nish a means of diminishing, by one-half, the duration of each operation and consequently each local obstruction. But since, on another hand, the work as a whole to be effected would take half the number of days by night work, half of it might first be done in the same period of time, and then the rest of it, and the general obstruction of the city would be reduced to a quarter, while at the same time lasting as long as at present. There would certainly be some expense connected with the organization of a plant of this kind, but would not this be made up by the greater rapidity with which the work would be performed? For it is certain that work performed in a contiuuous manner, by gangs of men that relieve one another, will be finished more promptly than if it were discontinued and begun again every day. With night work, the bridge Des Saints Peres would have now been given up to travel, while as it is it will be closed for a long time to come.

## Incident Relating to Professor Atwater

A memorial of the late Professor Lyman H. Atwater, of Princeton College, who died last June, has just been published. In the memorial sermon of Rev. Wm. M. Taylor the following incident is related: At the beginning of Dr. Atwater's final illness he would lie for hours as though asleep. After his partial convalescence he said to members of his family that when they had, doubtless, thought him to be sleeping he was in reality thinking with unusual energy; that his mind seemed stimulated to extraordinary acuteness on very profound subjects, reaching with great rapidity conclusions which in health would have been arrived at only after much longer thought. He added that he would like to get well enough to put some of those thoughts on paper, but he never gained his wish.

## To Raise Plants

A lady, whose beautiful plants are the delight of her life and the envy of all her acquaintances, revealed the secret of her success for the benefit of the readers of the Evening Post the other day. The soil is, she says, about two-thirds good garden soil, and the rest is sand. It is kept light and loose about the roots; they are watered as they appear to need it, and not according to any particular rule; but the chief reason for their wonderful growth and bloom is this: "When any of the leaves wither and fall, instead of picking them up and throwing them away, I make little rolls of them and tuck them down in the earth and let them decay; and this is the only fertilizer I have ever used. This," she added modestly, "seems to benature's way. And the plants that have the afternoon sun only, grow and rival those that have the morning sun."

## Death of Dr. Gale.

Dr. Leonard D. Gale, an old well known scientist, and for a number of years an examiner in the chemical class at the Patent Office, died in Washington on October 23, at the age of eighty-three. He was a great friend of Prof. Morse, and assisted lim in building the first telegraph line between Washington and Baltimore. Dr. Gale went to Washington in 1846, and has since resided there. It was said in the early days of the electric telegraph that Prof. Henry's discoveries in electricity contributed very much to Prof. Morse's success, and that Dr. Gale was the mutual friend of both.

More than thirty years ago the writer became acquainted with Dr. Gale while an examiner in the Patent Office. He was greatly respected by $h$ is associates and those having official business in his department at that time.

## egetable Wool

The Moniteur des Fils et Tissus calls attention to a description of vegetable wool called Kapoc. It comes from Java, and a specimen is on view at the Amsterdam Exhibition. It arrives at Amsterdam in its leathery covering, being itself enveloped in the seeds. It is then freed from both, and is carded so as to make a very light mattress wool, worth about $83 / 4 d$. per pound. One of the houses engaged in this operation had made trials in spinning and dyeing this material, but the filaments are said to be like strings, and their industrial application consequently a matter of uncertainty.

## A Car Load.

Nominally a car load is 20,000 pounds. It is also 70 barrels of sall, 70 of lime, 90 of flour, 60 of whisky, 200 sacks of flour, 6 cords of soft wood, 18 or 20 head of cattle, 50 or 60 head of bogs, 90 or 100 head of sheep, 9,000 teet of solid ! boards, 17,000 feet of siding, 13,000 feet of flooring, 40,000 shingles, one-half less green lumber, one-tenth less of joist, scantling, and other large timbers, 340 bushels of wheat, 400 of barley, 400 of corn, 680 of oats, 300 of flaxseed, 366 of apples, 340 of Irish potatoes, 300 of sweet potatoes, 1,000 bushels of bran.

## The Patriarch Chemist

On September 1., M. Chevreul, the Nestor of chemists, completed his ninety-eighth year of age. He was born at Angers, in the night of August 31, 1786. At the early age of 20 years he was conservator at the Museum. Among his great discoveries in chemistry, figure prominently the separation of the fat bodies and the chemical constitution of oleine, stearine, and margarine. To him is also due the doctrine of the contrast of colors, of their shades, and of the determination of shades.

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NATURAL HISTORY.-Heath's Bolivian Explorations. Ry Rev,


I. Horticulture.-Mimulus Cupreus Brilliant.-With engrav


 Bieaching by Electrieity. -4 figures ovember is because the meteors, instead of being uniformly distributed throughout the zone, are principally collected in great group in one part of it. If the earth crosses the zone at a time when the pricicipal group is in the part she is cross ing, we have a shower that forms one of the most grand and brilliant sights ever seen on this planet. About a dozen of these magnificent November showers are on record. The Chinese, Arabian, and other historians bave handed down many accounts of the wonderful meteoric slowers. An Arabian writer reports: "In the year 599, on the last day of Moharrum, stars shot hither and thither, and flew against each other like a swarm of locusts; this phenomenon lasted antil daybreak; people were thrown into consternation, and made supplication to the Most High; there was never like seen except on the coming of the messenger of God, on whom be benediction and peace."
In 1799 Humboldt, then traveling on the Andes, saw before sunrise thousands of meteors in the space of four hours, leaving a track beehind them from five to ten degrees in length, many of them having a nucleus as bright as Jupiter. In 1833 there was a shower marked by grandeur and sub limity. The meteors passed over the heavens like flakes of snow, and, according to Arago's estimation, two hundred and forty thousand of them fell in three hours, as seen from his place of observation. In 1866 the latest shower was observed in Europe, and a portion of it was seen in America in 1867. The nest shower is due in 1899, and is eagerly anticipated in the hope that it will confirm several theories based upon present and previous observation.
The November meteors have a curious and interesting history. It was found by Tempel, of Marseilles, in 1865, that a faint telescopic comet was moving in the same orbit, dhat the meteoric showers are caused by the earth's enIn other words th of particles following Temper's transformed into meteors that will eventually fill the whole zone, when the grand showers will cease, and a display of greatly smaller proportions will take place every year.
The history of the November
The history of the November meteor-zone is a romance of meteoric astronomy. According to Leverrier-and some oftions of bis theory need confirmation-about the year 126 that the former course and imprisoned it within the hounds of the solar system, causing it to describe an immense ellipse or rigantic hoop, whose aphelion lies beyond the orbit of Uranus, and whose:peribelion rests upon the earth's orbit. The time intervening between the great showers, 3314 years, proves the period of the revolution of the meteor-zone. It is only at these intervals that the earth crosses the brightes portion of the zone, consisting of the nucleus of the comet and swarming meteors into which it is being transformed The November meteors start from a point in the constella tion Leo, and are for this reason called Leonids. Leo is favorably situated for observation about 3 o'clock in the morning, which is a good time for picking up the few stray meteors, which, impinging against the earth's atmosphere,
will be set on fire by the concussion and take on the form of falling stars.
It is, however, unnecessary to wait for the earth's passage through the November meteor-zone to witness the phenome non of a falling star. Hundreds of other meteor-groups bave been observed, which, excepting the August group, are no so well defined. They are all extremely diverse, and they cross the plane of the earth's orbit at widely different angles. Consequently on any clear night falling stars maybe seen to blaze forth suddenly in the sky, rush on their headlong course, and then disappear, leaving oftentimes a train of light to mark their course. Instances are on record where
falling stars were of such brilliancy as to be visible in the daytime even, when the sky was overcast.
A surprising number of these tiny bodies fall through the atmosphere every day. The average number of those suf ficiently bright to be seen at night with the naked eye is no less than seven millions every twenty-four hours. If we in clude the number visible through a telescope, the average must be increased to four hundred millions. Interplanetary pace swarms with meteoric matterl The work accom plished by these systems made up of innumerable atoms of cosmical dust, their origin, the part they play in the economy of the universe, and their mysterious association with co ets, are questions of the deepest interest to astronomers.

## OSTRICH FARMING IN THIS COUNTRY

The ostrich farm in California is reached over a sandy road leading from Anaheim, part of the way being over the old bed of the Santa Ana River. The land on which the farm is located comprises 640 acres of alkali soil. The same kind of soil is found in Africa, and it was considered no obstacle. To rid it of its alkaline properties, it was plowed very deep and water turned on it, a well 300 feet deep yielding many thousands of gallons of water a day. The water was allowed to remain for a while, when it was drawn off, taking with it a portion of the alkali in soiution. This peration was continued uitil the land had been washed sufficiently to be put under eultivation. According to the San Francisco Bulletin, this farm has yielded three crops of alfalfa, and a fourth is ready to be cut.
The twenty-one birds on the farm were brought, in a roundabout way, some 22,000 miles, part of the distance by car. When young they are kind and tractable, but after three years become vicious and deceitful. Blindfolding them -generally accomplished by pulling a stocking over their heads-takes away their pugnacity, and they will not kick, except they know what they are kicking at. The eggs are not fruitful because, the owner states, the birds are becoming acclimatizerl. Fever if all attempts to hatch the eggs
 cover the expense of tending the birds for the year.
The attempt to raise ostriches in Florida has just been commenced, three pairs of birds having been taken there.
Ostrich eggs are about six inches long by five wide, and are equalin bulk to 24 hens' eggs. The chick is hatched in 42 days, and a few days after reaches the size of a common hen. A light brown down covers $i t$, and at the back and wings are projecting needles, similar to those of a hedge hog. At the age of one month the size of a turkey is reached, and small feathers begin to appear. At one-half a year the feathers have attained a good size, but are not cast off until the bird becomes a yearling; young ostriches are kept in flocks of from twelve to fifteen, and seprate from the old ones. Generally the feathers are cut off only once a year, but birds which receive special attention yield two or even three crops of feathers.
The best feathers now come from North Africa, but the crop is insiguificant compared with that of Cape Colony, Natal, and the Transvaal. Since 1862, ostrich farming has greatly multiplied in thosecountries, and it is now estimat ed that there are 100,000 domestic ostriches which yield feathers worth $\$ 4,500,000$.

## TOBACCO IN FRANCE

The report of Consul B.F. Peixotto, of Lyons, France, gives a brief history of tobacco in France and the value of that industry to that government. In 1560, Jean Nicot, a French explorer who had been Ambassador to Portugal, and had traveled in the Antilles, conceived the idea of collecting in the island of Tabago, one of the isles of the Archipelago, a plant of which the natives dried the leaves and chewed. He carried some seeds to France and planted them in his garden. He propagated it as an exotic curiosity, no one dreaming of making the repugnant use of it as did the savages. A long time after, when intercourse with the New World had bebecome more frequent, travelers learned the use of the weed and imported its taste into Europe. Tobacco was then devoted to smoking, and in a po wdered state was taken as snuff. The practice obtained royal favor, and became popular with the nobles.
The first tax was the result of a royal decreedated November 17, 1629. At first it was a custom tax, but later it was a direct impost upon the apothecaries, who had an almost exclusive monopoly for its sale. But as the apothecaries sold largely and reported very little, the tax was insignificant in amount. The King then took possession of the manufacture and sale of all tobacco, the ordinance dating from September 29, 1674. Thus the druggists gave way to contractors who would pay no more than 500,000 francs per annum for the monopoly. The privilege increased in value until it became, in 1697, 1,500,000 francs, and in 1715 it reacher $2,000,000$ francs. In 1790 , the consumption hav-
ing become so
$30,000,000$ francs
From 1791 to 1798 all tax was removed. Then the plan of permitting its culture but taxing the sales was tried without success, and on December 29,1810, the government monopoly was resumed, aud has been continued to the present time. By this law the administration is alone charged with the purchase of leaves and cigars from home and foreign cultivators and manufacturers, and
and trade of tobacco in all its forms.
The revenue from tobacco in 1820 was $64,338,834$ francs nd in 1882 it was $362,594,000$ francs, or $1,000,000$ francs per day. This enormous sum contributes toward the budget of public instruction.

## decisions relating to patents.

In the United States Circuit Court, Southern District of New York, Fetter vs. Newhall, Drive Screw, Patent 110,839; reissued March 12, 1878, No. 8,121. Judge Wheeler held the patent to be in part valid. Also that it is not necessary to take the whole of a patented invention to constitute an infringement. The patent gives exclusive enjoyment of the whole patented invention, and taking one feature is an infringment protanto.
Where a defendant has repudiated a license formerly held by him, and is acting in defiance of the patent and outside the license, such license is no protection against suit for infringement.
An interesting question came up on this trial relative to the rights of minors and women to receive, hold, and convey patents. The Judge held as follows:
The laws of Congress give the right to a patent to the in ventor, whether suijuris or under disability, or to the assigns of the inventor. As inventor or assignee of a patented invention a married woman, an infant, or a person under guardianship obtains a vested right to the patent. Married women could always take by assignment under the common wome
law.
Sec

Section 4898 Revised Statutes requires that the assignment of a patent be by an instrument in writing. The ability to make the instrument, however, or the aids to a disability must be found in the laws of the States, where all such rights are regulated.
The laws of New York free married women from disability to make an assignment by an instrument in writing, and make their property distinctively their own. Where a married woman by her sole deed assigns an interest in a patent the assignment is valid, and she may join with such patent the assignment is valid, and she may join
An interesting decision touching the right of towns and other State authorities to tax the sellers of patented goods, was given by Judge Cooley, of the Supreme Court of Michigan, in the case of the People vs. Russell.
An ordinance of the city of Coldwater provides, among other things, that " no person stall hawk or peddle any meat, goods, wares, or merchandise from door to door within the limits of the city of Coldwater, without a license from the mayor." For the license, when not for the sale of meat, fifteen dollars is required to be paid for one year, or three dollars for one day. The defendant was convicted under this ordinance, on evidence that, without license, he traveled from door to door in said city and sold a clothes wringer. The clothes wringers were manufactured by the defendant at Sturgis, in this State, under letters patent of the United States issued to him and one Shepardson as paten tees. The defendant appealed.
The Judge in delivering the opinion of the court, said:
It is objected to the ordinance that if applied to the sale o patented articles it is an interference with the power of Congress to grant exclusive rights to patentees to make and sell their inventions, and an encroachment upon the rights which the patent assures to the patentees. We agree that if this is the case the ordinance can have no such application. The power of Congress to grant the exclusive right to make and sell the articles which from their or iginality and value bave been found deserving, is exclusive, and any State legislation privileges which the letters patent confer is an invasion of the sphere of national authority, and therefore void. This was shown in Cranson vs. Smith, 37 Mich., 309, and what is said there need not be repeated. But the ordinance in question does not assume to interfere with or in any way to abridge the exclusive rights which the patentee may lay claim to under his patent. The ordinance is a police regulation, made under the general police authority of the State, and taking no notice of this or any other patent, or of the way in which any salable commodity may bave come into existence. It is one of the customary regulations for a business. It is well settlednow, if it was ever doubted, that any ordinary exercise of congressional authority does not take from the State any portion of its general power of police. (Pervear vs. Commonwealth, $5 \mathrm{Wall}, 475$.) The acts of
Congress assume the existence of State regulations, and in many respects would prove inoperative and confusing if it were otherwise. The patent laws are as forcible for illustration as any other; they give exclusive rights, but they do not determine personal capacity to contract or prescribe the requisites for sales of patented articles or impose the customary restrictions which are supposed to be important to the protection of public morals. All these matters are left to the State Law. A patentee must observe the Sunday law
as much as any other vender; he must put his contracts in writing under the same circumstances which require writ
ings of others, and he must obey all ot her regulations of police which are made for general observance. (Patterson vs. Keutucky, 97 U. S., 501.) Invidious regulations applicable to patentees exclusively might be void; but there is no question of that nature bere. We have no doubt that it was competent for the State to conier upon the city the power to pass such an ordinance. That the regulating of bawkers and peddlers is important, if not absolutely essential, may be taken as established by the concurring practice of civilized States. They are a class of persons who travel from place to place among strangers, and the business may easily be made a pretence or a convenience to those whose real purpose is theft or fraud. The requirement of a license gives opportunity for inquiry into antecedents and character, and the payment of a fee affords some evidence that the business is not a mere pretence.
Judgment affirmed.

## Electric Launches.

At the recent meeting of the British Association, Mr. A Reckenzaun read a paper "On Electric Launches." He described the boat Electricity. It has one Siemens $\mathbf{D}_{\mathbf{2}} \mathrm{dy}$ namo connected directly to the screw shaft, upon which is a propeller with two blades; diameter $173 / 4$ inches, pitch $11 / 2$ inches, and area of blade surface 66 square inches. Yarrow and Company, in conjunction with the Electrical Power Storage Company, have fitted up a launch, which has been sent to the Vienna Exhibition. This is 40 feet long by 6 feet beam, and can carry forty passengers. The motor is a Niemens $D_{2}$ machine, which develops $\%$ horse power with 80 cells, and a current of 40 amperes. The screw is twobladed of thin forged steel, with a diameter of 19 inches, and a pitch of 13 inches. The weight of the motor and bat teries combined is? 21.1 tons. During the trial the speed of the boat was over eight miles an hour, the current used at the time being $41 \cdot 22$ amperes, and the counter electromotive force $112 \cdot 5$ volts, with 60 cells in circuit
Mr. J. Clark, of Glasgow, described a wooden boat, clinker built, 21 feet long over all by 4 feet 4 inches beam, and drawing 12 inches of water with three or four persons on board. She is fitted with an electric motor coupled direct to the propeller shaft, and her power is derived from two battery boxes 3 feet long by 8 inches wide, and 12 inches high, which can be utilized as seats. The batteries require recharging with chemicals about every four hours of continuous use, one battery driving the boat at three-quartors speed, while the other is being recharged. During several trials at Kilcreggan-on-Clyde, a speed of a little over five miles an bour was obtained, the motor running at 600 revo lutions per minute. The weight of the boat complete, with batteries charged, is 4 cwt . Clark's electric launches are now being built by Messrs. Gilbert Bogle and Co., of Glasgow, of varying sizes, from 15 feet long and four miles per hour speed to 30 feet long and seven miles per hour speed. The author gave no clew as to the nature of his batteries or to the cost of working them
Sir William Siemens said that there were many applications in which the secondary battery would be most useful, but it was a mistake to suppose it could be employed for every purpose. For instance, it was foolish to endeavor to adopt them for driving tricycles, but in launches, where the machinery was perforce very cramped, they promised excellent results. The great question was whether the secondary battery would last or whether it would perish. In order to test this point quietly he bad put down batteries in his own house last autumn, and he had found them satisfactory so far. He charged them all day, and at night he used both them and a small dynamo to feed his lamps. In the case of a launch the machine could not be taken with the boat, and onsequently the navigation would be confined to short stages. Sir James Douglas pointed out that an electric launch was much more easily swung from the davits of a ship than a steam launch, and that it offered greater security at sea. There was no fire to be put out if two or three waves were shipped, and the machinery would work under water. There was also a saving in the number of attendants, one man only being required.

## Dil for Wagon Wheels.

A practicalman says: "I have a wagon of which, six years ago, the fellies shrank so that the tires became loose. I gave it a good coat of hot oil, and every year since it has had a coat of oil or paint, sometimes both. The tires are tight yet, and they have not been set for eight or nine years. Many farmers think that as soon as wagon fellies begin to shrink they must go at once to a blacksmith shop and get the tire set. Instead of doing that which is often a damage to the wheels, causing them to dish, if they will get some linseed oil and heat it hoiling hot and give the fellies all the oil they can take, it will fill them up to their usual size and tighten to keep them from shrinking, and alsoto keep out the water. If you do not wish to go to the trouble of mixing paint, you can heat the oil and tie a rag to a stick and swab them ove as long as they will take oil. A brush is more convevient to use, but a swab will answer if you do not wish to buy a brush. It is quite a saving of time and money to look after the woodwork of farm machinery. Alternate wetting and drying injures and causes the best wood soon to decay and lose its strength unless kept well painted. It pays to keep a little oil on hand to oil fork handles, rakes, neck yokes, whiffletrees, and any of the small tools on the farm that are more orless exposed."

