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THE MANUFACTURE OF VALVES.

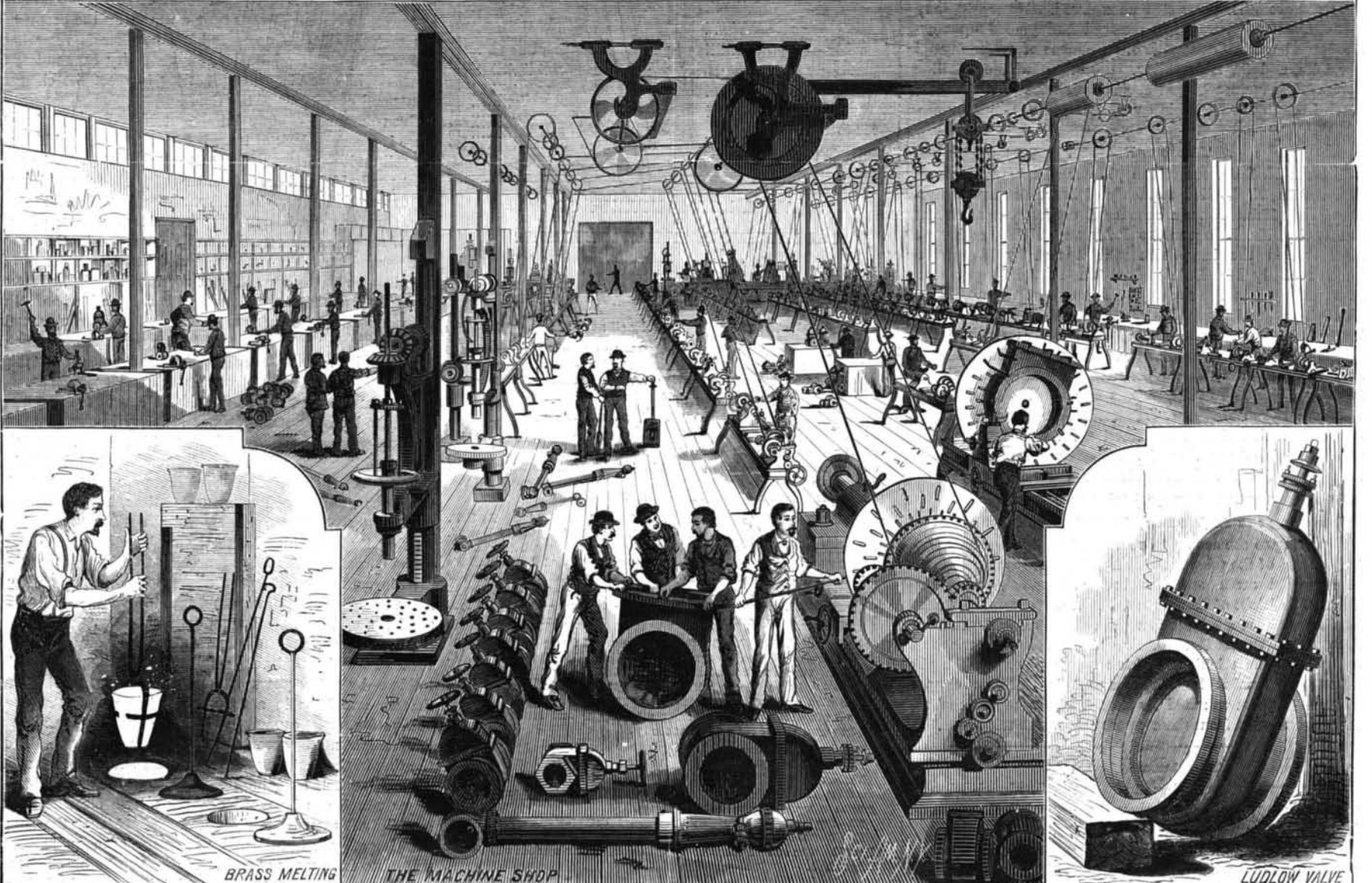
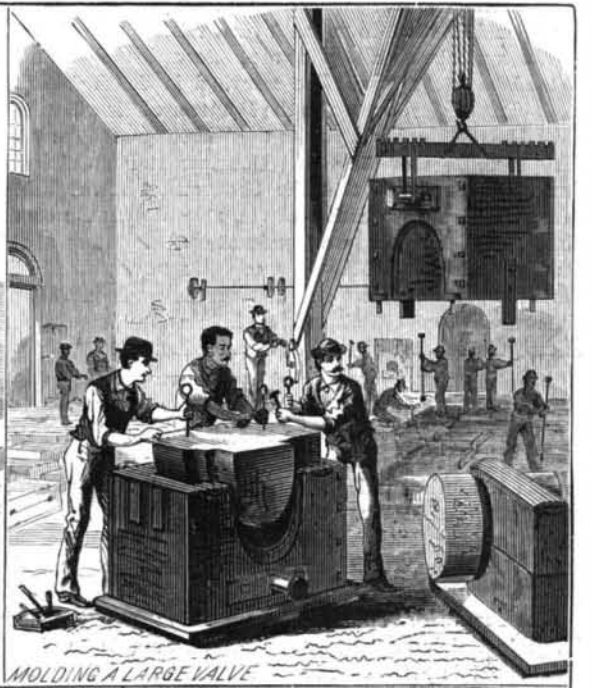
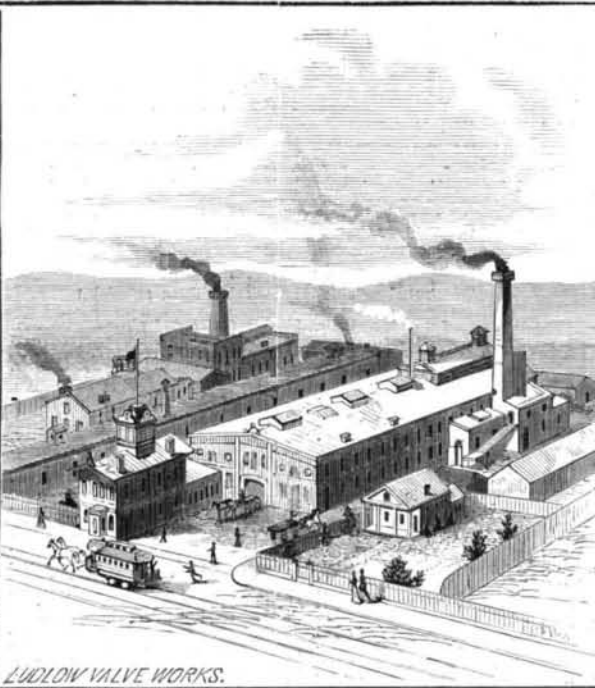
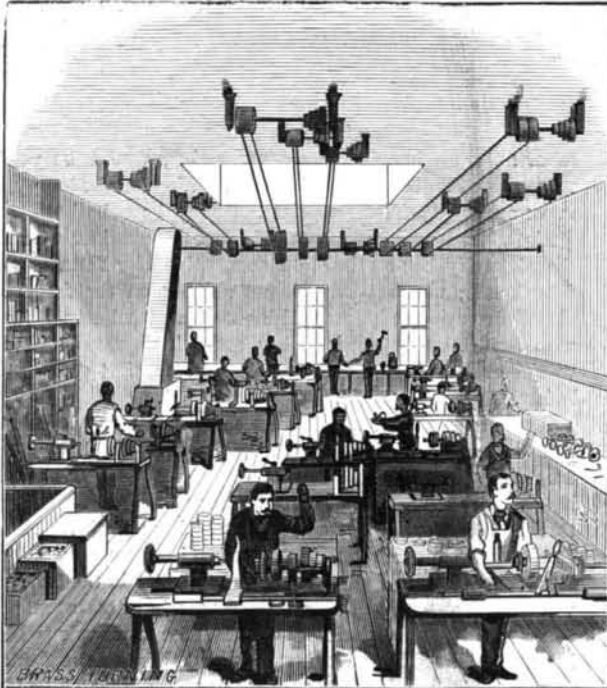
The introduction of water and gas into all cities and towns of any note throughout the country, and the constantly increasing use of steam, both as a motor and for heating purposes, have given rise to several distinct branches of industry in the manufacture of the required apparatus and appliances. The most extensive establishment in the United States devoted exclusively to the manufacture of brass and iron valves of all descriptions, and the latest improved style of fire hydrants, is that of the Ludlow Valve Manufacturing Company, of Troy, N. Y., which is illustrated in our engraving. This business originated eighteen years ago, at Waterford, near Troy, and met with such speedy success that the present company was soon after organized with ample capital for the prosecution of the enterprise upon an en-

larged scale. When this company commenced the manufacture of valves there were no straightway valves in the market except those having a solid gate in one piece; and the introduction of the double valves, for which they have several patents, also their single adjustable gate valve, was a very important innovation. The double iron gates, from 1½ inch upward, and the single ones, from 10 inches upward, move closely between parallel faces, rendering them self-clearing from any foreign matter that may become attached to them. Gas and water companies find this a feature of decided importance. The double water valves possess a marked advantage over other forms of gate valve, from the peculiarity of their construction, the gate being kept in line by the parallel seats.

The factory premises comprise an area of 270x325 feet,

with substantial brick machine shop, iron foundry, brass foundry, pattern shop, store houses, offices, etc. Brass valves are made from ½ to 8 inches inclusive, and larger if required, all having double gates. These valves are made of the best steam metal and well finished. The iron valves range from 1½ to 48 inches inclusive. They are made either with double or single gates, all iron or mounted with steam-metal, screwed socket, flange, hub, spigot, or any two on the same valve, also with screwed stems, or with a quick moving slide stem and lever. This last has a patented arrangement by which the gate is fastened instantly at any desired position.

Before leaving the works, every valve is carefully tested under heavy pressure to ascertain if it is perfectly tight and in good working order. The company manufacture for



FACTORY OF THE LUDLOW VALVE MANUFACTURING CO.

attachment to the larger valves, when desired, indicators of different kinds for showing the exact position of the gate.

The Darien Canal.

At a recent meeting in Bordeaux, M. De Lesseps said that American support had been secured for the Darien Canal project.

Dr. Campany, the military physician, who was engaged in the sanitary arrangements during the construction of the Suez Canal, is about to be sent to Panama to ascertain what measures will be necessary for the preservation of the health of the laborers, who are to be recruited in South America.

Geological Specimens from Luray Cave.

Our readers will remember a series of letters published in these columns not long ago describing a recently discovered cave in a beautiful valley in Virginia, about 80 miles southwest from Washington.

This Luray Cave undoubtedly possesses the most wonderful geological formations yet discovered on this continent. The accessible portions of it extend some three or four miles, and there are other parts still unexplored.

Thomas N. Dale.

Thomas N. Dale, one of the pioneer silk manufacturers of Paterson, N. J., died suddenly of heart disease, at that place, July 17th. After a successful career as a merchant in this city, Mr. Dale went to Paterson, in 1862, and soon after erected the large silk mill known by his name.

Hearing the Lightning through the Telephone.

Referring to the accounts we recently published concerning the use of the telephone for hearing the electrical action of supposed earth currents during thunderstorms, Mr. Wm. S. Aldrich, of Burlington, N. J., calls our attention to his observations, of similar character, published in SCIENTIFIC AMERICAN, August 3, 1878.

The Ammonia Bath.

A correspondent residing at Honolulu, Sandwich Islands, says that a good health preservative, especially in summer, is to sponge the body with cold water, containing a small percentage of some alkali, such as ammonia.

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II. TECHNOLOGY AND CHEMISTRY.—Gas and Gas Making. By L. P. GRATACAP, Ph. B. A sketch of gas industry. I. The materials used. Chemical analyses of coals and possible coal producing substances. Progress of Industrial Chemistry. Continuation of J. W. Mallet's review of recent important changes in the industrial application of chemistry. Metallurgy. Nickel and cobalt.—Zinc.—Tin.—Bismuth.—Copper.—Lead.—Mercury.—Silver.—Gold.—Platinum.—Metallic alloys. Electro-metallurgy, and other alterations of metallic surfaces.
III. MAN AND NATURE.—The Dyaks of Borneo, 1 figure. Dyak chief. Polydactyle Horses, Recent and Extinct. By Professor O. C. MARSH. How the horse came to have but one toe, many figures. Forefoot of horse. Same with extra digit. Forefoot of hipparion. Horse with extra digit on each foot. The genealogy of the horse, showing forefoot, hind foot, forearm, leg, upper and lower molars of typical members of the horse's ancestry. Entozoa, two figures. Milu Deer, large illustration. Vulcanology in Italy in 1878. Action of Animals in Motion. As studied by instantaneous photographs in connection with the zoetrope. The Beginnings of Life. By Professor EDMUND PERIER, 7 figures. The Beginning and End of the World. By CAMILLE FLAMMARION, Part II. The end. Processes by which the solar system will be extinguished.
IV. ELECTRICITY AND MAGNETISM.—Electric Discharges in Rarefied Gases. The Electric Light. The Telephone in Chicago.

WHAT TO DO NEXT WINTER.

A "country clergyman" sends a timely and suggestive communication, from which we quote the following:

"Among your forty thousand subscribers, all of whom it is presumed are specially ingenious persons, there must be very many who are disposed to exercise their talent, philanthropically, and without hope of reward. I am desirous to learn in what way to utilize an immense amount of unemployed power, which might be made a source in the aggregate of immense wealth. It is, however, human power that I mean. We have just passed through our winter season, and there is now a call for all the labor that the market affords. But during several months of the winter usually many farmers, or more especially laboring men, hired men, young men, and boys that work for a living, are very much at a loss what to do with idle time. Will you, or some of your correspondents, publish a few lines on this most important subject? What indoor work can be done by people of very little education, in order to keep the pot a-boiling, to help pay the rent, and otherwise make both ends meet? Of course the work must be something that is not usually done in large factories or by machines. One would think there must be a great variety of articles required by the public that shall come under this class of work. Even there might be some kind of work that should be done partially in a factory, the rest of which should be done by hand in the homes of the people. A proper answer to this question, as I suppose it might be answered, would make farming more profitable, tend to keep young men on the farm, save many unwilling idlers from congregating at the store or saloon, and give, what of all things they desire, to many idlers profitable work."

No doubt a great variety of productive employments suitable for different parts of the country can be pointed out by our practical readers, employments which do not require any particular manual dexterity, which can be taken up at odd moments and, however unremunerative, would be vastly more profitable than sheer idleness. We shall be happy to make a note of any suggestions that may be submitted.

Meantime it may not be out of place to consider whether there is really any need of new occupations for farmers and farm hands; whether there is not already on the farms an abundance of purely manual as well as intellectual farm work which sadly needs doing, and which, were it done, would greatly increase the profit and comfort of country living.

Our correspondent writes from a historic town in Massachusetts, and has in mind the wants of New England farmers and farm hands. Time was when the average New England farmer was a man of more than average intelligence and thrift. Now it may be questioned whether the average New England mechanic is not his superior in these particulars. And the difference is shown not so markedly in the farmer's winter idleness as in his unthrifty laboriousness at all seasons. The characteristics of the Yankee mechanic, which have made him king of artisans, are not those of the Yankee farmer. The one is alert, ever ready to discover and adopt improvements, and always bent on making the best use of the materials at his command. The other is remarkable rather for plodding industry, for unthrifty economies, for slowness in changing his practices to meet the changing wants and conditions of the times.

Even among the more intelligent New England farmers there is a serious lack of knowledge as to the capabilities of the soil under cultivation, as to the crops that can be made most profitable, and the best means of producing such crops, not to speak of the preservation of the fertility of the soil; of means for preventing the ravages of insect pests; of methods of supplementing garden and field crops by the rearing of fine grades of fowls, sheep, and other live stock; of augmenting the bulk and variety of the food supply by restocking useless ponds and streams with fish, and so on. In a thousand ways the farmers of New England are pursuing unthrifty methods, by which they lose every year as much as they win, by which they miss possible advantages that might increase enormously both their wealth and enjoyment.

No doubt it would be an immediate benefit to many a poor farmer to be told how by indoor industry in rough weather he could add a hundred dollars to his income. Certainly that would be better than to spend the time in idle gossip at the cross-roads store. But the chances are ten to one against the farmer, who could so waste his time, having a farm so well kept that the same labor would not be worth twice as much if it were applied directly to the clearing up of neglected corners, to repairing fences, out-buildings, tools, and machinery, to say nothing of efforts to gain a higher knowledge of the science of farming, to improve the condition of the farm, and increase its productive capacity.

It is safe to say there is not a farm in New England the value of which could not be advanced—perhaps doubled or trebled—by a few years of intelligent effort. It is certain that not one farm in a thousand is in so perfect a state of cultivation, or its capacity so widely developed, that its products might not be greatly increased in a single year by cultivating in the best way the crops best suited to it and the nearest market, avoiding products for which it is ill-adapted or which can be more cheaply raised elsewhere. Accordingly it may be fairly questioned whether the supplementing of poor farming with some sort of manual labor not related to farm work would not be less profitable than to encourage poor farmers to become intelligent and wisely economical farmers. Trying to compete with skilled labor and machinery by hand work cannot be other than discouraging,