

*Chronicle of the seventh inst.* About a year or so ago, as our readers will remember, we published a series of articles descriptive of some of the great manufacturing interests in this country. We then selected and described the immense establishment of the Singer Manufacturing Company, located in this city, as the representative and leading concern in the department of sewing machines, and we are now pleased to find that we did not in the least exaggerate or over-estimate the importance of the company in question. It is noteworthy and somewhat suggestive that the Singer Company, who did not, as we understand, take the trouble of visiting, or even of sending their machines to the Paris Exposition—who seemingly do not care in the least for either gold medals or red ribbons, and whose name is rarely seen in print—should, nevertheless, eclipse all other sewing machine concerns in the magnitude of their business. There is, of course, a reason for all this, but we leave our readers to find that out for themselves.—*Home Journal.*

**PRINCE RUPERT'S DROPS.**—The properties of unannealed glass are beautifully shown in the scientific toy bearing the above title, made by dropping melted glass into water, they take a long oval form tapering to a point at one end. While the body of these drops will bear a smart stroke from a hammer without fracturing, if a portion of the smaller end is snapped off the whole mass will be broken into an almost impalpable powder with a violent shock. Prof. Faraday used to illustrate the incompressibility of water by placing one of these drops in a phial of water, the concussion from the disruption of the drop shattering the glass bottle. Another interesting experiment with the same toy is now given by Reusch. In place of water he fills the vial with melted resin, and when this has solidified he nips off the end of the glass drop, the bottle is broken as before, and the mass of resin is deeply fissured throughout its length. The drop is found as a kernel, loosely aggregated together, but easily detached from the resin, entire. When broken to pieces the fragments will be seen to have the form of a cone on an hemispherical base, like some forms of hail.

**TOURIST INDICATORS.**—Mr. Bayalgette proposed at the late meeting of the British Association, a plan for providing for the wants of tourists for obtaining local information and supplying reliable topographical information after reaching the summits of eminences. A fixed circular stone or metallic table has radial lines pointing to objects of interest drawn upon it. Upon the line is to be engraved the name of the object, distance from point of view, and other information of interest. A form of this indicator would be found useful in open places in large cities, giving the directions and distances to public buildings, railway stations, etc.

**AN INTERNATIONAL WORKSHOP.**—The French Emperor has been seriously considering a project for transforming the machine gallery at the Exposition into an international workshop. In estimating the whole of the steam engines employed at 2,000 horse-power, four million francs might be yearly realized by the rent, and, says the engineer Erissac, "a Cyclopean school would be stationed on the banks of the Seine, without rival in the world, and which would render to Paris, to France, and to industry, the greatest service."

**AMERICAN MASTODONS.**—Not long ago Dr. Stimpson, of the Smithsonian Institute, heard of the discovery in Hunterdon, Ind.—a place about sixteen miles north of Fort Wayne—of bones of extraordinary size, evidently the remains of some monster. Proceeding to the spot, he unearthed one by one the bones of three mastodons, a male, female, and calf. The skull of the largest is four feet in length, the animal being at least fifteen feet in height. The remains will form a part of the collection of curiosities in the Bureau of the Chicago Academy of Sciences.

**STEEL PENS.**—If a steel pen is hard and obstinate, refuses to yield when pressed, and annoys by its rigidity, hold it a half minute or less in the flame of a gas light or candle and stick it into water, oil, or tallow. In most instances it will cure the rigidity. In fact, it is a good practice to pass a steel pen through the flame of a lamp before using it. This burns off the oil used in the tempering and prevents that slipping of the ink, or the refusal to flow, generally noticed in all new steel pens.

**PRELIMINARY SOUNDINGS** for the proposed Franco-American cable are announced to be completed. The route decided upon is from Brest to the French island of St. Pierre off the south shore of Newfoundland, thence along the coast to this city. The cable is now making in London, the *Great Eastern* is chartered to lay it, and by next July telegraphic communication, it is hoped, will be opened.

**MILITARY AERONAUTS** do not appear to have afforded any very useful results in the war in Paraguay. Although frequent balloon ascensions have been made, the ascent was but the signal for Marshal Lopez to order the kindling of great fires, the smoke from which covered his camp, and thus prevented the allies from discovering what was going on therein.

#### POPULAR ERRORS.

This heading is a somewhat favorite one among writers, but not seldom those who attempt to expose these "popular errors" fall into errors of their own, sometimes as egregious as those they condemn. A correspondent sends us a communication intended to notice some popular errors, and we give below the essential portions of his article. He says in effect,

that although Lord Bacon knew seven men who attained the age of one hundred years by drinking cider, he does not mention the seven-score men who attained that age drinking only water. Luigi Cornaro reached the age of ninety-eight living from his fortieth year largely upon wine, and Red Jacket saw his hundredth year although he got drunk daily. The hydrophobists believe in water and frequent ablutions of the body, as the remedy for almost all the ills flesh is heir to, yet plantation negroes and other people, who shun water as poison, are as healthy as the most rigid followers of Priessnitz. Tradition says that James, "the just," the brother of Jesus, neither took his daily bath, shaved his beard, nor cut his hair.

Our correspondent says further, that he has buried his brightest and most beautiful child—a martyr to science from daily ablution—while his younger born, puny and feeble, and knowing not what a bath is, lives and promises to grow to a healthy maturity. His mother, nearing her eightieth year, was by the carelessness of a nurse allowed to go without bathing and she is rarely ill; while all the rest of her mother's children, bathed regularly by the mother, died in youth (one accidentally drowned) of the same disease.

Our correspondent states that some years ago the theory was advanced in a book that grapes, used alone as food, would insure long life, free from disease, but that it would be difficult to find any grape eaters entirely free from disease and not in danger of death. So it is said salt is unhealthful and not fit to be used by the human family. Yet we know that our perspiration, and our tears are salt, and that the people who live without salt are no healthier, nor longer lived than those who use it habitually. Animals, both domestic and wild, thrive the better for it. Two thousand pounds of hay contain seven pounds of salt; a ton of turnips, four pounds, and bulbs, straw, and grain all contain this essential mineral largely. In the "blue grass" region of Kentucky writers say the girls grow to be more beautiful than in any other portion of the country; yet their food is mainly "hog and hominy" with potatoes and eggs, food that requires a large proportion of salt. Kentucky's stalwart sons, her old men and women, are healthy, hardy, and almost as indestructible as pine knots.

#### The Day Line.

Mr. Lyman Thayer, of Burlington, Vt., who appears not to be aware that the subject has been fully discussed in the *SCIENTIFIC AMERICAN*, sends us a very interesting and logical exposition of the question of the beginning of the day. He has gone, however, a little further than any of our correspondents, and has invented an admirable device for illustrating the subject to the senses. We quote that part of his paper which describes his invention:—

"I have addressed you on this subject, having learned there had been many remarks in your paper editorially and from correspondents, in regard to this vexed question, and no satisfactory answer given.

"I have just completed a diagram, in good form, representing the revolution of the globe with all the principal places on the globe shown on the face of it, set at their proper meridians as they are actually located on the globe, within the hours—the idea of representing the revolution of the globe with the hours shown, set at their proper places as they are actually located around the globe, is altogether a new and original contrivance or invention, and one that represents the revolution of the globe in a better and more distinct form, than any thing that has ever been invented and used for that purpose. It shows at once the relative position of all the principal places around the globe, and each and all the twenty-four hours as they are applied to each and every locality, at all times, at every revolution of the globe, or at all hours of the day—the hours being local or fixed principles, are attached to the sun, whilst the globe, with all its localities, continually revolving within the hours, is a fact that is not thought of or understood—it also constitutes a universal clock: every meridian is shown and numbered on the diagram, and by setting the meridian you are at, at the hour of the day, all other places stand at the hour or time it actually is at that place: shows where the days begin and end, and how they are applied to the revolution of the globe, and at all times, on how much of the globe it is Monday, for example, and how much it is Tuesday, or any other day, as the case may be: illustrates distinctly and plainly all questions that have been originated in regard to the day's changing, and shows a harmony of their application, and satisfies every intelligent mind on the subject. This diagram is set in a case, similar to the large parlor clocks, the diagram where the face of the clock would be; the revolution is made by a small crank at the side of the case, and the front of the lower part of the case contains an explanation of all its showing in plain form. They cost from five to ten dollars, according to the finish of the case, and would be useful in every family."

#### The Boiler Disaster at Newark.

On Monday the 30th ult., at Eehalt & Seydel's Brewery, Rankin Street a boiler explosion took place which was a case of most unmistakable lack of water. The boiler was nearly new, 22 feet long 42 inch diameter with two 12-inch flues. The boiler must have been red hot for with the exception of about 6 inches of the bottom part of it all above is burned to blackness.

Had there been a sufficient quantity of water in it and it had ruptured as it did, the consequences would have been terrible, as it pointed directly in its flight toward dwellings on the opposite side of the street. The end of the boiler, with some three feet of the shell and eight feet of the flues, would have passed through them. The boiler was to all appearance a good and safe one.

#### ANOTHER LEVEL PLAN.

W. A. J. of Louisiana proposes a novel method of constructing levees on the Mississippi. He would erect on the banks, at a distance of 150 feet apart, a series of abutments of brick, having wings or projections on two sides in a direction parallel with the river banks. Between these abutments he would build the earth levees, not however in a right line, but curved toward the river, the ends of the arch or curve resting on the wings and body of the abutment. Perhaps his idea will be better understood by supposing arches of 150 feet span laid on a horizontal instead of a vertical plane, the top of the arch presented to the water. The banks of the river would then present a succession of curves instead of one straight line or a line following only the sinuosities of the river. He considers that if the earth between two piers was washed away, making a crevasse, it would not so easily extend further as with the present style of embankments. As this subject is one of great importance we will make a single remark on this proposed plan. The arches themselves are only earth, unprotected by piling or any other means. Of course, a portion of the arch, that presented to the force of the current, must to a certain extent, offer resistance—at least sufficient to deflect the current toward the center of the stream. How long this unprotected curve of earth would resist the continual wear of the current is for engineers or our correspondent to estimate, or experiment to determine.

#### MANUFACTURING, MINING, AND RAILROAD ITEMS.

Rock crystal, sufficiently clear to be used for lenses, has lately been discovered in Arkansas, while digging around a breastwork thrown up during the war.

The total product of the Lake Superior iron mines last year was 306,252 tons of ore. The reasons for the exceedingly rapid development of these mines since the year 1855 when the shipments of ore were 1,445 tons—are many and obvious. The deposits are immense, easily worked, and nearly free from those noxious elements which render the flux of most iron ores difficult and expensive. None of the mines, moreover, are over thirty-five miles from cheap water transportation, while most of them are only fifteen or sixteen miles distant.

Between Oil City and Meadville, says a recent visitor to the Pennsylvania oil regions, there is not one well in operation. It is only a long line of rotting derricks and rusted boilers and engines.

The survey of the proposed railroad from Schenectady to Ogdensburg on the St. Lawrence river, is about completed. The survey was provided for by the Legislature, and has been accomplished under the supervision of the State Engineer. From the St. Lawrence to the Hudson, this road in connection with the Athens and Schenectady "cut-off" will be direct and vastly shorter than any other. The route is pronounced by the superintending engineer a practicable and highly favorable one.

The extensive cultivation of flax in Australia will probably result from the success of late experiments in raising this plant at Portarlington on Port Phillip Bay. A factory for its manufacture has just been started in the suburbs of Melbourne.

The boot and shoe manufactories at Lynn, a town of twenty-three thousand inhabitants, employ seventeen thousand persons, or more than two thirds of its population.

The American company formed for the purpose of constructing a system of local telegraphs on the coast of China, has purchased from the Western Union Telegraph company some 525 miles of telegraph cable originally intended to be laid across the Behring's Straits, but now destined to be laid on such portions of the coast between Hongkong and Shanghai as may be considered advisable.

An immense deposit of toccoline has been discovered near Pescara, in Italy. It is combustible like asphalt and answers for pavements. About 60 per cent. of refined oil, which affords a far more brilliant light than petroleum, may be obtained from it.

Francis Morris, of New York has recently concluded at London, an arrangement with Capt. Pim, of the Royal Navy, looking to the establishment of a new interoceanic line across Nicaragua, by railroad, connecting with steamers on the lake.

The Air line railroad has been surveyed from New Haven to Middletown during the past few weeks. The line is twenty-one miles long, and can be built for \$600,000 not including the right of way and the portion already built.

The Rels mine, near Downsville, Cal., has proved itself a most wonderful investment. For sixteen years ninety thousand tons have been taken from it, and it now has forty-five thousand tons of pay ore in sight, enough to keep two mills running for two years. The total production last year was \$224,000. The mine is 5,100 feet above sea level.

The Belgians claim to have been the first to discover the uses of coal, and this discovery, they say, was made by one Hullo, a blacksmith, of the village of Plenevaux, near Liege, in the year 1049, from whose name they derive the word "houille." Coal was first used as fuel in London in the latter part of the thirteenth century; but the smoke was considered so injurious to the public health that Parliament petitioned King Edward I. to prohibit its burning, as an intolerable nuisance. He complied, and issued his proclamation against it. The most severe measures were then employed to abolish its use—fines, imprisonment, and the destruction of furnaces and workshops where it was used.

#### Recent American and Foreign Patents.

*Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.*

**OIL CAN.**—Martin Robbins, Cincinnati, Ohio.—This invention consists in providing a can or vessel which is to contain oil, sirups or other liquids, with a vacuum handle and with an adjustable nozzle, so that the nozzle may be adjusted to any desired angle, with the can, for the purpose of allowing a greater or less quantity of the liquid to be ejected or forced out, as may be desired.

**COAL ELEVATOR AND DISTRIBUTOR.**—Henry C. Clark and Robert B. Little, Providence, R. I.—This invention relates to a new device whereby coal or other articles can be conveyed from a vessel or other receptacle to any particular one of a number of compartments, where they can be dumped into carts or cars if desired.

**THREE WHEEL CARRIAGE.**—John Gehr, Mercersburgh, Pa.—In this invention the journals of the forward axle work in boxes attached to a horizontal fixed wheel, which supports a revolving ring to which are attached the couplings that connect the forward and rear axles.

**LIFTING JACK.**—Wm. Green, Holly, Mich.—This invention is a neat, cheap and convenient lifting jack, designed for the special purpose of removing hop poles from the ground.

**ATTACHMENT FOR SEWING MACHINE.**—John W. Neill, New York City.—The object of this invention is to provide an attachment for sewing machines for making the plaits or tucks in shirt bosoms, ladies skirts, dresses or garments of any description, whereby the material is creased and folded to any sized plait and sewed through the three folds or thickness of the plait to finish it completely at the same time.