

When this pressure is suddenly released, a great disturbance follows within the boiler. The water may be projected against the sides of the boiler at a velocity approximating 2,000 feet a second, which was considered sufficient in most cases to account for the terrific explosions which rend boilers in pieces, throwing portions of them hundreds of feet. Instances of terrific explosions were cited, and photographs illustrating them were exhibited.

Mr. Allen touched briefly upon the subject of the spheroidal condition of water, repulsion and deaerated water as the cause of mysterious (?) boiler explosions. His opinion, however, was that we need not look for mysteries in this manner, when we consider that there are so many things to decrease the ability and working age of a boiler, arising from poor material, poor workmanship, and careless management. He alluded briefly to the explosion of the boiler of the steamer *Adelphi*, at Norwalk, Conn., by which 16 lives were lost, and showed how this disaster might have been prevented by thorough inspection and timely repairs. This was illustrated by photographs and blackboard sketches and drawings.

The lecture closed with a brief history of the formation of coal, the carboniferous age, the wonderful growth of plants, the absorption of carbonic acid gas from the atmosphere, all energized by the rays of the sun, illustrating the words of Sir Robert Stephenson, who said that the energy in the coal was derived from the sun, the source of all power. The thinking mind, however, sees a power back and beyond all this, though science can go no further. We are on the boundary of the realms of faith.

**Convict Labor.**

*First workman.*—No; what I say is that no criminal ought to be allowed to work. 'Cause if he works he works cheap, and it knocks down your wages and mine.

*Second workman.*—Wal, I dunno—you see—

*F. W.* (quite warm)—There ain't no "see" about it! I tell you it degrades every human man's labor to have a State prison bird doing the same sort of thing fer a quarter of the wages. It ought to be forbid by law!

*S. W.*—Wal, I dunno; you see if—

*F. W.* (deeply excited)—Nonsense with your "ifs" and "buts" and "mebbies!" It's easy enough to see. If a lot o' chaps works fer 20 cents a day, you ain't goin' to get \$2, be you? Not much! Don't it bring you right into competition with degraded culprit labor? D'ont it? Say! Don't it? Why don't you speak and say something?

*S. W.*—Wal, I dunno. Ain't it true that—

*F. W.* (furious)—No, it ain't true! They ain't a word of truth in it! You know ez well ez I do that—

*S. W.* (bristling up and interrupting)—Look a-her! You yaup every minute. 'Spose you jest shet your fly-trap tempo-ra-ri-o-ly and give me a chance to say a word.

*F. W.* (toning down)—Very well, ef you reely think you got anything to say thet amounts to anything, jest spill it.

*S. W.* (tuning up)—This ere: Ef prisoners don't work an' support themselves, somebody's got to work to s'port 'em.

*F. W.*—Wal, capital 'll support 'em.

*S. W.*—And who s'ports capital?

*F. W.*—Why—nothin'—it s'ports itself.

*S. W.* (laying his hand on the first workman's shoulder)—That's where you make your mistake. Labor s'ports capital.

*F. W.*—How do you make that out?

*S. W.*—If the State's prison don't s'port itself, it is s'ported by taxes. Whenever a property holder pays a tax he adds to the price of what he sells enough to reimbuss him. And labor eventooally pays every cent.

*F. W.*—It seems to me that if—

*S. W.* (now thoroughly aroused)—"Seems!" They ain't no "if" 'bout it! Any fool can see it! Somebody's got to pay that pris'ner's board. Ef he don't earn his own board, you an' I 've got to pay it out'n our wages.

*F. W.*—P'raps you're right. Ef thet's so, he might jest ez well go to work.

*S. W.*—And keep to work. Seems to me labor is degraded more by 'lowing a lot of rogues to shirk for the privilege of payin' their board, then by makin' 'em work at some price or other.

*F. W.*—But they work for less wages than we kin.

*S. W.*—But there's very few of 'em, and ez they work to pay the expense of keeping of themselves shet up, I don't see ez it makes much difference whether they earn a cent a day or \$5 a day, ez fur ez we are concerned.

*F. W.*—But they shouldn't be let out on contract.

*S. W.*—Certin they should. They should be made to work, and their services should be let out to them that'll pay the most for it.

*F. W.*—Then sposen they earn more'n they cost?

*S. W.*—In that insposable case the surplus should be turned right into the State treasury.

*F. W.*—Ain't it demorlizin' and undignified for respectable folks to let their gov'ment be s'ported by the crim'nal classes?

*S. W.*—No, sir! It ain't! What awful stuff hev you got into your head? The more work you can git out of criminals the better! That's all they're good fer whilst they're bein' punished. Why, ef 'twan't fer the crim'nal classes there wouldn't be no need of gov'ment. Did you ever think of that? They ought to s'port it!

*F. W.*—That does look sort o' reason'ble after all. Why, that ain't wot that feller said down to the Union.

*S. W.*—Don't let anybody fool ye! Make all prisoners work jest as much as possible. It'll do 'em good. Make 'em earn ez much ez they kin, either under the superintend-

ent or outside contracts. And remember that every cent a prisoner earns is jest so much in the pockets of the laborin' men.—*New York Graphic.*

**American Locomotives in Switzerland.**

English people are wanting work, and yet for some reason or want of it our locomotive builders allow a country nearly 2,000 miles farther away from Switzerland than we are to supply locomotives to that country. It is stated that the enterprise of our most energetic competitors in manufactures has sent a locomotive to Geneva specially in order to test its capabilities of producing steam from the anthracite coal found in the Valais. This cannot be used in Swiss or French locomotives, as at present constructed, but the experiment with the American appears to have been an entire success. The furnace arrangements of the American locomotive are said to be admirably adapted to the employment of this coal, which is not unlike, in its behavior in the fire, that used in America. The engine will run with fuel which would bring the ordinary continental locomotive to a standstill; and the system, if adopted in Switzerland and other parts of Europe, as some such doubtless will be, will effect an important saving in coal to those countries, and give work to others.—*London Engineer.*

**THE ALHAMBRA VASE**

The beautiful vase represented by our engraving was found in the Moorish palace, Alhambra, in the 16th century.



**THE ALHAMBRA VASE.**

It was filled with gold coins, the inscriptions upon which showed it to have been made not later than the beginning of the 14th century. The body of the vase is of dark terracotta, splendidly decorated with colored enamels and gold. It is regarded as the most valuable specimen of Moorish industrial art that has been preserved.

It will be remembered that at the time this vase was made the Moors of Spain monopolized almost entirely the civilization of Europe. Decorative art was especially encouraged among them, their skill excelling not only that of their most skillful rivals, but in many respects has never since been surpassed. Their most extensive potteries were situated at Malaga, where several thousand workmen were employed. The art of enameling was well understood there, as the Alhambra Vase so admirably shows, silica and the oxides of lead, tin, cobalt, etc., being used for such decorative purposes.

**The Chesapeake and Delaware Ship Canal.**

The surveys for the proposed canal across the peninsula of Maryland are being prosecuted with vigor. The *Baltimore Sun* says that very careful and accurate measurement of the tides in the two bays is being made, and it is a singular fact that when it is high water in the Delaware Bay it is low water in the Chesapeake.

Eight routes have been surveyed, and they all cross each other at some points, so that they may be modified indefinitely.

This number, however, covers all the courses that can be called main routes. There is nothing new in the suggestion of this work; it has been often made, and for many years the intelligent portion of the population of both States has looked forward to the undertaking and accomplishment, under the developing influence of the necessities of trade, as a maritime improvement which sooner or later must occur. Foreign or coasting vessels coming to Baltimore through this canal would require no pilots, as the mouth of the Delaware Bay, unlike that of the Chesapeake, is freely navigable. There will be no locks, as in ordinary canals, to lift up or let down the boats. The ship canal will be nearly level throughout, and only guard locks will be required, which will be to regulate the entrance of tide water at each end, and the inflow of water from any rivers or streams which it may cross.

**Australian Exhibitions.**

Mr. Samuel H. Roberts, Hon. Corresponding Member of the Society of Arts, London, writes as follows: Preparations are being actively carried on for no less than three exhibitions. The International Exhibition at Sandhurst (one of our largest mining centers), to be held next year; a Juvenile Industrial Exhibition, also to be held next year in Melbourne; and the great International Exhibition of Melbourne, to be opened in 1880. Tenders for the building are to be opened next week. A splendid design has been prepared by the architects, Messrs. Reid & Barnes. The estimated cost of the building is between £60,000 and £70,000. The commission to carry out the undertaking consists of about fifty members, and they have just appointed J. C. Levey, C.M.G., as the secretary. I send circulars and programmes of the Sandhurst and the Juvenile Exhibitions. Those of the International Exhibition are not yet out, but are expected before the mails leave to-morrow. If they are issued I will send you them also.

There is also to be an exhibition in Sydney next year, and so many applications for space have been received, that the enterprise has assumed a magnitude not at first expected, and above the present means of the committee; it is, however, probable that the New South Wales Parliament will come to their aid with an adequate grant.

The question of Chinese immigration is agitating the minds of the people of Sydney and the northern portions of Australia. Public meetings have been held, and resolutions adopted, calling upon the government to take measures to restrict these in coming to the colony. One very serious result of the antipathy to the Mongol race is a strike of the seamen engaged by the Australian Steam Navigation Company, owing to the Chinamen being employed on some of their steamers, and the probability of the number being shortly increased; meanwhile the ships of the company are laid up for want of crews. The commerce of the port is, for the time, much injured by the dispute.

Large additions are in progress at the Melbourne University through the princely generosity of Sir Samuel Wilson, who has presented £35,000 to the institution. This good example has just been followed by Mr. Ormond, who has promised £10,000 toward building a Presbyterian College in connection with the University, on condition that an equal sum be subscribed within twelve months. As already £8,000 has been sent to the committee, there is no doubt as to the condition being fulfilled.

**Money by Mail.**

A correspondent offers the following suggestion with regard to an inconvenience widely felt. The plan proposed would doubtless prove as great a convenience to the receivers as to the senders of small sums by mail. The writer says:

"Now, since postal currency has gone out of use and dollar bills are getting scarce, we, in the country, need some mode of sending small sums of money by mail. The money order system is excellent, but the charge for sums less than one dollar is too high a percentage on the value of the thing wanted. I would suggest that postmasters be authorized to receive change in sums less than one dollar, and issue certificates for the same, which shall be receivable at any post office for stamps, or when presented in quantities of five dollars and over to be cashed. The certificates to be issued to postmasters in book form, and so printed that the piece torn off will represent the sum, the whole page representing one dollar. The certificates to be at the sender's risk. Postmasters to make returns when a book is used up. Such a system would facilitate trade between distant points and increase the revenues of the post office department."

**Railway up Vesuvius.**

It is thirty years since a concession was granted for a railway up Vesuvius. It has been promised many times, but never so positively as now. The plan proposed involves the construction of an iron elevated railway about three feet high above the ground, on which is to run a train of eight cars operated by a steel cable. Each car is to be furnished with two automatic brakes. The cable will be double, in case of accidents. The actual tension on it will be 3,000 kilogrammes, but it will be made to support a tension of 33,000 kilogrammes. A small station with a restaurant will be constructed on the cone and another at the foot of the mountain. The ground has been chosen where there is least danger from an eruption, and all the material is movable, so that it can easily be taken up and stored in the observatory in case of eruption. It is expected that the railway will be completed before the summer of the present year.