Fast Steam Navigation.

It is evident that next summer we shall see a very marked increase in the speed of ocean steamers. Already the Alaska and the City of Rome have crossed the ocean repeatedly in less than seven days. There are several other vessels the speed of which falls but little behind that of the two fliers just named, and it is quite possible, in view of the speed attained by the Aurania previous to the accident to her machinery, that she is as fast as, if not faster than, the Alaska and the Rome. The ocean passage having thus been cut down to a few hours less than seven days, the achievement of next summer will be the further shortening of the time to less than six days.

Of two steamers which will take their places on the Guion and the National Line, respectively, next spring, there is every reason to believe that they will greatly surpass the achievements of the fastest steamers now afloat. The new Guion steamer, the Oregon, has made two trial trips, and on each occasion has logged twenty knots an hour. This is equivalent to a speed of a little more than twenty-three miles an hour, or nearly three miles an hour more than the Alaska or the City of Rome has steamed. If the Oregon can maintain the same rate of speed when crossing the Atlantic she will make an average run of 550 miles a day, and will at that rate easily cross the Atlantic in less than six days. Of course, it is probable that her trial trips were made in the most favorable circumstances, and that a heavy head sea would reduce her speed. On the other hand, it must be remembered that her machinery is entirely new, and that after it has been in use for a few weeks her speed may reasonably be expected to increase.

The new National steamer, the America, is building in the same yard in which the Alaska, the Arizona, and the Oregon were built, and her builder guarantees that she shall have a speed of eighteen knots an hour. At this rate she can steam nearly 500 miles a day, and in all probability her speed will be above that which is guaranteed. At any rate, the America will be able to cross the Atlantic inside of six days, and will certainly be surpassed in speed by no steamer, unless it may be the Oregon.

Hitherto the National Steamship Company, which can boast of never having lost a passenger during the sixteen years of its existence—a boast which no other company can make except the Cunard Company—has not aimed at building fast steamers. Its managers have evidently now perceived that the time is close at hand when the freight and the passenger business must be separated. Of course, the slower steamers will continue to carry more or less passengers and the fast steamers will carry a small amount of freight; but in the near future it will be found profitable to build steamers mainly designed to carry passengers. The model of the America was recently exhibited at Liverpool, where it was awarded a gold medal for its excellence as a passenger vessel, and from the published descriptions it seems as if both the America and the Oregon will furnish accommodations as much superior to those of ordinary steamers as the accommodations of Pullman cars are to those of the ordinary model. Such vessels will always be crowded with passengers, at rates which will prove immensely profitable. Their success will stimulate efforts to build faster and, if possible, finer vessels, and there is no reason to doubt that within a very few years Mr. Pierce will accomplish his avowed purpose of building a steamer that will cross the Atlantic in five days.

Of Mr. Corbin's new steamers, which are to run between Montauk Point and Milford Haven, little is known except that the company is organized and that the vessels will be placed on the route next summer. It may be safely prophesied that as Mr. Corbin's original object was to shorten the Atlantic passage twenty four hours, he will not lose the advantage which his shorter route will give him, no matter how fast the Guion and National steamers may prove. If the latter make the passage within six days Mr. Corbin's steamers will have to make it within five days, a feat which can be performed even if his steamers should possess no greater speed than that of their Liverpool rivals.—*N. Y. Times.*

Steam Boiler Inspection.

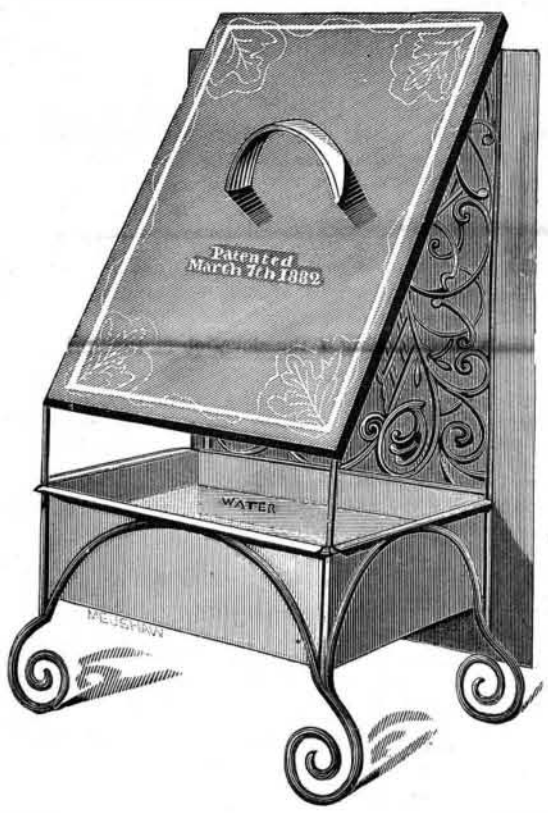
Professor Thurston, in a communication to *Science* on the Riverdale boiler explosion, the particulars of which have been already published in these columns, censures the inspector, who had tested the boiler only two months previous to the explosion, for not having discovered its dangerous condition; and he adds, what every engineer knows to be a fact, that a steam boiler of the most ordinary and least dangerous type has stored within it an inconceivable amount of available energy in the form of heat, which may be at any moment transformed, in part, into mechanical energy with terribly destructive results, both to life and property; that this powerful agent for good or for evil can only be safely utilized when the utmost care, intelligence, and skill are employed in its application, and in the preservation of the vessel in which it is inclosed; that the present code of law relating to the care, management, and inspection of steam boilers, is entirely inadequate to insure safety; that the inspection of steam boilers, as at present practiced by the employes of the government, is not only liable to be inefficient, but is likely to prove worse than none, as it gives to the owner, and perhaps often to the man in charge, of the boiler, a feeling of security which is entirely without basis in fact, and which may therefore cause the neglect of that watchfulness which might otherwise prevent accident; that simple pressure produced by the test pump, as now provided for by the law, is not a sufficiently effective method of detecting weakness in the boiler, or to be relied upon to the exclusion of other better and well known methods of test.

The fact that the hydrostatic test is not conclusive as to the safety of a boiler has long been well known and admitted among intelligent engineers. The steam ferryboat Westfield met with precisely such an accident a dozen years ago; and it was shown at the coroner's inquest, at which the writer assisted that official in the examination of his expert witnesses, that the boiler had been inspected, and had been tested but a few weeks before, by the United States inspector, who applied a pressure considerably in excess of that at which the explosion took place. The cause of the accident, by which a large number of people lost their lives, was precisely that which caused the explosion of the Riverdale's boiler, and the method of rupture was the same. In either case, proper methods of inspection would have saved the lives of the sufferers.

It is undoubtedly true, as Professor Thurston states, that many of the inspectors are conscientious, experienced, skillful, and painstaking men, and do their duty in spite of the defects of the existing law; but it is also true that now and then a careless or incompetent inspector will neglect the simplest details of his work, and that we must expect occasional repetition of this sad experience, until the law is intelligently framed, and so administered that the passing of a defective boiler by the inspector shall become as nearly as possible an impossibility.

EVAPORATOR FOR REGISTERS.

We are all familiar with the disagreeable effects produced by the hot air coming from some furnaces and fireplace stoves. To overcome these difficulties the evaporator herewith illustrated was designed. It consists of a reservoir of water of suitable shape and size to be placed before the register as shown. A removable shield is so arranged that it



MEYER'S EVAPORATOR FOR REGISTERS.

deflects the heated air, which passes over the water, which it absorbs in its passage. It will be efficient in increasing the humidity of the air if placed over a floor register. The form permits of ornamentation, either elaborate or plain, according to the taste of the user. The evaporator was patented by Mr. John F. Meyer, of 28 N. Howard Street, Baltimore, Md., and Messrs. Southcomb & Bro., same address, are the sole agents.

Utilizing the Alligators.

A reporter for the New Orleans *Picayune* has been investigating the alligator, its uses, commercial value, etc. The following are some of his observations:

The edicts of fashion have sent hunters into the tropical forests of Borneo and Java to bring back the plumage of birds of paradise to decorate female head gear. To-day these same imperial edicts send the hunter to the swamps and jungles of Louisiana to procure the hide of the alligator for slippers to clothe the dainty feet of fair women and to make satchels and bags in which to carry their handkerchiefs and pocket money.

The most fashionable material for small valises, satchels, hand bags, portmonnaies, and the like, is the skin of the American alligator, and in all the Gulf States, from Florida to Texas, these saurians are hunted to supply the demand. This fashion has not been in vogue for a very long time, but for the past three years the slaughter of the alligator has been carried on with great activity.

A reporter desiring to make some inquiry as to the extent of the trade in the skins of these saurians, visited several dealers in hides and furs on Peters Street. A number of the dealers handle alligator hides quite largely, and they were found entirely willing to give information on the subject. At the warehouse of Messrs. B. F. Simms & Son, a lot of several thousand of these skins were seen in process of being packed for shipment to New York and Boston. The skins were in the state known to the trade as "green salted," the freshly gathered hides being pickled in salt and remaining soft and pliable. There were the skins of saurians, from those of youngsters not much more than a yard long to the hides of monsters that must have measured twelve to fifteen feet when alive. One skin, minus the tail and the snout, measured thirteen feet by the line, with a corresponding breadth. The integument freed from the bony scales, which, like massive plate and armor, cover the back and head of the animal, was as heavy and as thick as a bull's hide, of which stout sole leather is made.

Only the skin of the belly and sides is used, the back with its coat of mail being cut from the hide and thrown away as worthless. Of a blackish blue hue on the sides and bluish white under the belly, all the skins showed great uniformity of color, and each was curiously checkered in squares, which being separated by intersecting grooves and wrinkled, gave the peculiar checkered appearance seen in all alligator leather. The flat parts of the skin are used for bags and satchels, while those portions covering the knees and elbows of the monsters' legs are peculiarly suited for the fronts of shoes and boots.

The trade in these skins takes them of all sizes from four feet up, the average prices paid here for green skins ranging from ten cents each for the smallest to ninety cents for the largest. The skins most in demand are about seven feet long, which is perhaps an average of full grown alligators. Those from ten to fifteen feet long are classed as monsters.

Inquiry as to the number of these hides handled in this market during the present season elicited some variance of estimates among different dealers, but the figures may be put with a degree of accuracy at something like 50,000 skins. Three years ago 100,000 skins were handled here, and the next year the figures were reduced to 70,000. The further reduction to 50,000 for the present season caused inquiry, when it was learned that there is no lack of demand for the hides, but the alligators are actually growing scarcer as well as more difficult to find.

Besides the hides, there are other products of the alligator utilized for commercial purposes. The teeth, which are round, white, and conical, and as long as two joints of an average finger, are mounted with gold or silver, and used for jewelry trinkets and for teething babies to play with. All the teeth of the alligator are of this class of conical tusks, with no cutting or grinding apparatus, and hence the animal is forced to feed chiefly on carrion, which is ready prepared for his digestion.

The oil extracted from this creature has a high reputation among the swampers as a remedy for rheumatism, being given both inwardly and externally, and is produced to supply a limited demand.

The Lead Pencil.

There is no lead pencil; and there has been none for fifty years. There was a time when a spiracle of lead, cut from the bar or sheet, sufficed to make marks on white paper or some rougher abrading material. The name of lead pencil came from the old notion that the products of the Cumberland mines, England, were lead, instead of being plumbago, or graphite, a carbonate of iron, capable of leaving a lead-colored mark. With the original lead pencil or slip, and with the earlier styles of the "lead" pencil made direct from the Cumberland mine, the wetting of the pencil was a preliminary of writing. But since it has become a manufacture the lead pencil is adapted, by numbers or letters, to each particular design. There are grades of hardness, from the pencil that may be sharpened to a needle point, to one that makes a broad mark. Between the two extremes there are a number of graduations that cover all the conveniences of the lead pencil. These graduations are made by taking the original carbonate, and grinding it, and mixing it with a fine quality of clay in differing proportions, regard being had to the use of the pencil. The mixture is thorough, the mass is squeezed through dies to form and size it, is dried, and incased in its wood envelope.

Borax for Extracting Coloring Matters.

For isolating alizarin and purpurin from garancine, R. Palm digests in a solution of borax saturated in the cold until a deep blood-red solution is formed. The liquid is filtered and completely precipitated with sulphuric, hydrochloric, or acetic acid. The bulky violet-brown precipitate is boiled for a long time with a saturated solution of alum. From the filtered decoction alizarin is deposited on cooling and filtered off. The filtrate deposits alizarin on the addition of concentrated sulphuric acid. The author also applies borax for the extraction of santaline from sanders wood, and a violet coloring matter, not identical with carmine, from cochineal.—*Zeitschrift fur Anal. Chemie.*

Acknowledgment of Credit.

In the SCIENTIFIC AMERICAN for August 11, 1883, we gave illustrations of the Central Telephone Exchange of Paris, and by an inadvertence of our assistant, due credit therefor was omitted. We now take pleasure in saying that we were indebted for the engravings and particulars to our esteemed contemporary, *La Lumiere Electrique.*