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Table listing sections I through IX, including Chemistry, Electricity and Magnetism, Engineering and Mechanics, Geology and Exploration, Hygiene, Photography, Physics, Technology, and Zoology.

THE NEW ORLEANS TELEPHONE DECISION.

This case has been decided in favor of the Bell Telephone Company by Judges Dan A. Pardee and Edward C. Billings. The argument by Mr. J. R. Beckwith, in opposition to the injunction motion, was quite a novelty in its way. It was accompanied by the exhibition of a number of experiments in the court room on the quality of sound, rapid circuit breaking, and other points. Twenty-one days was the duration of the argument and presentation of evidence in the motion. Much was hoped from this suit by the opponents of the Bell patents, but the judges decide strongly in Bell's favor. The operativeness of the 1876 patent as a speaking telephone, and of Reis' inventions, is considered in the decision. The hopes of a different result were founded on the fact that the case was heard in the South, away from the circuits where the patent has been so often sustained. Meanwhile, one point must not be overlooked. The Bell patent has only seven years to run. Time, that cures so many ills, will soon remedy this one. But it is to be hoped, in the interests of abstract justice, that the case will go to the Supreme Court, and be heard on its merits there. The government suit may decide the patent invalid, but the prospects can hardly be called as favorable for that issue as they were esteemed for the chances of the New Orleans suit, that has gone the other way.

THE DEATH OF COL. RICHARD M. HOE.

Col. Richard M. Hoe died suddenly of heart disease at Florence, Italy, on the 9th of June. He was born in New York, September 12, 1812, and was consequently in his 74th year.

There are few names in the long list of American inventors which are more distinguished than that of Col. Hoe. The history of his life and work is the history of the perfection of the printing press. Col. Hoe's father was an Englishman, and came to this country in the early part of the century. In connection with Mr. Peter Smith, the inventor, he engaged in the manufacture of hand presses, and soon established one of the most important enterprises of the kind in this country. The son inherited his father's inventive genius, and from his earliest boyhood took a deep interest in all the details of press construction.

At the early age of twenty he became the head of the firm, the father's failing health having compelled his retirement.

The possibility of printing by steam was under discussion at this time, and nowhere received more thoughtful attention than from the young inventor. It was his good fortune to be called upon to set up the first Napier press brought to this country. His careful study of its construction, supplemented by the personal investigations of his partner in England, enabled him to devise an improved press, which rapidly superseded all others in the market.

In 1837 Col. Hoe invented a valuable method of manufacturing circular saws, which was widely adopted, both in this country and Great Britain. Soon after this he announced the completion of a new double cylinder press, capable of printing 6,000 impressions an hour. The statement was at first regarded with incredulity, but its practical verification soon followed. The first press built according to this design was purchased by Mr. Moses Y. Beach, publisher, at the time, of the New York Sun, and was long regarded as a marvel of progress. Even in those days, however, the metropolitan dailies were rapidly growing in circulation, and there was soon a strong demand for more rapid work.

From 1841 to 1846, Colonel Hoe labored in vain to meet this demand. And he was finally successful. The plan of fixing the type on a horizontal cylinder occurred to him, and was at once carried out in a four cylinder press, capable of printing 10,000 copies an hour. This invention brought further wealth and honor to its author, for it was introduced in many of the leading publishing houses in this country as well as abroad. The capacity of the press was increased from year to year, until at last ten cylinders were used and from twenty to twenty-five thousand impressions turned off in an hour. Such a mechanism, however, possessed a number of disadvantages. Its first cost was fifty thousand dollars, and as the services of one man were required for each cylinder, the expense of operation was also large. It was, moreover, rather a cumbersome affair, being 40 feet long, 15 feet wide, and 16 feet high. These disadvantages eventually led to the invention of the web presses now in use, which cut the paper after both sides have been printed, fold it, and deliver a perfect newspaper.

Under Colonel Hoe's judicious management, the business of the firm has grown to enormous proportions, until it is to-day a representative of the best development in American industries. One feature of the management deserves particular attention. The manufacture of a printing press is an operation requiring exact and careful workmanship. Artisans are needed who are thorough masters of their trade. Such men, however, are very difficult to obtain, and the firm has found it necessary to educate their own workmen. They have now between two and three hun-

dred boys in their establishment, who have been very carefully selected, and who are being trained in a practical, sensible manner to occupy trusted positions in the works.

During the day the boys are engaged in the shops, but in the evening they attend a well equipped school, maintained at the expense of the firm. The attendance is made compulsory, but all possible freedom is afforded the pupils in the selection of their special branches of study. The boys' natural tastes are consulted with as much care as they are afterward developed. The hours are made short, in order not to overtask the pupils. As time would not permit the majority of them to go home for supper, a plain, wholesome meal is provided for them in the neighborhood. In this manner good health and prompt attendance are secured. The system has worked well for both the firm and the workmen. The relations between the two are on the friendly basis which secures immunity from change and disturbances. The men are well treated and sure of promotion as soon as they are competent, and as a result the firm is well served. The wonderful growth and success of the firm are largely due to the careful workmanship which such a course has made possible.

Luminous Stone.

A method of utilizing the luminous powder prepared mainly as a sulphide of calcium for admixture with cements, plaster of Paris, and concrete has been recently invented by E. Ormerod and W. C. Horne, of London, the object being to prepare the articles with a self-contained phosphorescent property instead of coating them with luminous paint. As an example, the patentees take of cement, such as is known as Keen's Parian or other suitable make, in varying proportions, as, for instance, 2 pounds to 5 pounds to 1 pound of the luminous powder; mix the same with water, and then mould it to required shape in the usual way, or lay it on to ceilings or walls by means of a trowel. The patentees attach importance to placing the moulded articles, as soon as they have been dried, in a bath of paraffine wax and benzoline or other suitable weather or water proofing substance. In the case of using the luminous cement upon a wall or ceiling, they sponge or brush the surface over with a solution of paraffine wax and benzoline or other suitable dampproofing solution. The uses of a luminous cement are manifold: E. g., for the garden—luminous concrete as edging to garden paths and carriage drives, for guides and beacons at the entrance gates of drives, insides of stables, the base of balustrades, or the entirety of balustrades. For roads—as luminous beacons at corners of dark country lanes, and at the ends of bridges, ends of walls, and curbs of footpaths. For docks—for edging of piers and wharves. For waterworks—for the safety and dispatch of night work by the erection of luminous guides and beacons and for fire plug notices on walls. In short, for any places where the light of day will sufficiently excite the phosphorescent property as to render the cement or concrete work luminous by night.

Durability of Zinc when Exposed to the Atmosphere.

Dr. John Percy, who is a very high authority, on page 531 of his book on Metallurgy, published by John Murray, of London, in 1861, writes as follows: "At the ordinary temperature, zinc is not acted upon by dry oxygen; but when exposed to moist oxygen or to atmospheric air, its surface acquires a compact, tenacious, gray coating of hydrated oxide, which impedes the oxidation of the subjacent metal. In this respect the rust of zinc differs much from the rust of iron, which, instead of impeding, seems rather to accelerate the oxidation of the subjacent metal. By the conjoint action of moist oxygen and carbonic acid, zinc is converted into a hydrated carbonate. The roofing from which the specimen analyzed was obtained had been exposed to the atmosphere of Munich for 27 years. Pettenkofer ascertained that during that period 8'381 grammes of zinc per square foot (Bavarian) had been oxidized, and that nearly half of the oxide is carried off by rain. Hence he estimated that a layer of zinc only 0'005 of a line (a line is one-twelfth of an inch) in thickness requires, in the atmosphere of Munich, 27 years to be entirely corroded; so that, leaving out of consideration the oxidation of the lower surface, which may be practically disregarded, a zinc roof of one-quarter of a line (equal to one forty-eighth of an inch) in thickness would be completely corroded in 1,243 years.

An Aerolite Hoax.

In our issue of May 29 we gave an account of the finding of a great meteorite in Washington County, Pa. We were indebted for the story to a daily paper published near the locality, and after our efforts to obtain a more direct account had failed, we accepted the statement of our contemporary as true. It appears the whole account was a fiction, and must be relegated to the same shelf with the famous moon hoax of the New York Sun.