

Scientific American,

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT

NO. 37 PARK ROW (PARK BUILDING), NEW YORK.

O. D. MUNN. S. H. WALES. A. E. BEACH.

"The American News Co.," Agents, 121 Nassau street, New York.

"The New York News Co.," 8 Spruce street, New York.

Messrs. Sampson, Low, Son & Marston, Crown Building, 185 Fleet street, Trubner & Co., 60 Paternoster Row, and Gordon & Gotch, 121 Holborn Hill, London, are the Agents to receive European subscriptions.

A. Asher & Co., 20 Unter den Linden, Berlin, Prussia, are Agents for the German States.

VOL. XXIII., NO. 26 [NEW SERIES.] Twenty-fifth Year.

NEW YORK, SATURDAY, DECEMBER 24, 1870.

Contents:

(Illustrated articles are marked with an asterisk.)

Improved Independent Shuttle... Motion Loom... Progress of Foreign Invention... Prof. Helmholtz on Faraday... Responsibility for Detention of Advertisers...

PROPRIETORS AND FOREMEN.

A mechanic writes us: "I must caution all mechanics against using their inventive genius, if they have such a boss as I have got, lest they on Saturday night get a note in their book, informing them that they are no longer wanted."

Proprietors of manufacturing establishments sometimes imagine that because they purchase the intelligent labor of their operatives, and grudgingly dole out, at the end of the week, its moderate wages, they can lay claim, or ought to lay claim, to the private brain work of the individuals so unfortunate as to be under their employ.

But, while there may be some such employers, we are glad that our experience warrants us in saying that they are exceptional. The majority would be glad to see a talented operative working his way from the ranks, and would (so long as he does not neglect the duties for which he is paid), encourage, rather than discourage, any effort he might make to that end.

In many cases, the power to employ, or discharge, is vested in a salaried foreman, possessing no direct interest in the business which he superintends. Whenever this is the case, proprietors should recollect that a foreman will "bear watching," as well as his subordinates. It is to our knowledge, not without precedent, that foremen take a leaf from the book of municipal management, and make a trade of indulgences to the workmen under them.

In general, we believe proprietors of large establishments are too careless of the personal welfare of their employes, and might secure better service, and advance their own interests, by seeing that justice is impartially administered by their foreman. No man ever yet lost anything by showing his help that he had, at least, the regard for them which common humanity claims.

HOW VERMICELLI AND MACARONI ARE MADE.

Macaroni and vermicelli are articles of food originally, we believe, prepared in Genoa, in Italy. The former is a dough of wheat flour and water, made into a pipe-like form, a little larger than the barrel of a goose quill, and dried till it is hard.

Except in a few small establishments, where the work has been generally performed by hand, the manufacture of these articles has not until recently been prosecuted in this country.

The Mendelson Vermicelli and Macaroni Works is an extensive steam manufactory of macaroni and vermicelli, re-

cently established at Nos. 311 and 313, Avenue A, in this city. Feeling that a description of the processes employed would be of interest to our readers, we this week visited the works mentioned, and were rewarded by witnessing for the first time a very interesting series of manipulations, which, though extremely simple, require for their conduct great care, skill, and experience, to secure uniformly good results.

The first step in the manufacture of these articles, is the preparation of the dough. This is done in machines strongly resembling pug-mills for mixing clay for brickmaking. The tempering of the dough is not done by any particular formula, the variations in the quality of the flour used not permitting the use of a particular specified quantity of water.

The dough taken from the mixers is put into a press, and compressed into cylinders about seven or eight inches in diameter, and from twelve to fourteen inches in length. These dough cylinders have considerable consistency. They may be handled without detriment to their shape, which exactly fits the cylinders of powerful hydraulic presses of peculiar construction. Into these cylinders the dough is placed, and pressed through holes in former plates at the bottom of the cylinders.

For macaroni, the holes in the former plates have each a plug which is supported from the inside, and which is enough smaller than the hole to leave an annular space all around it. Through this annular space the dough issues in the form of long tubes, which are removed, cut into proper lengths, and placed on trays formed of cloth of loose texture, stretched on square frames of a convenient size for handling. These trays are placed in frames in a darkened room, where they remain till the macaroni is fully dried.

Vermicelli goes through the same operations as macaroni, until it reaches the hydraulic presses. In these presses the former plates used for vermicelli are made with concentric groups of holes, each group containing about forty-eight holes, and each hole being about one tenth of an inch in diameter. When the pressure is applied the dough issues through these holes in threads resembling catgut in appearance almost exactly. The pressure to which it is submitted causes it to become heated; and to cool it and partially dry it, a blast of cold air is made to play directly upon it, a fan blower being used for this purpose.

We understand the concern is now working about twenty-five barrels of flour per day, with city orders for all they can produce.

Mr. L. Mendelson, the head of this establishment was the originator of the Mendelson Bank-Note Reporter, and is well known as one of the many German citizens who have brought with them to this country rare business talents and great commercial enterprise.

CLOSE OF VOLUME XXIII.

The never-ceasing tide of time has brought us to the close of our twenty-third volume. The six months consumed in its publication have been months of steady progress and healthy growth, and have brought us many gratifying assurances that our efforts to please our patrons are successful and duly appreciated.

The contents of the volume are, we think, unprecedentedly rich and varied, and its numerous engravings maintain the standard of high excellence we have always sustained in this department.

The correspondence contains very much instructive practical matter, and constitutes a very valuable feature of the volume.

Towards the close of the volume we started a new feature, namely, a column of queries, wherein the information desired by our readers may be made known to practical men, and practical answers received from correspondents so situated as to be in possession of the information required.

Our miscellany has comprised the most instructive and popularly written articles on theoretical and practical subjects, obtainable from the best home and foreign sources, and the editorial articles have been written with a view to suggest thought, and to indicate the general current of progress in science and the arts.

That our efforts to keep ahead of all competitors in our peculiar field have been successful is indicated by the steady and healthy growth of our subscription list, and the unmistakable signs of satisfaction gathered from our extensive correspondence.

To the press at large, and our exchanges particularly, we are indebted for many favorable notices and warm commendations. Our articles have been extensively copied and credited, both at home and abroad.

We feel that we are justified in appealing to the friends of the SCIENTIFIC AMERICAN to aid us in increasing our circulation, and feel confident that the appeal will be responded to by a large accession of new subscribers for 1871.

Meanwhile we shall continue unabated our efforts to keep in the very front rank of popular scientific publications, and shall neglect no opportunity to add to the attractions, general interest, and value of our paper.

REMOVING STREET SNOW AND ICE.

On some of our thoroughfares, where rival horse-railway companies have adjoining tracks, the efforts which they make to remove the snow is sometimes ludicrous, if not foolish. The great scraper of the Third Avenue Company, for exam-

ple, will come along, sweeping the snow from its own track very nicely, but depositing it upon the track of its next neighbor, whose following machine chucks it back again where it came from. This sort of fun is sometimes kept up for a whole day; time and labor of man and beast are wasted; public travel obstructed, and the companies lose much money.

The draft of the large snow scrapers is very heavy, and quite ruinous to the health of the horses. We have seen the vapor of perspiration from some of the twelve-horse teams rise above the third-story window of our office, after the efforts of the poor animals to drag the machine.

The companies ought to join hands, and wholly remove the snow from all crowded places, either by carting or melting.

By the practice of a little common-sense and ingenuity it would be easy to clear, and keep clear the tracks throughout the whole length of every city line. The aggregate loss of the various companies from snow obstructions is enormous. On some occasions all travel is suspended, and the entire forces of men and animals, with extra laborers, are employed to dig the snow; but as it is not removed, the rails are soon again covered.

There is a grand opportunity for an ingenious person to make a fortune by the invention of an effective machine for doing the above work.

On Broadway they employ to clear the gutters, snow scrapers, consisting of planks set on edge, diagonally to the line of draft. Eight horses drag the machine along, and they succeed in throwing up a portion of the snow into a windrow, and temporarily cleaning the gutter. But the immense travel of vehicles soon rolls the snow back again.

The best method is to remove the snow altogether; and probably the best way to do that, is by the application of steam.

In London they employ old steam fire engines for this purpose. The snow is scraped up into great heaps near the sewer openings, and jets of steam are then applied, by which the mass is quickly melted, and disappears through the sewers. This is a very speedy and effective method of getting rid of street snow and ice. We hope that our city authorities will give it a thorough trial this winter.

SUCCESS AS THE MEASURE OF ABILITY.

The world usually accords the merit of ability to those who achieve success in any field of effort, and it is right. Success is the evidence of ability—ability to succeed—nothing more. Real mental caliber is not evidenced by success, unless that success is attained in some occupation or profession which requires great mental ability for its conduct.

A man may succeed in wearing a very small pair of boots, if his understanding is sufficiently narrow; and men succeed as often through deficiencies as through proficiencies. A man sits daily in front of the Tribune office in this city who makes a living by whittling with his feet. This man has no arms and has by long practice acquired the power to hold a piece of wood with the toes of one foot, while he whittles with a knife held in the toes of the other foot. It is quite doubtful judging from the appearance of this individual, whether, had he been endowed with arms, he would have achieved either the notoriety he now enjoys, or have made half the money he now pockets from the wonder-loving groups who gather about him.

We recollect reading some years ago an account of a wonderful dancer whose chief attraction was that he had but one leg. With this leg he did what single legs had been deemed incapable of doing, and though his dancing fell short of a first-class two-legged performance, yet it was really wonderful for one leg, and so one leg drew houses where probably two would have failed to please the public.

As with physical defects so with mental. The piano playing of the blind negro idiot (?) "Tom," whose performance is certainly wonderful for a blind idiot, would lose a great portion of its charm if he were once understood to be in full possession of the intellect allotted to ordinary mortals. He succeeds in making a great impression because he has, or is supposed to have, two great defects.

It often is the case, on the other hand, that men fail because they have minds too large for their business. These minds will be, must be, occupied with higher things than the trivial details of business, and the petty cares, to neglect which is to insure failure in most commonplace vocations.

Success, then, unless measured by the character of the field in which it is achieved, is no measure of mental or physical power. Is a man successful? In what is he successful? Is he a successful dandy like Beau Brummel; a successful knave like a modern railroad grabber well known in this metropolis; a successful dry-goods clerk; or a successful lawyer and statesman, like Clay and Webster; a successful divine, like Whately; or a successful teacher, like Arnold?

Success is, it is true, a measure of ability, but of great ability only when it is itself tested by the higher measure of lofty aims, wise purposes, and good deeds.

THE RELATION OF MINERALOGY TO CHEMISTRY.

It is related of the famous Abbe Hüay that while examining a fine specimen of calc spar on one occasion, he accidentally let it fall, and it broke into a hundred pieces. He was horrified at his carelessness, and, after making due apology, began to gather up the fragments. He soon observed that every piece had the same shape, and that the calc spar was made up of an infinite number of rhombic crystals. This circumstance led to the examination of many other minerals, and the result was the foundation of crystallography, and the