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THOMAS SILVER.

Thomas Silver, civil engineer and inventor, died in New York, April 12, of Bright's disease. He was born June 17, 1813, in Cumberland County, New Jersey, of American parents, belonging to the "Society of Friends." When a boy, he developed mechanical ingenuity, and at the age of nine years his little boat, with hidden propeller wheel and other devices, was the wonder of the country village. Models of his many subsequent inventions are at the Patent Office, Washington, Kensington Museum, London, and the Conservatoire des Arts, Paris. The loss of the San Francisco in 1854, bound to California, with troops, caused by the engines becoming disabled in a severe storm, led to the invention of Silver's marine governor. In 1855, it was placed on the engines of the steamer Atlantic, of the old Collins line, also on engines at the United States Mint, Philadelphia Arsenal, and on the printing presses of the Public Ledger, of Philadelphia, and Tribune and Herald, of New York, which reported it as "operating more quickly and correctly, even for stationary engines, than the old two-ball governor, which depended upon gravity." Mr. Silver's greatest success with it was in Europe. Admiral Pairs introduced the governor in the French navy in 1855, maintaining "it was just what always had been needed." Vessels on the Continent soon adopted it. John Hamilton, and, later, Osborne & Co., engineers on the Clyde, became the manufacturers, realizing large fortunes, though opposition was continual, one house in Glasgow confessing candidly as a reason for not using it that they realized \$25,000 yearly by repairing engines on which it was not used.

At the Royal Institute, of London, it was resolved that "Mr. Silver had done as much as any man living to facilitate steam navigation, enabling steam vessels to weather all gales, without danger of broken shafts, wrecking, and consequent loss of life." Prince Albert said: "Mr. Silver, it is too common sense a thing, engineers must use it." The British Admiralty ordered it into general use in 1864, and so did all the naval authorities of the world, excepting that of his own country, the United States. Mr. Silver was a member of the Franklin Institute, of Philadelphia, and of different societies in Europe, and awarded several medals. His latest inventions were a mechanical lamp, and a lamp burner made to dispense with glass chimneys, which is a great economical success.

Mr. Silver married the daughter of the late James M. Bird, of Philadelphia, who survives him, and leaves one daughter, the wife of Thomas Chalmers, of New York.

POSITION OF THE PLANETS FOR MAY.

JUPITER

is morning star till the 21st, and then evening star. The most important epoch in his course occurs on the 21st, at midnight, for he is then in opposition with the sun. Jupiter in opposition, rising at sunset, looking down from the meridian at midnight, and enthroned among the bright stars of Scorpio, makes the most charming celestial picture that will glow on the planetary annals of May. Observers should follow his course as rising low in the southeast earlier every evening he leads the starry hosts as they move over the heavenly road. He is very near to Beta Scorpii on the 20th, at 10 o'clock in the evening, passing only 2' south of the star, scarcely a line of sky intervening between them. An opera-glass will bring star and planet into the same field at the time of conjunction. Jupiter rises on the 1st at 8 h. 38 m. P. M. On the 31st he sets at 3 h. 57 m. A. M. His diameter on the 1st is 42".4, and he is in the constellation Scorpio.

MARS

is evening star. He is on the meridian soon after 10 o'clock on 1st, and is still a conspicuous object in the sky, the distance increasing between him and Spica. On the 5th, at 1 h. P. M., he is in conjunction with Uranus, being 35' north. Mars sets on the 1st at 3 h. 54 m. A. M. On the 31st he sets at 1 h. 45 m. A. M. His diameter on the 1st is 16".2, and he is in the constellation Virgo.

URANUS

is evening star. The chief interest attached to his course during May is his near neighborhood to Mars, the larger planet serving as a guide to point out the position of the smaller. Uranus sets on the 1st at 3 h. 49 m. A. M. On the 31st he sets at 1 h. 50 m. A. M. The diameter of Uranus on the 1st is 3".8, and he is in the constellation Virgo.

SATURN

is evening star. He is moving eastward and approaching the cluster Praesepe, in Cancer. He is on the meridian, or point overhead, on the 1st, at 5 h. 31 m. P. M. Saturn sets on the 1st at 12 h. 45 m. A. M. On the 31st he sets at 10 h. 54 m. P. M. His diameter on the 1st is 17", and he is in the constellation Cancer.

MERCURY

is morning star till the 10th, and then evening star. He reaches superior conjunction with the sun on the 10th, at 7 h. P. M., passing beyond the sun and reappearing on his eastern side as evening star. Mercury rises on the 1st at 4 h. 35 m. A. M. On the 31st he sets at 9 h.

4 m. P. M. His diameter on the 1st is 5".2, and he is in the constellation Aries.

NEPTUNE

is evening star until the 20th, and then morning star. He is in conjunction with the sun on the 20th, at 8 h. A. M., changing his position to the sun's western side and becoming morning star. He is in conjunction with Mercury on the 15th, both planets being very near the sun. Neptune sets on the 1st at 8 h. 15 m. P. M. On the 31st he rises at 3 h. 58 m. A. M. His diameter on the 1st is 2".4, and he is in the constellation Taurus.

VENUS

is morning star, rising on the 1st about half an hour before the sun. Her diameter is decreasing, and her distance from the earth is rapidly increasing. Venus rises on the 1st at 4 h. 13 m. A. M. On the 31st she rises at 3 h. 54 m. A. M. Her diameter on the 1st is 10".6, and she is in the constellation Pisces.

Mercury, Saturn, Mars, Uranus, and Jupiter are evening stars at the close of the month. Venus and Neptune are morning stars.

The Sharing of Profits with Employees.

This is a subject which is receiving considerable attention, and one on which there seems to be a diversity of opinion. A Springfield (O.) manufacturer says in the Age of Steel: "I am almost persuaded that the best way to secure the undivided interest of an employe is to share with him the profits of the concern. You thus make him your partner; he is elevated in his own estimation and in reality; he feels a certain pride in the work turned out, not only of his department, but of the entire factory; he has aroused in him a feeling that he is in a certain sense responsible for anything that may go wrong about the establishment, and he will use his best mental and physical endeavors to do the particular piece of work he is doing as well as it can possibly be done. I believe, also, that the system of profit sharing is a solution of the labor question. The system brings employer and employe together. They are friends, collaborators, in a common cause. What is for the best interest of the one is for the best interest of the other, and should any difference arise between them they will not go into a corner and sulk and nurse their grievances until a mole-hill becomes a mountain, but will come together like partners, as they are, and will adjust their differences without trouble. I am not saying that either employers or employes in this country are yet ready for this new order of things. But they will grow into it, for I believe that the time will come when the system will be very generally adopted in this country."

An Unpolishable Diamond.

A remarkable diamond was exhibited at a recent meeting of the New York Academy of Sciences by Mr. George F. Kuntz. It was a compound or multiple crystal, containing a large number of twinnings. It is of the class termed "extreme durate" by the French. It had been cut into the general shape of a brilliant, and its main face or table was then placed on the polishing wheel. It was kept there for 100 days, the wheel revolving at the rate of 2,800 revolutions per minute. The diamond was held upon the rotating surface at a distance of about 15 inches from the center. Based on these figures, a calculation showed that the surface passed over by the diamond amounted to 75,000 miles, or nearly three times the circumference of the earth. Yet it was all futile, as the stone would not acquire a polish. The ordinary weight placed on a diamond, while on the wheel, is from 2 1/4 to 2 1/2 pounds. This was increased by 4 and 8 pounds without effect, and finally 40 pounds were used. The wheel was badly damaged, the diamond plowing into it and throwing scintillations in all directions. The diamond, even under these conditions, could not be given a commercial polish. The wheel had to be replaced. The work was done in the establishment of Tiffany & Co., of this city.

Exploration of Greenland.

A correspondent in Norway sends us the following interesting information:

The conservator of the museum at Bergen, Mr. Frithjof Nansen, intends very soon to investigate the interior of Greenland.

One of our sealers is to take him to the eastern shore, where he is to land at, or near, Scoresby Sound.

Taking the place as a starting point, he intends to cross the continent to some place near Disco Island, on the western shore. For making the journey over the ice or snow he means wholly to rely on the use of the Norwegian snow shoes, long narrow strips of wood (ash as a rule), on which great distances can be traversed in an incredibly short space of time.

Mr. Nansen is a man of learning, of an energetic turn of mind, and is bent upon seeing his plan accomplished in this manner. He is an expert on snow shoes, and is to be accompanied by only three or four other persons accustomed to the hardships of mountain traveling in a Norwegian winter, as is also Mr. Nansen himself.

Military Notes.

With the increase of her army and navy, the war fever in Italy seems to be growing apace. The Alpine frontier is being strengthened with something like feverish haste, owing, no doubt, to the preparations on the French side, and the Italian military journals are filled with so-called proofs that war is imminent. *Es-crito Italiano*, in a recent issue, declared that it had discovered a French conspiracy to fall suddenly upon Spezia with ships and troops and simultaneously with a declaration of war. It warned the government that a *coup de main* was about to be made, and insisted that the Italian fleet recently collected at Madalena should be instantly dispatched to the threatened port. *L'Avenir Militaire*, speaking at great length on the subject, explains how so absurd an idea got abroad.

It says that Capt. Mirabello, Italian naval *attache* to the Paris legation, became alarmed by the unusual naval preparations he saw making at Toulon, where the French Admiral Krauz is refitting a big fleet recently arrived from Tonkin, consisting of some forty ships of the line; and because the Admiral, whom he interviewed at the Ministry of Marine, was unwilling to unfold his plans, the over-excited Italian jumped to the conclusion that a descent upon the big Italian naval *entrepot* was contemplated, and sounded the alarm. The affair is what we would call a tempest in a teapot, and seems, at least from this distance, scarce worthy serious attention.

Our English contemporary *Broad Arrow* does not think so, however. It says:

"What redress has the government of France against the *Es-crito* if the story told by that Italian journal is not true? What a picture of national demoralization if it is true! What an abominable libel if it is false!

"If France really had any such ideas, the mere entertainment of them goes far to place her outside the pale of the civilized society of nations; for such things are not war, they are gigantic acts of piracy. If France cannot clear herself of the charge, let her be Anathema maranatha, and let us in England sit tight and take care that no laxity shall suggest a temptation to a people unable to resist it. Yet can we not believe the story is true."

Sir Edward Reed, the famous naval architect, but no longer having a hand in English naval construction, says that none of the big ships built for the royal navy, since he was at the head of the construction department, are reliable for war purposes, that they look formidable and seaworthy, and so they are in time of peace, but the very moment anything useful and practical shall be expected of them, he says, is when they will be found most deficient and unreliable. Curiously enough the present Board of Naval Constructors have decided that the ships he built are obsolete, and this would make it appear—if we take the opinions of both sides—that Britain has no effective ships at the present time. During a recent naval debate in the House of Commons Mr. Reed said: "Ninemillions [\$45,000,000] have been spent on ships which, if they entered battle, would be lost almost as readily as if they had no armor, and would be only saved by their engines and boilers," that is, by running away. There is food for reflection in this!

Apropos of this, we have the recent payment of \$15,000 to an English naval architect, Mr. Johns, by our navy department for a design of a big armored ship embodying the same ideas of construction which are thus pronounced fallacious, and which it seems no exaggeration to say have been fairly shown so to be, by the recent naval maneuvers.

The German military authorities are much troubled over the question of magazine rifles vs. single firers, for the latter, it is conceded, has some decided advantages over the new arm. The *Militar Wochenblatt*, commenting upon the recent report of the Russian General Wasmund to the Russian military authorities, admits there is at least some sound reasoning in his findings. General Wasmund, who is recently returned from an extended examination of the magazine gun as now used in the Continental armies, declares he discovered no proof whatever of its superiority. On the contrary, where trials were made of the two arms simultaneously, and under similar conditions, he observed that the very reliance which the multi-firer bred in the soldier was a source of weakness at the critical moment. Looking to the many charges in his gun to stand him in stead, he neglected to take those precautions which are necessary while using a piece that must be reloaded after each fire, and fired too quick and without proper aim. Especially after long marching was the inferiority of the new arm observable; those armed with the old one hitting the mark oftener because of the less weight to bring to the shoulder and the unchanging poise. Russia will not change—at least for the present.

The Germans have given up the metal breast and back plate or cuirass. It is found to offer little protec-

tion, unable to stop a bullet, besides rendering gunshot wounds more dangerous because of the pieces of metal torn from it by the bullet and often forced into the wound.

Roscoe Conkling.

On the morning of Wednesday, April 18, Roscoe Conkling died. His death is attributed largely to his exertions during the March storm, when in the height of the gale he walked up town from his office in Wall Street. He died at the height of his career as politician and lawyer. As legislator he had made for himself a unique fame. Positions that other men work for he was able to resign, or to refuse when offered.

He was born in Albany, N. Y., in 1829. His father was Alfred Conkling, a lawyer of considerable reputation, a circuit judge in 1825, and minister to Mexico in 1852. Roscoe Conkling was one of three sons, of whom Frederick A. is still living. Without graduating at any college he began the study of the law, entering the law office of Spencer & Kernan, of Utica, N. Y., in 1846. In 1858 he was elected mayor of Utica, which office he resigned a year later.

His services in the national legislature began in 1859, when he entered Congress as a representative of the Oneida district. With one intermission he held a position in the House of Representatives for a number of years. In April, 1866, upon a bill relating to the reorganization of the Army of the Potomac, he and Mr. James G. Blaine were opposed to each other. The debate became acrimonious, and was the foundation of a quarrel that has been termed historic. In January, 1867, he took his seat in the United States Senate, having to resign a seat in the House of Representatives to accept the promotion. In May, 1881, during President Garfield's incumbency, he resigned from the Senate, and thenceforward devoted himself to the practice of law. It is said that the purpose of his resignation was to obtain a unanimous vote for a return, and thus to vindicate his position in certain political differences with the executive. It resembled the English appeal to the country. He was not re-elected, and passed out of public life. In 1882 President Arthur sent in his name to the Senate for a position on the bench of the United States Supreme Court, but Mr. Conkling declined the honor.

His work as a lawyer since that period has been of immense importance and extent. He acted as counsel for many corporations, and had acquired a very high reputation in the more important class of patent cases. He was married to a sister of Horatio Seymour, and she, with an only child, a daughter, survives him. In 1877 he received the degree of LL.D. from Madison University.

Dr. Cornelius Rea Agnew.

This eminent specialist, famed for his skill in the treatment of affections of the eye and ear, died on Wednesday, April 18. On Sunday, April 8, he was attacked by peritonitis. He had been called in to treat Mr. Conkling, who was attacked by his last illness on April 5. Dr. Agnew called upon Drs. Sands and Barker to assist in performing the operation, but his own illness forced him to give up the care of his distinguished patient. Six days before his death, he submitted to the operation of laparotomy, administering the ether himself. Pus was discovered and the cavity was drained, but without any effectual relief.

Dr. Agnew was born in this city, August 8, 1830. He graduated from Columbia College in 1849, and from the College of Physicians and Surgeons in 1852. About a year later he was appointed surgeon of the Eye and Ear Infirmary, and then went to Europe to complete his studies. In Dublin, London, and Paris he pursued his researches, and in 1855 returned to America. In 1864 he resigned his position at the Eye and Ear Infirmary on account of his other pressing duties. He was one of the founders of the Union League Club, a leading member of the U. S. Sanitary Commission, the founder of the Ophthalmic Clinic of the College of Physicians and Surgeons, and he initiated many other important professional movements. He was one of the oldest members of the board of trustees of Columbia College, and was a member of a great number of scientific societies.

John R. G. Hassard.

On Wednesday, April 18, Mr. John Rose Green Hassard, of this city, died. He was born on September 4, 1836, in New York, and graduated from St. John's College, Fordham, in 1855. He adopted literature as his profession, and in it attained considerable eminence. His first important work was done on the "New American Cyclopaedia," now "Appleton's Cyclopaedia." Here he was in constant association with Mr. Ripley, the chief editor, then also engaged on the *Tribune*, who was greatly impressed by Mr. Hassard's ability. In 1865 Mr. Hassard was editor of the *Catholic World*, and at last, in 1866, became associated with the *New York Tribune*, and continued the connection until his death. He did a great variety of literary work for that and other journals, musical criticism being one of his es-

pecially strong points. While on the *Tribune* staff, Mr. Hassard and another member thereof independently attempted to decipher the famous cipher dispatches of the Democratic managers in the Tilden-Hayes campaign. When each had attained a partial success they compared notes, and thenceforward progress was rapid. It is said that he never recovered from the strain that this performance entailed.

Among his works may be cited the following: "Life of Archbishop Hughes" (1866), "Life of Pope Pius IX." (1877), "A History of the United States" (1877), "The Ring of the Nibelungs" (1877), and "A Pickwickian Pilgrimage" (1881).

The San Salvador Railway.

From the harbor of La Union, on the Pacific, the railway crosses the State of Sta. Ana, a district of Salvador 50 miles square, producing, it is stated, more coffee than any equal area of land in the world. In truth, every acre of the *mesa* of Salvador is cultivated, each producing from two to four crops annually. The products are rice, tobacco, indigo, sea island cotton, coffee, sugar, cocoa (chocolate), India rubber, and Peruvian gum—so-called because it was originally sent from Salvador to Peru and thence to European markets. The railway penetrates from La Union to Puerto Barrios or to Port Izabal on the Atlantic side, whichever harbor may be its northern terminus, a very paradise. The average density of population along the whole route exceeds 100 for each square mile. Here villages and towns are almost conterminous, and the population—Aztec 92 per cent and Spanish 8 per cent—toil most industriously. Labor costs 20 to 25 cents and food 10 cents per diem. The thatch-roofed, floorless adobe huts of the natives (Aztecs) are the cheapest possible, and only useful in protecting the occupants against rain storms of July, August, and September (the rainy season), when the country is flooded almost every day. There is not a stove or fireplace in any house in the republic. None is needed where the thermometer never falls below 70 or rises above 80 degrees. So great is the annual production of fruits, as well as of indigo, tobacco, sugar, and coffee, and so short the distance from Port Barrios to Mobile, that it is believed that most delicate and delicious tropical fruits, never seen in the United States, will be distributed everywhere from Mobile; and so redundant are the crops of Salvador and of the districts of Guatemala penetrated by this railway that it must have two tracks—one for immense local, the other for interoceanic, freights and travel.

But the great good to be achieved by this transisthmian road consists not so much in the fact that it will enable traveling multitudes to cross the continent where narrowest without possible danger from deadly fevers and plagues incident to detention at the sea level, but, with its branches, binding together these five Central American states in perfect political and social unity, it accomplishes their perfect *commercial* annexation to the United States. Puerto Barrios is within fifty hours or less of Dauphin's Island wharves at Mobile, and only sixty hours would be required to transfer a traveler or bale of goods from Mobile to the Pacific coast harbor of La Union. United States and other steamers now pay from \$20 to \$30 a ton at La Union for English or Australian coal. It may be delivered there from Alabama over the transisthmian railway for from \$5 to \$7 a ton. Therefore, the government of the United States, as well as the people, must confess keen interest in this short, easily built railway, which surely must accomplish most beneficent political and commercial results.

After the plan of the transisthmian railway was conceived and the details published, and after applications were made for charters in Salvador and Guatemala, English and French bankers and capitalists sought much the same concessions; but the governments of Salvador and Guatemala both gave preference to the American applicant for these franchises. The Salvador charter conceded a monopoly for fifty years of the right of access to the matchless harbor of La Union. The cost of a double track road from La Union to Port Izabal or Port Barrios, it is stated by engineers who have surveyed part and traversed the whole route of about 300 miles, will not exceed \$35,000 a mile. There will not be a tunnel on the whole line, or a grade greater than 70 feet on any mile, and this only at each terminus, whence locomotives must climb, within 30 or 40 miles, to the mesa 2,000 feet above the sea.

The rapid multiplication of foundries, furnaces, and forges in Alabama and other Southern States induced the writer to seek, for the behoof of the commonwealth which is his home, an insatiable market for its products, to be found alone along the western shores of the three Americas. From every trading place of as many as 2,000 or 3,000 inhabitants along this interminable coast a railway will soon lead to farms and villages of the interior. Twelve such railways are now building between the southern confines of Chili and California. If the transisthmian railway be speedily finished, the iron and coal and steel of England and Australia may be supplanted everywhere on the Pacific by that produced in the United States.—*Report of L. J. Du Pre, U. S. Consul, San Salvador.*