COMMENCEMENT OF POLYTECHNIC COLLEGE OF PENNSYLVANIA.

The twelfth annual Commencement of the Polytechnic College, of the State of Pennsylvania, was held in Concert Hall, Philadelphia, on the 30th of June, a large and intelligent audience, composed of the principal engineers, directors of public works, mechinicians and scientific and "solid" men of Philadelphia and their families, greeted the successful aspirants for college honors. The music was performed by the Germania orchestra, the best in the city, and the exercises throughout were of an impressive and appropriate character.

The introductory address was delivered by Rev. Dr. Shields, whose theme was the economical development of American industry and the means of repairing the waste of war. He eloquently portrayed the position of the country and the gradual retirement of the weapons and engines of war to give place to the implements and engines of active, earnest and peaceful industry. Already the military engineer has been sent to the rear. The mine engineer, the civil engineer and the mechanical engineer were now at the front directing the innumerable army of productive labor. The Polytechnic College sustained to-day a high national position and her success was an additional guaranty of the steady and healthy advance of the applied sciences in our country.

The charge to the graduating class was pronounced by Hon. Ex-Governor Pollock, Director of U. S. Mint, who preceded the delivery of the charge by complimentary reference to the growth of the School of Mines in the College. He sustained his views of the value of that school, not only to the great mining State of Pennsylvania, but to all the other mining States, by quoting from official sources the wonderful yield from year to year of the American mines, the lucrative and responsible position open to native mine engineers, the direct manner in which the yearly increasing amount of our mine products facilitated the entire extinguishment of the national debt.

The President of the Faculty announced that the East Pennsylvania Agricultural School had been made a Department of the Polytechnic College, and that it would be opened as such in September next on a farm of 175 acres, purchased for the purpose, in Montgomery County, Pa.

The following are the names of the graduates, and the subject of their theses:—

BACHELORS OF MINE ENGINEERING.

Frank Farmstone, Easton, Pa.—"The Construction of an Anthracite Blast Furnace."

Wm. G. Macdowell, A. B., Philadelphia.—"The Reduction of the Ores of Zinc."

Wm. Main, Jr., A. B., Philadelphia.—"Method of Attacking and Detaching Rocks."

Theodore F. White, Norristown, Pa.—"The Mechanical Preparation of Ores."

J. Price Wetherill, Bethlehem, Pa.—"The Oxide of Zinc as a Pigment; its Manufacture and Use."

BACHELORS OF MECHANICAL ENGINEERING.

John Fowler, Philadelphia.—"The Storing and Distributing Gasometer."

Wm. D. Hewitt, Burlington, N. J.—"Casting and Founding."

BACHELORS OF CIVIL ENGINEERING.

Charles Allmendinger, Philadelphia.—"Roof Constructions."

W. Clarence Cranmer, Port Richmond, Pa.—"Canal Locks."

Henry H. Corson, Plymouth Meeting P. O., Pa.—"Wooden Truss Railroad Bridges."

Narcisse R. Dennis, Chester, Pa.—"Land Drainage."

George U. Engle, Philadelphia.—"The Preservation of Timber."

J. Pemberton Hutchinson, Newtown, Pa —"Artesian Wells."

Percival B. Heilner, Pottsville, Pa.—"The Breaking, Screening and Purification of Coal."

William Johnson, Brandywine Manor, Pa.—"The Ballast and Sleepers of Railroads."

Samuel B. Judah, Vincennes, Ind.—"Piling Foundations."

John R. Jones, Conshohocken, Pa.—"The Aqueduct."

Benjamin C. Reeve, Alloways'own, N. J.—"Bridge Foundations."

Prospero B. Romen, Santiago de Cuba.—"The Iron Rail; its Manufacture, Weight and Proportions."

Wm. G. Smyser, Norristown, Pa.—"The Common Road."

Henry C. Thompson, Philadelphia.—"City Drainage."

The Master's Degree in Course was conferred upon the following Bachelors of four years' standing:—

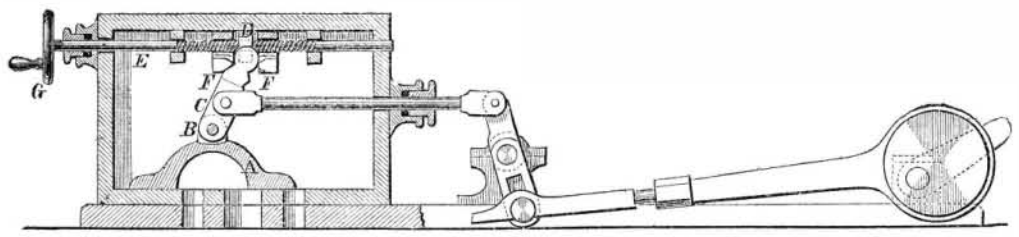
Master of Mechanical Engineering—Lewis W. Robinson, Assistant Engineer U. S. N.

Master of Civil Engineering—Joseph B. Hutchinson, Division Engineer Western Pennsylvania Railroad.

Improved Slide Valve Movement.

The improvement herewith illustrated was patented through the Scientific American Patent Agency by John B. Cochran, of Brooklyn, N. Y., May 30, 1865.

It is claimed for this invention that the steam may be cut off at any point of the stroke desired without altering the lead. To effect this object the inventor provides the valve, A, with a lug, B, to which is attached a lever, C. This lever is jointed at the top to a collar, D, which slides on the rod, E. There are on this rod two nuts, F, which have right and left-hand threads to correspond with those on the stem, so that when the hand wheel, G, is turned, the nuts will be spread open or drawn together. These nuts constitute a stop-motion, for when (says the inventor) the nuts are close together—as in the engravings—the valve will travel full stroke, but by throwing the nuts apart the collar will first slide on the rod until it meets the stop nut, and will then be checked in its motion and move the main valve, A, in a less degree, or a distance corresponding to the distance of the nuts from each other and the length of the levers. By varying the spread of the nuts it is claimed that a simple and efficient device for working steam expansively is obtained.



COCHRAN'S SLIDE VALVE MOVEMENT.

The owner of the patent is desirous to dispose of the whole right, or he will sell, upon reasonable terms, State rights. For further particulars address George G. Cochran, corner of Atlantic street and 4th avenue, Brookiyn, N. Y.

A Dangerous Invention Brought to Light.

The following letter was sent to us by the private secretary of Governor Pierpont, of Virginia, who remarks that it was found among the private papers of ex-Governor Letcher shortly after the evacuation of Richmond. As "genius cannot thrive in fetters," so, consequently, "the combined atmospheric pressure and lever power" was not arrayed against the Government:—

"I notice in the Richmond *Enquirer* some one desires inventions that might be useful in repelling our enemy. I have a plan, which is to have a concealed lever which will move at the proper time, by the tread of the enemy, and which will spring a number of triggers that will set off as many bombs; also cannon, sealed water-proof, and set in rivers and bays. Vessels passing over them set them off, and are thereby destroyed. If you think my plan would be of any use, let me know. If I had money sufficient I would come down and show the mechanics how to do the work. I think my plan may be useful. I wish to do all I can for the safety of our country and make the path of the enemy a rough one. I have a plan for bringing atmospheric pressure and lever power combined to propel machinery. I am confident this will work equal to any power. If I can get the chance to come to Richmond and get the model made, and, if successful in this, I could have cars so constructed that we could run right in among the enemy and make tremendous havoc among them, and not be harmed by balls. This should be kept a secret. I wish to get a patent for it. As I put confidence in you two gentlemen, if you think any of my plans will be useful, either or each of you can write to me and let me know what you think of it.

"Respectfully, "THOMAS M. LEE.

"To Governor Letcher and President Davis."

Effect of Lightning.

Dr. Boudin, says the *Mechanics' Magazine*, has sent a note to the Academy of Sciences on the fulminating power of bodies recently struck by lightning, and of which he adduces two remarkable instances. On the 30th of June 1854, a man was killed by lightning near the Garden of Plants at Paris; the body remained for some time exposed to a pouring rain. After the storm two soldiers, in attempting to lift up the body, received two violent shocks. In the other case, which occurred at Zara, Dalmatia, two artillerymen who had been ordered to set up again in their former places two telegraphic posts that had been thrown down during a storm; took hold of the telegraphic wire. Although it was two hours after the storm, there was so much electricity left that the men first experienced a few slight shocks, and then were both thrown to the ground. The hands of both were scorched, and one of them did not even for a time show any signs of life. The other, in attempting to get up, sank down again, and in so doing touched a comrade, who was coming to his assistance, with his elbow. The third man was then thrown down in his turn, experienced various nervous effects, and his arm was marked with a burn at the spot where he had been touched by the other man's elbow.

Mountain Railways.

Pending the completion of the tunnel of seven and a half miles through Mont Cenis, and which—as more than four and a half miles remain to be pierced—will yet require seven or eight years, Messrs. Brassey have taken steps toward the construction of a railway over the mountain, to supply the break of forty-seven miles now existing between St. Michel and Susa, in the line of communication between France and Italy. An experimental line has been already constructed on the French side, between Lanslebourg and the summit, a distance of a mile and a quarter. Capt. Tyler reports officially to the Board of Trade that this experimental line possesses a mean gradient of one in thirteen, and a maximum of one in twelve. It passes round a sharp corner, joining two of the zigzags of ascent on a curve with about two chains radius, and was purposely constructed on the most difficult portion of the route. Horizontal driving wheels act on a middle rail. The importance of these results to the future of railway construction in mountainous countries can, therefore, hardly be overestimated. Capt. Tyler says the railway will be safer than the road.

Hints to Purchasers of Precious Stones.

There are in practice, we fancy, only three rules worth much to the unskilled public when in search of really good stones. These are, first, never to buy of a jeweler, but always unset stones of a lapidary who deals in nothing else. He will give you an indefinitely larger choice at an indefinitely lower price, and as you can really see an unset stone, you have at least the advantage of your eyes, which you have not when the stone is crusted up with what it pleases some jewelers to call gold. Second, buy no stone of any value without a written statement of its weight, verified before the purchaser's eyes; and third, recollect that all stones except the finest diamonds and rubies are cheaper than the popular impression of their price, and that the inferior stones—beryls, topazes, amethysts, turquoises, garnets and onyxs—are comparitively cheap indeed, being produced in quantities which render enormous prices simply waste of money.—*London Spectator.*