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For the Week ending September 7, 1878.
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Rock boring Machinery. From the work of RICHARD SCHRAM. Comparative merits of the several systems; the ram, the lever, the duplex, the rotarr, and the direct acting. The Burleigh. Sach, Warrington, Ferroux, Brandt. Asterkamp, Lisbeth. Reynolds, and other machines, with accounts of interesting trials and practical experience with each. The slide action. An automatic feed.
Compressed Air in Mines. By M. G. JOHNSON. Its first use in the Mont Cenis Tunnel. Its advantages. Loss of power by heat. The coid produced. Hick versulow pressures.
How to Make Boat Lines. By R. COOPER, Canada. How to make the model, and how to enlarge from it, with directions and dimensions fur construction. New mode of cance building, it figures.—The Abbott Pudding Furnace, 1 figure.—Lecomotives vs Horse Power.—Progress of Artillery.—Rocket Firing.—New Torpedo Boats.
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of Artillery.-. Rocket Firing,.-. New Torpedo Doass. TECH NOLOGY.-Progress of Gas Manufacture. Presidential address to the North British association of gas managers. History of gas light-ing, and progress in retorts. The bydraulic main; gas condensers; washers and scrubbers; gas purification; exhausters and governors: gas holders; mains and service pipes; electric versus gas lighting.--Artesian Wells.--Labor in Wales. n

Artesian Wells.—Labor in Wales. III. FRENCH UNIVERSAL EXPOSITION OF 1878.—Hydranlic Riv-eting Machines, 4 figures.—Pavilion of the Creusot Ironworks, 11-lustration.—The Largest Steam Hammer in the World, 111lustration, with description of foundation, cylinder, and the 60-ton hammer, with four cranes, etc.—Lamm's Fireless Locomotive. Description of con-struction and trials.—Ore Washing Apparatus, 2 figures.

INDEPENDENCE AMONG ARTISANS.

A number of years since a hosiery factory was started in England and Wales: for a little while all went on well, but dental and secular results of recent American labors in closed.

When deprived of the factory work, most of these workmen, sensibly recognizing that work was better than idleness and bread more sustaining than any amount of grumbling, instead of becoming burdens upon the community in which two in his little house or room, and continued the manufacto such advantage that now they are all in independent circumstances, and can with difficulty supply the demand for tellectual and moral enlightenment. their especial productions.

We cite this one of many instances which have come to our knowledge to indicate what may be done by many of those artisans with us who are now out of employment.

To our mind the past years of prosperity, of high wages, and excessive demand for workmen were, generally speak- parent results of New World efforts to introduce modern ing, far more hurtful to the laboring classes than the few recent years of depression and stagnation, for in the recent and part of the Old World. This is done by reviewing what present times are sown the seeds of patience, self-denial, and Americans have accomplished in the Turkish Empire in reself-reliance, which will bear good fruit if properly cultivated and trained.

older countries has developed some conditions full of useful suggestions to us.

Wherever we travel there we are surprised to learn that a large proportion of the smaller articles of manufacture, with which, in some instances, the trade of the world is supplied, are made by artisans in their own houses and with the simplest appliances; and we find there also, in almost every large town or city long established, business houses whose sole business it is to receive and distribute these goods, to find markets for the handiwork of the independent workman.

We know of prosperous firms in England who do a very extensive trade in this way on an investment probably of not Armenians, the Druses, the Maronites, and the Turcomans, more than \$10,000. Obtaining samples of their productions besides great numbers of occasional and straggling residents, from the various artisans so employed, they intrust them to as gypsies, Persians, Hindoo Fakirs, and wanderers from the their "drummers" or "commercial travelers," who travel in every direction exhibiting them and soliciting orders: on receipt of an order the special workman is notified, and soon makes his appearance with his basket or bundle of goods, which are inspected and paid for according to previous agreement. The goods are then put up in the conventional packages and shipped according to order.

Almost every variety of article of household and builders' hardware, wooden and tin ware, brushes, brooms, etc., made by independent working men and women, are thus collected and disposed of by this one house; and this is but a sample of the hundreds that are engaged in the same business.

against the pressure of hard times.

While we would advise and encourage to the utmost gen- Turkish, Greco-Turkish, Bulgarian and Arabic. eral independent work of this kind, we recognize the need of another element to insure its pecuniary success.

Established in most cities are women's aid societies, whose articles of women's handiwork, and whose labors in this direction have kept distress and despair from many households. wolf from the door without the intervention of this powerful leges. A fourth college has recently been projected. ally.

WHAT AMERICANS HAVE DONE FOR TURKEY.

A late issue of the British Quarterly Review devotes a one of our country towns, and workmen for it imported from large amount of space to an appreciative survey of the incifinally the company failed and the works were permanently Turkey, and shows that those labors have not only been enormously beneficial to the people of Turkey, Asiatic Turkey especially, but also the chief source of the world's scientific knowledge of the geography and ethnology of those regions. For half a century the civilizing influences at work in Asia Minor have been mainly of American origin; they had cast their lot, set up, each of them, a hand loom or and it is gratifying to know that the new protectorate of the East is predisposed by faith and blood to treat with fairness ture of the goods which they had produced at the factory, if not with favor the agencies which American missionaries and by the aid of the country storekeepers disposed of them have established there for the amelioration of the physical and social conditions of the people, as well as for their in-

Leaving out of view the work of religious reformation which our missionaries have been engaged in, not because that work is not appreciated, but because the British public is already somewhat well informed in regard to it, the Quarterly writer dwells at great length upon the more apideas and modern civilization into the very heart of the oldest spect to the following particulars: 1. Exploration; including some notice of the physical geography and ethnology of The chronic superabundance of the abor supply in the the country. 2. Literature and education. 3. Medical practice; and 4. The improved condition of woman.

> Under the first head the reviewer notes with more or less of detail the explorations carried out by thirty or forty American students of the East, some of which, like the exploration of Palestine by Robinson and Smith, and of Armenia and Persia by Smith and Dwight, mark eras in antiquarian research. One of the marked peculiarities of the Turkish Empire is the great number of separate races over which the Sultan so imperfectly rules. Among them are the Kurds, the Osmanli Turks, the Arabs, the Yezidees, the Greeks, the Bulgarians, the Circassians, the Copts, the interior of Africa and from the most distant regions of Central and Eastern Asia. In answer to the question, What light have the Americans thrown upon the national characteristics of these previously little known peoples? the reviewer says that "in their published works and letters the Americans have brought out in the clearest manner the marked and peculiar characteristics of each nationality."

The tribute paid to American efforts in behalf of literature and education is even more generous, and it has been fairly earned. Fifty years ago the press was unknown in Turkey; there was not a single school book in the spoken languages of the country; and modern science was a thing Thousands of our artisans could thus make themselves and undreamed of. Now, in addition to the Scriptures in all the families independent of corporations and capital, and secure | leading languages and most of the dialects of the country, full lines of school books are published in Armeno-Turkish Of course it is not to be expected that all the articles thus and Armenian, besides works in Arabic on anatomy, chemproduced would equal in finish those manufactured by im- istry, natural history, physiology, botany, surgery, materia proved machinery, nor that they could be sold at such a profit medica, mental philosophy, physical diagnosis, and asas if they were manufactured on a large scale; but the in- tronomy. Treatises on pathology, geology, and history are dependent workman would neither expect nor require such in course of preparation. The reviewer says: "The testiprofits as are necessary to the life of a corporation, with its mony of those best qualified to judge in regard to the charcostly buildings and machinery and its salaried officials; and acter of these books is that they are well prepared, both in he may be always sure that any intelligent labor of his will respect to matter and the style of the language." Up to enhance the value of whatever kind of crude material it is 1875 the mission presses at Constantinople and Beyroot had applied to, in a measure sufficient for his needs and comfort. printed a total of 446,460,120 pages in Armenian, Armeno-

Limited space forbids any attempt to describe the educational work done in the schools and colleges established and sustained by American efforts in the Turkish dominions. charitable business it is to receive and sell the innumerable Suffice it to say that there are two hundred and ninety common schools, with nearly twelve thousand pupils of both sexes; fifteen girls' boarding schools of higher grade, with These societies supply a want long and keenly felt; willing between four and five hundred scholars; several high schools and skillful hands these were, but they could not keep the for young men; seven theological seminaries, and three col-

Most interesting is the account given of the labors of All over the land, too, in every town and city, associations American physicians in administering to the varied wants of of mechanics have established stores, "union" stores they a people otherwise destitute of intelligent medical treatment. are called, for the purchase of provisions and groceries at The reviewer says: "We find ourselves embarrassed by the lowest prices, and the sale of them to the members of the as- great amount of information before us in regard to the charsociations at but little above cost, thereby securing in this acter, extent, and results of this medical work in Turkey. It direction to their beneficiaries all the advantages of com- is all the more worthy of note because it is unknown except

Four cranes, etc. -Lamm & Freiess Locomouve. Description of construction and trials. -Ore Washing Apparatus, 2 figures.
CHEMISTRY AND METALLURGY.-Chemical News. Glycolide. Ammoniacal Ctrates. Quinonol of Ageric. Iodine phenols. Thymol. Acetic ether. Glucinum. Synthesis of oxindol. Transformation of spectra. Research for nitrous acid. Slivering glass. Indigo Magnesite. The chromates. Artificial production of carbonate of soda. Gallium. Starch. Quercite. Coloring matter of wines. Deplarization. New dielect ic constant. Electro-magnets. Organized dust in the atmosphere. Aurin. Finare reaction of boracic acid. Hydroquinon-phthalein. Oil of lighter. Brucin. Ortho-azo-benzole acid. Cedriret, Dyes at the Entibilion. Alizarin., Tin crystals. Electric light. Vinegat test. Antline black. Brown alizarin. The Product of combustion. By TROMAS WILLS, F.C.S. Quantity of all required for combustion. Illuminating fuels. Candles: sperm oil; coal gas, Amount of vitiation of the air produced by gas burning and respiration. Your shall be on building material. Enormous quantities of air required for coal mines. Dangers from organic matter in baily ventilated nooms. Produced by gas combustion. In Jury to metals, book-bindings, etc., by the sulphurous acid from gas. -Composition of Potatoes. IV

- from gas. -Composition of Potatoes. NATURAL HISTORY, GEOLOGY, ETC.-The Rivers Parana and Uruguay. By JORN J. G. KYLE, Buenos Ayres. Analysis offwaters.-Volvox Globator, a beautiful microscopic organism of the lower classes of Cryptograms, with 8 figures.-Currant Worms. Results of the Recent Eclipse. Further observation of Vulcan. The physics of the sun and the corona. The spectrum. Experiments with Edison's Tasimeter. Effect of solar forces upon meteoric matter.
- Edison's Tasimeter. Effect of solar forces upon meteoric matter. VI. WEDICINE AND HYGIENE.—Histology and the Cellular Theory. By Dr. EDOUARD FOURNE. Fundamental principles of the theory according to Schuann. Labors of Coste, Vogt. Bergmann. Vogel, Goodsir. Kolliker, Luschka, Bischoff, and Londers. M. Virchow's ideas The analogies in the vital manifestations of organisms and unicellular animals. The essential point in the inquiry.—Temporary Kleptomania. By HUGH MILLER, M.D.—Antidote for Mercury and Lead Poisoning.—Milk a solvent of Quinine.

bined capital and enterprise.

to a limited circle in the United States, and scarcely at all

These aids to the poor and impoverished, admirable so far in England. For a long period of years well educated phy as they go, are still far from satisfying all the conditions; sicians and surgeons from America have been quietly workthe women's aid societies help the impoverished, but rarely ing in all parts of Asiatic Turkey These gentlemen have the poor; the "union" stores furnish cheaper food to the poor made extended and interesting reports in regard to the and struggling artisan, but afford no direct help to his efforts diseases of the country, the climate, the state of medical practice, and their own special labors." These reports reat independence.

An incentive, a hope, a certainty indeed must be held out to call apostolic times, when the gratuitous healing of the sick, him, for he cannot afford to risk a day of his precious time the maimed, and the blind preceded and prepared the way on anything speculative; he must be assured of a strong ally | for the work of evangelization. The reviewer takes leave of before he can dare to make the effort for liberty And in this part of his subject reluctantly, feeling that he has done what better way can this assistance be secured than through scant justice to the immense amount of hard and often self-"union" associations for the sale of every kind of handi- denying labors of the American physicians in Turkey, most work produced by these workmen?

of whom laid down their lives in the cause which they had espoused.

When the Americans first began their work in Turkey the eye shots, at eight hundred yards, has been made on the set of publicsentiment was very decidedly against the education of women; this among Christians as well as among Mo. hammedans. The effort to make women sharers in intellec-

THE unparalleled feat of thirty-nine consecutive bull's-Wheeling (Western Va.) range by Professor Dwight, in the competition for a position in the rifle team of this year.