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Experiments in Aerostation.

The fundamental principle of navigating the air has long been known, but the practical application of the principle is a modern discovery. Any thing which is lighter, bulk for bulk, than the atmosphere, will ascend to a certain height and float in it. Rarified air was first used to inflate balloons, it being found that 435° of heat just doubled the bulk of a quantity of air. The discovery of hydrogen gas, by Cavendish, it being 14½ times lighter than air, gave an interesting impulse to aerostation, for in 1783 Messrs. Roberts & Charles, of Paris, discovered a way to retain this gas in a balloon, by a varnish made of india rubber dissolved in turpentine. This was a valuable discovery, because hydrogen will pass through metals, and there is a great difficulty in retaining it in any vessel. The next valuable discovery in the art was the application of light carburetted hydrogen for the purpose of inflation. The difficulty and expense of using hydrogen, renders its employment almost impracticable on a large scale. The carburetted hydrogen, although heavier, can be easily made, is cheaper, and it just requires a larger balloon than for hydrogen, to bring up the same weight. A great number of ascents have been made in balloons. Mr. Green is the hero of a hundred, and so is John Wise, of Pennsylvania, but hitherto all efforts to navigate the air economically and safely have not been successful. The two points stated are the drawbacks to aerial navigation. Whether we shall yet see the balloon managed with the precision of a steamboat or locomotive, and aerial voyages made economically and safely, we cannot tell, but we would like to see it. What a glorious thing it would be to safely ride upon the whirlwind and the cloud, and on some sunny afternoon take "the high road to Boston," to have an evening's revelry on old Plymouth Rock.

Within a short period aerial navigators have become more numerous, daring and ingenious, and the result of a number of efforts may soon bring the art to perfection. If a new gas was discovered which would exceed hydrogen in buoyancy as much as hydrogen exceeds common air, we would have a hope of economical aerial navigation; and if some new motor was discovered which could exercise safely as much power as a steam engine, in one-sixth of the space and the same of the weight, then might we confidently say, "aerial navigation is now perfectly practicable, both as it respects economy and safety." Various plans have recently been tried to propel balloons, and some of them have been successful. Mr. Taggart has made more than one excursion from Lowell, Mass., manœuvring his balloon by machinery to go in any direction. Mr. Bell, of London, has made two or three excursions, propelling his oblate spheroid in all directions—up down, forwards and backwards, above Cremorne Gardens. MM. Baral and Bixio, two savans of Paris, recently went up in a balloon for making experiments. In spite of unfavorable circumstances, they ascertained the following results:—The experimental proof that the light is not polarized; The existence of compact masses of clouds of the depth of 3000 metres; and at a later date we find the aeronaut, M. Poitevin, of Paris, mounting his balloon and ascending to the clouds on horseback, voyaging through the air to the distance of 8 leagues. Mr. Wise, too, of Pennsylvania, the veteran atmosphere voyager, made two or three perfectly manageable ascents on the 3rd inst., at Lancaster, Pa. Only for the tearing of the balloon, when it descended after one of the partial excursions, we suppose he would have gone to Washington to pack off some of the spouters, in the true fashion of old Mr. Punch. What these experiments may lead to, we cannot at present tell, but we should be glad, although it is like hoping against doubt, if they would lead to making the art perfectly practicable as a system of transporting passengers safely from one place to another.

Cooking by Gas.

Among the novelties produced at the Grand Agricultural Meeting recently held at Exeter, England, was one which excited great curiosity; it was the cooking of the monster joint, called by M. Soyer the baron and saddle back of beef *a la Magna Charta*, weighing 535 lbs. For the first time in the annals of cookery, this was subjected to a new process of roasting, by use of an agent which has been discovered half a century, that is to say, gas. To gratify the curiosity of the public, it was placed in the middle of the castle yard, resting upon a dripping pan, environed with bricks and surrounded by 219 jets of gas, and covered by sheet iron. It took five hours to roast, and consumed 700 feet of gas of the value of 3s. 3d. It weighed after being cooked, 497 lbs; the drippings 23 lbs; the osmazeme 3 lbs; thus losing by evaporation only 11½ lbs. To cook this piece of beef by an ordinary fire would have taken fourteen hours. This apparatus was invented and fitted up by Mr. Warriner of London, who was prepared to have roasted all the dinner by the same means, that is, 400 chickens, 58 quarters of lamb, and 33 ribs of beef, at a cost of 12s for gas.

[This cooking by gas is not a new process, but certainly we have never heard of it being employed on so grand a scale before. It was a favorite idea with an old teacher of ours, that "the time would yet come when all our cooking, heating and lighting of dwellings would be done by gas, and that gas produced from water." The old Prof. has long since descended to the tomb, without seeing his prophecy fulfilled, but we have no doubt of its fulfillment at some day not far distant. It would be one of the greatest blessings ever conferred upon the human race, if by the simple turning of a faucet, the dinner could be cooked and the apartment warmed and illuminated. What do men and women toil and struggle so much for in this world, but for happiness; and domestic comfort is the seat and centre of all true enjoyment. Just think of all the clamjamfry of stoves, furnaces, coal, and all their attendant dirt, lumber and trouble, being at once abolished for a more economical and cleanly agent to perform all their offices. Why, the very thought of it is enough to wreath every face in smiles, and set all the world in good humor.

To Subscribers.

Three weeks prior to the expiration of all subscriptions to the Scientific American, subscribers will receive a notice to that effect, in order that they may have ample time to forward the amount for renewal before the paper is discontinued. Our terms are advance cash, without respect to persons. We cannot employ agents to traverse the country to collect subscription money, for the reason that our paper has a large general circulation—making it too expensive to resort to the agency system. In making remittances for the new volume, it would be well for subscribers to call for whatever back numbers they have missed through the mail. They will always be sent if we have them on hand. We also request them to be particular in giving the address to which they wish the paper sent, in a plain manner, and not depend upon the Postmaster to mark it. The post stamp is often so blurred that it is with difficulty we are able to decipher the name, and are often obliged to delay sending on that account.

To all Whom it may Concern.

Mr. Wm. R. Greenleaf, of Silvercreek, N. Y., informs us by letter that there are hundreds of mechanics in the country who are manufacturing and selling Drilling Machines, for which John W. Hall obtained a patent about eleven years ago, and they are doing this because they are not aware that there is any patent on the machine. "The claim consists in the manner of forcing the drill, viz., by means of a screw with the mandrill passing through it." Mr. Greenleaf says we will confer a great favor upon many of our readers by publishing this, as the patentee is now passing through the country collecting damages for the infringement of his patent right.

More about the Electric Water Light.

The following is an extract from a letter received from Mr. L. A. Hudson, of Syracuse, N. Y.:

"I wish to state that I have decomposed water with the Magneto Electric Machine, described in Vol. 2, No. 40, Sci. Am., (the machine is described as the invention of Messrs. Hudson & Cornell) which instrument has been much altered since that time. There have been many promises of an electric light, and I have long been in pursuit of this very object. From what I could learn of Mr. Paine's operations, I thought he was on the right track and ahead of me, so I kept cool and awaited the result. On the evening of the 12th inst., I passed a stream of hydrogen gas into a vessel containing spirits of turpentine, by leading the gas tube below the surface of the fluid. I placed another tube, which had 12 small orifices on the top of the turpentine bottle. On lighting the gas, the appearance was that of hydrogen burning in the atmosphere. By putting more pressure on the gasometer, the middle of the flame changed to a blueish white; more pressure was added, when a momentary sputtering of the gas took place, and there arose streams of a most brilliant and highly illuminating white light. On the 15th I tried the experiments again, with the same success.

I am happy to make this statement as an evidence in favor of Mr. Paine.

L. A. HUDSON.

Syracuse, N. Y., Aug. 17, 1850.

The Hydrogen Gas Light.

We published a few days ago a paper from Mr. Mathiot, from the Scientific American, stating that he had proved, by satisfactory experiments, that hydrogen can be used for illumination by passing it through turpentine.—Mr. M. leaves untouched the question of expense, which is considered by a writer in the Rochester Advertiser, of that city. He says:

"Admitting the brightness of the light in burning hydrogen united with the vapor of turpentine, described by Mr. Mathiot, the only point of consequence to the public is the cost of the light, volume per volume.

"Now 33 oz. of zinc with the due quantity of oil of vitrol and water, yields one ounce or twelve cubic feet of hydrogen. The zinc costs at wholesale about ten cents, which would be the cost of twelve feet of the gas, for the zinc alone, omitting the cost of the acid and turpentine. But twelve cubic feet of coal gas costs forty-eight mills, or one half a cent!—Hence, the prepared hydrogen light would cost twenty times as much as the same light from coal gas in this city."—[Phil. Ledger.

[The Rochester gentleman has not quite hit the mark as a lover of science or a correct expounder of the economical value of hydrogen, as compared with carburetted hydrogen. Hydrogen can be produced by White's apparatus without zinc or acids, nearly if not as cheap as coal gas. Even allowing the cost of the hydrogen passed through turpentine to be very expensive, surely, as a matter of scientific discovery, it is of some consequence to the public.

American Association for the Advancement of Science.

The Annual meeting of this Association commenced on the 19th inst., at Yale College, New Haven. The proceedings of this Association are always of an interesting character, and we shall take the earliest opportunity of placing a clear abstract report of them before our readers.

Water Telescope.

The Vandkikak, or Norwegian Water Telescope has been introduced into the herring fishery of Scotland with great success. It is well adapted to discover shoals of herring at a considerable depth, but it is of no avail except in the calm quiet salt water lakes, or arms of the sea, which are so common in that country running far up between the highland mountains.

Meteoric Shower.

On the nights of the 9th and 10th inst., observations were made at Yale College for the yearly appearance of shooting stars. In three hours 451 meteors were observed. Some of them were of extraordinary splendor.

Restoring and Preserving the Sight.

A friend who had read the following valuable item of information but who had forgotten which way "to rub his eyes," for loss of sight by age, requested us yesterday to republish the process. It is as follows:

For near sightedness, close the eye and press the fingers gently from the nose outward, across the eyes. This flattens the pupil, and thus lengthens or extends the angle of vision. This should be done several times a day, till short sightedness is overcome.

For loss of sight by age, such as require magnifying glasses, pass the fingers and towel from the outer corner of the eyes inwardly, above and below the eye balls, pressing gently against them. This rounds them up, and preserves or restores the sight.

It has been already said that this is nothing new. The venerable John Quincy Adams preserved his sight in this way, in full vigor to the day of his death. He told Lawyer Ford, of Lancaster who wore glasses, that if he would manipulate his eyes with his fingers, from their external angles inwardly, he would soon be able to dispense with glasses. Ford tried it, and soon restored his sight perfectly, and has since preserved it by the continuance of this practice.

[The above is from the Pennsylvanian; we cannot endorse it, as we have no positive experimental facts in our possession respecting such manipulations for the preservation of the sight. We have been informed that this is the process pursued with such success by Prof. Bronson for restoring the eye sight. Its correctness can easily be tested by those who have weak eye sight.

Large Steam Hammers.

We beat the English on steam hammers. At the Kemble foundry, opposite West Point, there is one in operation which weighs 1,940 pounds—whereas the hammer imported from England to be used in an iron factory Connecticut, weighs but 1,400 pounds.

[The above we copy from an exchange, just to observe that many people in their ignorance of a subject, overshoot the mark in commenting upon it. The above comparison, we believe, first appeared in the Albany Atlas, and it should never have been made, for if the size of the hammers only was concerned, no importation would have been made from England. The great hammer recently imported is not a common trip, but one of Nasmyth's direct acting patent steam hammers.

A Self-acting Saw Mill.

The St. Louis Republican gives an account of a saw mill constructed on a new and singular principle. The inventor is Mr. Amos Jackson, of Potowantamie county, Iowa. The mill derives its power from the weight of the log to be sawed. The ways on which the carriage travels are fixed on bearings that enter into the frame; the opposite ends are provided with large segments of a cog-wheel working into a series of cog-wheels and pinions, thus when the log is pushed forward to the saw, its weight is brought to act with great force through the segments of a shaft, having several intermediate gearings to increase the speed sufficiently for driving the grand shaft. The price of these mills is said to be light compared with others, and they can be attached to wheels for traveling through the country.

[This must be the famous log that sawed itself. We can see no reason why the inventor should place his mill upon wheels to travel through the country, except it is for the purpose of making the log draw itself, for surely the log which can saw itself will be able to draw itself.

Impostor—Look Out.

We have received several communications of late from the West, stating that G. Williams had been round collecting subscriptions for the Scientific American. The public are warned against him, as he is no agent of ours—and never will be, if we can help it.

Ohio State Fair.

The time for holding the State Fair at Cincinnati has been changed to the 2d, 3d, and 4th days of October next.