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Scientific American.

THE EDISON ELECTRIC LIGHT CO.

According to the recent annual report of this company, the First District Works in New York, Pearl Street Station, is now running up to its full capacity. It has 9,811 incandescent lamps now in actual use; and it is connected and has wired for 12,379 lamps. The dynamos of this station were started for the first time on September 4, 1882, and have been running and furnishing light, without stop, night and day, since that time. Considering that this mode of lighting is an absolutely new art or industry, the achievements of the Edison Company are most remarkable, and the mechanical and business management may well be called splendid.

The company has inaugurated an extensive system for the introduction of small or isolated mechanisms for working the lights; under this system large buildings and villages may enjoy the luxury of the electric light. Altogether the Edison Company now have 246 plants at work and 61,366 lamps. Mr. Edison is still engaged in perfecting important electrical improvements; 215 patents have so far been granted to him and about 100 more have been filed. He goes upon the plan of securing by letters patent every possible feature of construction, that is likely to fortify or uphold the interests of his company.

INJURY BY HEAT.

In some mechanical processes the production of heat by friction is a serious injury to the value of the time and the material employed and used. Machines must be cooled to do their work well, and parts which are particularly exposed to friction must be renewed frequently to keep the productive value of the machine intact. If means could be found to kill the heat at the moment of its generation, some mechanical processes would be forwarded and others made more profitable. The hardest steel cannot withstand the disintegrating effects of heat by friction, even when the friction is produced by contact with a much softer metal. In the ordinary rivet machine, where copper rivets are made for belting purposes, the heading hammer is a cylinder of hardened cast steel. It strikes a blow against the end of a bit of soft copper wire, and instantly so much heat is evolved that not only is the rivet too hot to be handled, but the steel hammer is affected to almost as great an extent; at least, the repeated blows of the steel against the soft copper anneal the steel and rapidly destroy its integrity.

In the lathe turning of steel, and in the production of machine screws from the bar or rod, rapid work can be done by means of a constant flow of oil or of water; in some instances so high a speed as eighteen feet per minute has been profitably reached in the turning of steel when a constant stream of water plays upon the point of the turning tool. Still there are cases where in turning the depth of the chip prevents the cooling water from reaching the point of the tool; and in the case of the hammer blow of the rivet machine the application of a constant stream of water or oil would seem to be inconvenient, if not impossible. There appears to be room for improvement and remedy in this department of metal working; possibly chemical contrivance may be successful where mechanical means have failed.

----THE LIFE OF STONES.

Some months ago these pages had an article on the "Decay of Building Stones." The subject is worthy more than a passing paper, as it affects not only the permanency of public buildings, but the lasting qualities of the mementos to our own dead. A run through the graveyards of the oldest settled portions of the country proves that some of our more recently formed stones possess an enormous amount of durability; the slates, for instance, outlasting even marble, to say nothing of sandstone. But the oldest stones which have been found, those retaining their inscriptions legibly, are those from such quarries as the Bolton Ledge, in Connecticut, specimens of which may be found in other localities. But the chief value of this stone is that it is a resistant to the acids in the atmosphere, especially The second secon impregnated with mica so closely mixed that it gives the entire surface an almost glassy appearance. It is much in 6621 favor for pavements for hospitals, chemical laboratories, and other places where the floor would be exposed to the action of acids and other chemicals. In the early history of lies at the foundation of such instruction." the country, especially of New England, these stones, being

off in flakes or crack as though under too much weight. This stone is only sharp sea sand agglutinized and cemented by the oxide of iron. It disintegrates too rapidly on exposure to the atmosphere to be fit for enduring structures. So certain is this to those who cut the cheesy-like stone from its natural quarry that their cemeteries, in close vicinage to the quarries, show very few of these stones in their monuments.

Granite, where not exposed to destructive heat, as to great fires, like the memorable ones of Chicago and Boston, is very enduring. Its clean surface will not encourage even the attachment of moss, while sun heat and frost cold seem to have little influence on it. It is almost absolutely proof against chemical attacks from the atmosphere, and as to sustaining crushing force there is nothing in the merely mineral materials that can equal it, Quincy granite and Westerly granite approaching in their resistant qualities crude cast iron.

Marble is a carbonate of lime, and this simple statement is sufficient to show that marble is not an appropriate material to meet our frigid winters and our torrid summers. The public buildings that have recently been constructed of marble show already the signs of decay. If our climate encouraged the cryptogamous growth on mural stones that the air of England, the British Isles, and even of Southern Europe does, our marble edifices might be sure of a life of ten or more generations. But there is no surety of permanency in the marble buildings erected nowadays. The marble is not pure, and the climate is not fitted for even the purest marble. Our granite and bluestone quarries will be forever our best resorts for building and monumental stone.

Heroic Children.

The British Royal Humane Society has just investigated three instances in which children whose ages ranged from 9 to 12 years have gained the usual rewards for heroism. One little fellow, S. G. Pile, aged9 years, has been awarded the medal for the following act: A child named Wyatt fell off the pier at Oreston, near Plymouth, on Aug. 18, and had drifted out about seven yards in twelve feet of water, when Pile plunged into the rescue with his clothes on, swam out, and reached the child, bringing it into the steps, where they were both assisted out. Another little fellow, W. W. Hayne, aged 12, has been awarded a testimonial for saving a child named Humpbreys, aged 4, in the river at Llanberris on Aug. 20. The latter fell off a bridge into the river, near a whirlpool, when Hayne swam out, fully clothed, and brought him ashore. A similar testimonial has also been awarded to a girl, E. S. Deacon, aged 12, for saving A. Finch at Blackpool, near Dartmouth, on Aug. 20. Finch slipped off the rock and became unconscious, when the girl jumped in, fully dressed, and succeeded in holding her charge above water until assistance arrived.

Proposed Textile Laboratory.-A Practical Economist's Views.

There is a project on foot for the establishment of a textile laboratory, under the auspices of the New England Cotton Manufacturers' Association. It was estimated at the last meeting that the expense would amount to \$100,000. Liberal subscriptions were then made for the object, and a committee appointed to work up the matter. The plan was presented by Mr. Edward Atkinson, who said he wanted to get at the actual value of the products of the country, and how those values were made, from the field to the warehouse, or to the hands of the consumer. He thought our people needed more exact instruction instead of their present generally very vague ideas, and added: "The most startling thing is, that in respect to food at least one-third, and perhaps one-half of the cost, to the poorer classes in the cities, consists in the expense of retail distribution.

"It costs more in this city of Boston to get the food from the mouths of the baker's ovens into the mouths of the people who eat it, than it does to bring the wheat from Iowa, manufacture it, and prepare it for consumption. The people need instruction, and the remedy for the evil mentioned is in the direction of instruction which should be carried in some degree into the public schools. The problem is how to live on small profits, and how to save in cooking food after it is put into the houses. And this textile laboratory

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easily quarried, were largely used for memorial headstones, and the inscriptions, although shallow, are still quite legible. Even when set on edge and exposed for a century or more to the changes of our northern climate, the layers refuse to separate, and even the face wears out sooner than the stone disintegrates.

Slates, of the dark blue color, have withstood the wear of a century and still retain all the sharpness of their inscription. There is something peculiar about this stone. It is simply a clay deposit under water, but it is a great resistant of water and is almost fireproof-much more so than marble or granite.

Sandstones, either of the light shades or the dark red flour. colors, are peculiarly susceptible to elementary or weather influences in this climate. Monuments in cemeteries composed of the Portland red sandstone show marks of weather wear within ten years. Buildings composed of this stone are defaced almost before the elements have given them the churches, steps, balustrades, hoods, and projecting caps peel the gold in the country will be buried in the graveyards.

-----Ten-Hoop Flour Barrels.

The Milwaukee millers are getting down to some nice points in the economies of their business, as is so generally the practice nowadays in all industries. They have resolved hereafter to use only ten-boop instead of twelve boop barrels. Some of the millers have been using only ten hoops for months, but on December 4 the Millers' Association passed a resolution that all would hereafter use only ten-hoop barrels-after the present supply of barrels was used up-on all their patents and other flour. It is said that in this way they will effect a saving of three cents a barrel, or enough to pay the cartage on the wheat and the subsequent cartage on the

A WRITER of mathematical bent finds from the census returns that there are about 17,000 dentists in the United States, who, he estimates, pack into the teeth of the American people a ton of pure gold annually. Continuing his seal of age by their mellowing influence. Window stools of speculations, he predicts that in the twenty-first century all