimed such copyright, but they have threatened and brought suits for its alleged infringement and demanded damages in ridiculously high sums.

It must be obvious to every fair and intelligent mind that there is no good reason for this marked discrimination of foreign art as against literary and musical copyright. That the discrimination opens the door to intolerable abuses is shown by experience. It is a standing menace to reputable American newspaper, magazine, and book publishers, any one of whom may at any time become the victim of unwarranted and

vexatious litigation for having innocently reproduced from some foreign publication an illustration not supposed to be entitled to copyright. Such suits may even in unscrupulous hands become the weapons of attempted blackmail by carrying a demand for excessive damages only for the purpose of securing a smaller sum by way of compromise.

A law which thus invites abusive litigation, which is taken advantage of by foreign speculators and their American attorneys to harass American publishers, is neither to the interest nor the credit of the United States, and hence should be amended at once. Whatever may be said in favor of granting protection to foreign art productions, experience has proved that more harm than good has come from the operation of the law, and that the interests of this country will be promoted by putting a prompt veto on the abuses it encourages.

This can be done only by amending the law so as to give copyright to foreign art productions on the same condition it is given to foreign literary and musical productions—namely, that the plates be made and the copies printed in this country. To say that the proposed amendment will operate only to the advantage of piratical publishers is nonsense. Its purpose is and its effect must be the suppression of abusive litigation, to which all reputable publishers are now exposed, and from which many have already suffered.

The Hicks bill is a timely measure, designed to improve the copyright law, and hence should receive the support of all who have in this matter American interests at heart.—*N. Y. Herald*.

The New Element.

The London Times says: "There was an unusually large attendance at the meeting of the Chemical Society last night (December 13), in anticipation of a discussion upon the new element announced by Lord Rayleigh at the meeting of the British Association. None of the scientific societies were at that time in session, but our readers may remember that a certain amount of discussion on the subject took place in our columns. In the five months that have elapsed since the announcement was made, chemists naturally supposed that definite and unassailable conclusions would have been reached. This expectation was naturally very powerfully confirmed by the language of the president of the Royal Society, who in his presidential address treated the discovery as fully authenticated, and described it as the greatest scientific event of the year. It was, therefore, a serious disappointment to the Chemical Society to discover last night that not one of the men known to have been engaged in working at the new element came forward to give information as to results so unequivocally proclaimed. Some astonishment was also felt when the president of the society observed that a good deal of feeling had been called forth by this question, notwithstanding its purely scientific character.

"It was evident from his remarks that the discoverers of the new element are anxious to forbid discussion, on the extraordinary ground that, as they have not published their conclusions, discussion can proceed only upon private and confidential information. It is obvious, as he pointed out, that when chemists are informed that they have entirely failed to comprehend the constitution of a substance upon which they have bestowed so much labor as has been expended on the atmosphere, they have an indefeasible right to carry out whatever experiments they may think fit. Moreover, it is absurd after not only the fact of the discovery but details of the preparation and properties of the new element have appeared in public reports, to pretend that there is any breach of social or scientific etiquette in discussing them. Why the discoverers should impose on themselves and seek to impose upon others this extraordinary reticence concerning what has been heralded on the highest authority as the greatest scientific event of the year is more than any one seems prepared to explain. If there were any question of robbing them of their discovery, it would be another matter; but, on the contrary, the acceptance and discussion of the announcements made to the British Association and to the Royal Society are the very best means of securing to them whatever credit may accrue from their researches.

"Professor Dewar described last night the methods of applying liquid air to the investigation of the properties of gases. It appears from his experiments that chemically prepared nitrogen liquefies at the same temperature and boils off at the same rate as nitrogen obtained from the atmosphere. Yet, according to the discoverers of the new element, one contains a substance which is not present in the other, the density of which is nearly half as great again as that of nitrogen. It follows either that the new substance does not liquefy at all, even at temperatures which condense much rarer gases, or that it behaves in exactly the same manner as nitrogen. Chemists will fully appreciate the extreme singularity of a substance with the assigned density which fulfills either condition. It is not too much to say that its discovery would revolutionize chemical theory. But the whole question be-

comes infinitely more obscure if, as seems to be the case, chemically prepared nitrogen passed over red-hot magnesium behaves in a manner undistinguishable from that of atmospheric nitrogen treated in the same manner. Confirmation of this result would at once prove that the new substance is a manufactured product which may, indeed, be present in the atmosphere, but cannot be a new element. With these grave uncertainties brooding over their discovery, it is remarkable that Lord Rayleigh and Professor Ramsay should prefer to keep silence, although all doubts might have been settled almost in as many days as months have elapsed since the announcement to the British Association."

Science Notes.

From the Boston Commonwealth we take the following:

Before a recent meeting of the Parker Memorial Science Class, Prof. A. E. Dolbear considered the possibilities of matter, which in the light of the most recent investigations is of exceeding interest. He said that the kind of phenomena which one expects from matter depends largely upon what are assumed to be the properties of matter. It was once thought that matter itself was altogether inert and lifeless, and forces of different kinds were believed to be necessary in order to have it do anything. Now we are aware that this notion is erroneous. A lump of coal weighing a pound possesses energy enough to lift its weight nearly two thousand miles high. Every particle of matter is constantly exerting its influence upon every other particle of matter, no matter how far apart they may be, and if left to themselves, will come together.

The power to do this is inherent in matter and not in forces external to it, so that one after another the so-called forces have been given up, as representing anything more than some sort of motion. There is left, then, only matter and ether and various forms of motion to account for the different phenomena in nature. Even what are called organic phenomena, such as belong to living things, have no other antecedents.

These new considerations have made it necessary to recast our opinion concerning matter and its possibilities. Instead of the hard, round, inert particles of the older philosophers, we have now the vortex ring theory of atoms, which considers them as rotating rings of ether, since such rings exhibit many of the qualities possessed by matter. But this view makes atoms dynamic individuals possessing energy and capable of doing many things. The phenomena of crystals and some of the lower orders of animal life show such similarity as to give one the impression that the former are in some degree living things, and there is a growing conviction, among those who study molecular phenomena, that matter is really itself alive and that intelligence is in some way associated with it, so as to make the difference between the atom and man only one of degree.

A very interesting lecture was that recently given by Miss Charlotte W. Hawes, the subject of which was "Music in Nature." Miss Hawes has a way of her own in approaching her subjects, and her enthusiasm, her impressive manner, as well as the range of the information which she imparts, give her lectures great interest even aside from their musical character. In the present instance she showed how nature is everywhere musical; that the most common and simple actions produced musical and harmonious sounds, from the patter of berries from the measure into the pan to the grand tones of the waves beating upon the beach. The brooks, the winds, the trees, the raindrops, all of these are musical; and as to the birds, they have often suggested to musicians the themes which have been so well developed. "Pleyel's Hymn" is but the setting of the song of a little bird. From such things the rude musicians drew their inspirations, and in these our musicians have found a basis. In the midst of a shower, Handel sought shelter in a blacksmith shop, and the clink of metal upon metal—the hammer striking the iron or the anvil—suggested to him a new spirit to a familiar tune.

Incidental to the lecture were many illustrations, instrumental, vocal, and imitative.

Remarkable Mirage.

The people of Port Huron witnessed a remarkable mirage on December 25, showing the Canadian bank of the St. Clair River for about thirteen miles and both banks from Marysville to what is known as Ie-Gregor's Point, a mile below the Oakland House. At 7:30 o'clock in the morning, on looking to the south, Port Huron people could see Sarnia reflected in the clouds, and even the ferryboats as they crossed the river. The frame houses stood out boldly, making an exceedingly pretty panorama. Following along to the west, Stag Island appeared, and from there to a point a mile below the Oakland House both banks of the St. Clair River were visible. St. Clair City was clearly outlined upon the sky, and smoke could be seen ascending from the tops of several smokestacks. The mirage was visible for more than an hour.

[FROM THE NEW YORK HERALD.]

Helen Keller.

The slender young girl in her dainty little white evening dress, who, despite the fact that she is blind and deaf and was unable, until within a few years, to utter articulate sounds, stood in the parlors of the Wright-Humason School, at No. 42 West Seventy-sixth Street, New York, recently and received her guests with as animated conversation as if her short life had been one continuous stretch of social impressions enough to crowd five senses, has excited interest all over the world.

Although only fourteen years old, Helen Keller has a wider range of information than has sifted into the minds of the vast majority of men through their unimpaired senses, sometimes when their hair has silvered.

She was not born blind, and deaf, and mute, but lost the use of these faculties through scarlet fever at the age of eighteen months. She later regained the ability to speak through the instruction tending to make her formulate words, even though unable to hear the sound.

Miss Sullivan, who went to her when she was seven years old, has been her constant companion and teacher ever since.

The marvelous dexterity which Helen is acquiring in the reading of speech and conversation by simply placing her fingers on the lips of the speaker is equalled by the readiness with which she repeats accurately the words which are spoken to her.

As various persons of social and literary prominence paid their respects to her she talked with them upon topics of mutual interest. When Edmund Clarence Steadman approached and began a conversation, she surprised him by repeating one of his poems, and was equally well prepared to prove to Richard Watson Gilder her familiarity with his dainty songs.

From a large volume of Tennyson in the raised letter of print of the blind she read several stanzas of "In Memoriam." When asked if she preferred that to others of that author's poems, she replied: "Oh, no! I like it, but not the best, because it is so full of sorrow. I am very fond of 'Dora' and 'The Princess,' but it is very hard to say which I like best. I think the one I love most is a very short one—one of only six lines," and turning upward a face filled with exquisite purity, she repeated:

Flower in the crannied wall,
I pluck you out of the crannies;
Hold you there, root and all, in my hand,
Little flower; but if I could understand
What you are, root and all, and all in all,
I should know what God and man is.

The slight touch of her finger tips as her friends passed before her supplied her wonderful memory with the material for recognition, and as they bade her good night she took each by the hand, and with a slight touch of her hand to the face, with courteous phrases and kindly wishes, bade each by name good night.

One of the most impressible features in her attitude to her more fortunate fellows—more fortunate so far as receptive faculties are concerned—is her extremely lovable disposition, which accords so well with the look of perfect happiness upon her face and her laughing air of freedom from care.

The Susquehanna River to be Harnessed.

An ambitious plan for utilizing the waters of the Susquehanna River as a means of generating electric power is about to be carried out. A certificate of incorporation has recently been granted to the Susquehanna River Electric Company and work is to be commenced as soon as the spring freshets are over. The surveys have already been completed. It is proposed to dam the Susquehanna River near Conowingo, Maryland, and erect a large electric power house, similar to the one now in operation at Niagara Falls. The power obtained in this way will be supplied to Philadelphia, Wilmington and Baltimore, and other intermediate points. It is expected that it will be used extensively in operating street railways and electric lights. The land at the proposed site of the dam has been purchased and the plans have been made for an immense plant. The capital stock of the company has been placed for the present at \$100,000, but it is understood that the Westinghouse Electric Company are behind the project and that the capital will be increased, when the work is to be commenced, to several millions of dollars. It is expected that the company will be prepared to supply power to the several cities by January 1, 1896.

Natural Gas at 1,000 lb. to the Square Inch.

At Martinsville, Va., on December 20, while Captain James Clegg, foreman of a pipe line gang for the New Martinsville Natural Gas Company, was calking a pipe under a thousand pounds direct pressure, the pipe burst, throwing Captain Clegg nearly 100 feet into the air and killing him instantly, his neck being broken. Half a dozen other workmen about him were knocked down and severely injured.

The Steam Yacht Giralda.

Mr. McCalmont's twin screw steam yacht Giralda, built in England, is reported as being a most remarkable vessel. She combines all the features of a first class pleasure yacht with the speed of the fastest ocean-going steamers within the compass of 1,508 tons yacht measurement; and she has a coal-carrying capacity enabling her to make a voyage of over 3,500 nautical miles at a speed of 15 knots, or of nearly 6,000 nautical miles at a speed of 12 knots. Upon the measured mile upon the Clyde she realized a speed of 20.9 knots, and she approached the same speed in a lengthened run in the Solent. It has been hitherto held that the capacity of an ocean-going steamer was necessary to provide engine power for a speed of over 20 knots, if in addition to the boilers and coal bunkers there should be provided the ordinary complement of staterooms. Her trials have also provided some interesting data on the question of vibration. At 17 knots the vibration is excessive, but below and above that speed the vibration disappears. Two Gardner guns and four Hotchkiss guns, with two electric search lights of Admiralty pattern, assist the conception of an amateur cruiser; and the crew of sixty naval reserve men, procured from the Orient service, encourage the idea that, although a private yacht, the Giralda may be regarded as at any time available as an Admiralty dispatch boat. The vessel has been designed and constructed by the Fairfield Company, at Govan. Mr. McCalmont holds a master's certificate and navigates the boat himself.

African Volcanoes.

In 1891, when Emin Pasha started west from Victoria Nyanza on the journey that ended in his violent death, he and his comrade, Dr. Stuhlmann, were the first white men to see the big mountain Mfumbiro, 120 miles from the lake which Capt. Speke, many years before, had placed on his map on native information. They found that Mfumbiro was not an isolated cone, but the most eastern of a hitherto unknown range of volcanic origin. Their first purpose was to determine the outlines of Lake Albert Edward, and they did not stop to explore these mountains; but Dr. Stuhlmann sent home an interesting report of the natives that Virunga, the most western summit of the chain, was a fire mountain, from whose top smoke was often seen to issue, and from which noises were heard like the bellowing of cattle.

On December 8 a cablegram reached Europe from Count von Gotzen, the German explorer, announcing his arrival on the lower Congo, after crossing Africa from east to west. About the same time a letter he had written in central Africa in June last arrived. It contained brief but interesting details of his visit to Mount Virunga. There have been reports of plutonic activity among the Rif Mountains, in northwestern Morocco, but the hostile natives have prevented investigation. The subterranean forces that formed the great trough and piled up mountains of lava and ashes east of the great lakes show, by solfataras, hot springs, and other phenomena, that they are not yet entirely spent. But until the discovery of Mount Virunga no active volcano was known to exist in Africa.

While still far away Count von Gotzen saw a thin column of smoke ascending from the principal crater, and later he found that the rim of this orifice is 11,400 feet above the sea. The volcano, therefore, is not a snow mountain, and is not so tall as its nearest neighbor on the east, which, according to Stuhlmann, is about 13,000 feet high. It took Von Gotzen several days to force a passage through the dense forest and to scale the steep mountain side. At last he stood upon the edge of the crater and looked down upon a most interesting spectacle.

The crater is about a mile in diameter, and the top of the encircling wall, on which the explorer stood, is about 160 feet above the crater floor. The inner side of the wall was too steep for comfortable descent, and in view of what was going on at the bottom, there was absolutely no temptation to make the journey.

The yellow-hued bottom of the crater floor was as smooth as the surface of a lake, and the explorer believes he was looking down upon an expanse of molten lava. Above this smooth surface rose the walls of two orifices, as regularly formed as though they had been made of masonry. From the more northern of the two orifices, which was over 300 feet in diameter, a small volume of smoke was issuing, accompanied by a noise that sounded like the roll of distant thunder. There were unmistakable indications that outside of this crater another center of eruption exists on the west side of the mountain, but the explorer was unable to push through the woods to reach it.

For some years a little lake has appeared on the maps some distance south of the place this volcano has been found to occupy. It is Lake Kivu, seen by no white man until Von Gotzen stood on its shores soon after he had looked down into the smoking crater. He says the lake stretched away before him like a sea, and, though it was a clear day, he could not see its southern shores. He believes the lake is almost as

large as Lake Albert Edward. Its outlet is supposed to be the Rusisi River, which enters the north end of Lake Tanganyika.

It is too early to regard the large prizes of African discovery as all won when such interesting and important results reward research as those attained by the latest traveler across Africa.—N. Y. Sun.

Swallowing Alive.

The recent strange incident at the Zoological Gardens, London, when a boa nine feet in length swallowed a companion of eight feet, has recalled many wonderful stories of similar kind. A few years ago a python of huge size seized a boa, and would have swallowed it entire but for the energetic exertions of Mr. Bartlett and of the keeper of the serpent house. Several cases have been since narrated, sometimes by eye witnesses.

Mr. Wells, the marine superintendent of the Brighton Aquarium, in a letter, says that "fishes are as often notable for extraordinary swallowing as snakes and reptiles. Some years ago there were three large pike in one of the tanks here, from 18 to 28 lb. The pike of 28 lb. swallowed his companion of 18 lb., but the victim proved too long for him, so the tail projected out of his mouth. After several days, as digestion went on, the whole of the tail disappeared. Last summer a conger eel swallowed a large dog-fish and kept it down, though it was swallowed tail first, which is very unusual with fishes."

Many will remember the curious adventure at the Brighton Aquarium, when a dog-fish swallowed a large octopus. The octopus was in the adjoining tank, and during the night climbed over the glass wall in search of prey. A dog-fish seized and swallowed the formidable intruder. The specimen was for many years exhibited, but has now disappeared, possibly from the cost and trouble involved in preserving the contents of the immense jar.—Public Opinion.

Japanese Troops.

Rear-Admiral Belknap, of our navy, now in retirement, says:

"There is not one incident of personal prowess or of individual valor in the annals of England that may not be matched by a similar deed of courage and heroism in the annals of Japan. The great sea fight of Dem-
No-Ura was as significant and more hotly contested than the battle of Trafalgar. No British force has ever met on the field of battle an Oriental race at all the equal of the Japanese in martial character and intrepid spirit. Her army to-day is the equal of the British army in organization and equipment, superior to it in homogeneity, mobility, and discipline. She has seen, this long while, the British squeeze upon the throat of China and the brutal means used to accomplish it, and she does not mean that such fates shall overtake her, if stout hearts and strong arms can prevent it. No British minister will hereafter attempt to enact the meddling and menacing part of a Parkes at Tokio, nor will any British fleet bombard with impunity a second Tengoshima. The sun does not shine on a more determined or intrepid race than that of Japan. The martial spirit of Japan antedates that of Britain, and hereafter, whether on land or sea, the arch robber of the universe will find all she cares to meet if she comes into hostile contact with the forces of Dai Nippon."

Typhoid from Oysters.

Dr. Charles A. Lindsley, of New Haven, secretary of the Connecticut State Board of Health, says that, beyond the shadow of a doubt, the epidemic of typhoid fever at Wesleyan University, at Middletown, Conn., could be traced to oysters infected with the germs of disease.

It has been ascertained, he said, that the oysters provided for a series of banquets at the university had been placed in a portion of the Quinepiac River to fatten. The fattening ground is close to the house of the dealer from whom the oysters for Middletown consumption were obtained, and it was learned that two members of the dealer's family had suffered from the fever, and that excreta had been discharged into a sewer which empties into the river close to the place where the oysters had been placed.

African Saltpeter.

Deposits of saltpeter that promise to be the most valuable in existence have been discovered in Cape Colony. They are claimed to be true potassium nitrate, which is one of the chief ingredients of gunpowder, and is worth about \$80 a ton. The principal supply at present is from Chile, but the "Chile saltpeter," as it is called, has to undergo a costly chemical process before use. Nitrate of potash is found in but small quantities as a rule, as it is soluble in water, and is, therefore, washed out of the soil by the rain. The dryness of the South African climate is supposed to account for the richness of the latest find, which, it is stated, will reduce the price of the mineral one-half.