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NEW YORK, SATURDAY, DECEMBER 31, 1881.

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(Illustrated articles are marked with an asterisk.)

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THE SCIENTIFIC AMERICAN SUPPLEMENT,

No. 313,

For the Week ending December 31, 1881.

Price 10 cents. For sale by all newsdealers.

THE SCIENTIFIC AMERICAN IN THE WORKSHOP AND ENGINE ROOM.

It is a common practice among intelligent manufacturers and other employers of mechanics and engineers to encourage their men to read the SCIENTIFIC AMERICAN. Some go further and take care to insure such reading by presenting their foremen and other men in responsible positions with annual subscriptions to the paper.

The practice is politic as well as kindly. It is safe to say that no mechanic or engineer can read the successive numbers of the SCIENTIFIC AMERICAN for a year without receiving suggestions if not specific instructions touching the work he has in hand, likely to be worth to his employer many times the price of the paper.

Take for illustration the single series of illustrated papers on boiler explosions published during the current year. In each instance it has been the aim to discover, if possible, the exact conditions and causes which led to the disaster, and to set them forth in the description and the engravings so plainly that the most inattentive reader could not fail to receive useful suggestions, if not material information. The habitual consideration of the conditions and results of boiler explosions, on the part of men who have charge of boilers, must of necessity make them more critical of their own work, more cautious, and more intelligent, both in detecting signs of weakness in boilers and in pursuing a course calculated to preserve the integrity of the boilers in their care. In view of the necessarily limited personal experience of the majority of firemen and engineers with respect to the management of boilers, the practical value to them of articles like those referred to can scarcely be overrated, while their indirect value to the owners of such boilers in lessening the risks of disaster bears no comparison with the small amount of a year's subscription to the SCIENTIFIC AMERICAN.

It is well recognized that an important factor of the prosperity and peculiar excellence of the manufacturers of this country has been the superior intelligence and inventiveness of American mechanics, their fertility of resource, and promptness to meet new problems with new devices, the fruit often of a breadth of knowledge of what is going on in other branches of industry not common among the mechanics and artisans of other countries.

That American workmen are so little hampered by the narrow trade rules and customs which make the introduction of improved methods and appliances so difficult elsewhere, may be largely attributed to the more general custom here of reading for information, particularly industrial books and newspapers.

The part which the SCIENTIFIC AMERICAN has taken in this connection during the past thirty-seven years is one of which we have reason to be proud. For more than nineteen hundred successive weeks this paper has carried its freight of information and influence to every part of the land and to many foreign ports; and we do not believe that in a single instance has it been other than a messenger of intelligence and influence for good.

Thanks to its acquired position and the generous support of its numerous patrons, the SCIENTIFIC AMERICAN is able to set before its readers from week to week an amount of information and a fullness of engraved illustrations such as no other industrial paper can begin to rival.

SAFETY CAR COUPLINGS.

Our recent remark, that in spite of the two thousand patents on car couplings, there is yet an unsatisfied demand for an automatic coupler, is disputed by a correspondent. The trouble lies, he says, not in the lack of invention, but in the indisposition of the railway companies to adopt them, or even to consider their possible merits. He says: "So long as human life is as cheap as they (the railway comnies) figure it, there is no likelihood of any improvements being adopted to prevent the killing off or crippling of employes; and so long as they can call it 'carelessness' or 'accident,' they do not want a remedy, unless some one would change all their couplings in one night and without expense to the roads."

This is putting the case with a directness that will seem little less than brutal to the railway authorities; to those, however, whose lives are in daily, it may be hourly, peril in making up trains—a hazard that existing appliances might largely if not entirely obviate—our correspondent's statement of the case may not seem at all too severe.

Our correspondent adds: "When you talk with railway magnates about a change they say it is impossible, for the reason that the new coupler would have to be adopted by all the roads, and the change would cost too much and occasion great loss of time. It all simmers down to this: Human life is too cheap. From talking with those connected with railways, I do not think it would take them long to find something to fill the bill if they were compelled by law to make the change."

As mentioned in this paper last week, a hearing has been accorded the inventors and owners of automatic couplers by a Connecticut State Committee, whose report may greatly help to determine the fate of a bill before the General Assembly of the State, requiring the Connecticut railways to adopt some form of safety coupling. If the problem is as easy to solve as our correspondent thinks, a practical beginning may soon be made in compelling the use of such devices. If the adoption of safety couplings can be secured in one State, the value of legislative attempts to save the lives and limbs of train-men will be established, and other States will follow suit. The change may be delayed, but it must certainly come, and the longer the delay the greater will be the cost of it.

THE SCIENTIFIC AMERICAN SUPPLEMENT.

For the convenience of the readers of the SCIENTIFIC AMERICAN we give in this, our last issue for the year, a catalogue of some of the many valuable papers contained in back numbers of our SUPPLEMENT. Any of these numbers can be had whenever required, either by sending to this office or by ordering through a newsdealer. The catalogue embraces a most extensive range of scientific subjects; and, what is better than all, most of the papers cited contain recent information upon the matters of which they treat. Does any reader wish to inform himself as to the most recent progress in Mechanical Engineering? He will quickly be able to post himself by reference to the admirable address of Prof. R. H. Thurston, given in full in SUPPLEMENT 308, and that of Sir William Armstrong in 307. Does he wish to acquaint himself generally with the present condition of research in respect to Biology, Embryology, Anthropology, Geology, Paleontology, Geographical Discovery, Astronomy, Light, Color, Applications of Electricity, Economic Science, Education? Let him consult the recent address of Sir John Lubbock, given in full in SUPPLEMENT 301, copies of which he may obtain for a dime.

This catalogue is a minor exhibit of the astonishing advance which is constantly being made in scientific research and discovery.

Labor Statistics.

The third annual report of the New Jersey Bureau of Labor Statistics, just published, shows a fairly encouraging state of affairs. It shows that the average amount spent by workingmen in a year is $455.27, and the average amount earned $498.53, leaving an average saving of only $43.26 in a year. The expenses also include sundries, tobacco, liquor, physicians' and druggists' bills, and other similar items. The report says that the truck system—compulsory dealing with stores in which the employers have an interest—is nearly abolished in the State, and that nearly all the wages are paid in cash. The average number of hours per week during which labor is performed is sixty. During the past year there was a marked diminution in the number of days lost through inability to obtain work. The average was forty from this cause, while last year it was eighty-seven. The average from sickness was seventeen. Wages have also advanced in most occupations, the average for men this year being $1.78 as compared to $1.45 last year. A fact shown in the report is that a great many laboring men depend for substantial assistance upon their families; indeed, that nearly all wages-earners receive aid in this way.

Gold and Silver in 1881.

In his annual report just issued the Director of the U. S. Mint estimates the world's production of gold for the calendar year 1880 at $107,000,000, and of silver at $87,500,000. The consumption of the world in ornamentation, manufactures and the arts is estimated at $75,000,000 of gold and $35,000,000 of silver. The estimated circulation of the principal countries of the world is placed at: Gold, $3,221,000,000; full legal-tender silver, $2,115,000,000; limited tender, $423,000,000—total specie, $5,759,000,000; paper, $3,644,000,000, making the total circulation, including the amount held in Government treasuries, banks, and in active circulation, $9,403,000,000.

The production of gold and silver in the United States during the past fiscal year is put down as—gold $36,500,000, and of silver, at its coining value, $42,100,000—a total of $78,600,000. Manufacturers of jewelry and other articles and materials of gold and silver reported a consumption of over $10,000,000 in gold, and nearly $3,500,000 in silver. The Assay Office at New York delivered to the manufacturers during the year $5,700,000 of gold in bars and $5,100,000 in silver. Taken together they appear to indicate a consumption of at least $11,000,000 in gold and $6,000,000 in silver. The Director estimates that the special circulation in the United States at the close of the fiscal year amounted to $440,000,000 in gold and $171,500,000 in silver.

On the first of November, 1881, the amount of specie, including bullion, in the mints and assay offices, available for and awaiting coinage, was $563,000,000 of gold and $186,000,000 of silver—a total of $749,000,000.

Umbrellas and Pepper.

The umbrella trade grievously threatens the existence of the pimento plantations of Jamaica. An official estimate made in Kingston, last fall, reckoned that more than half a million umbrella sticks were then awaiting export to England and the United States. These sticks were almost without exception pimento, and it is not surprising to be informed that owners and lessees of pimento walks are becoming alarmed at the growth of a trade which threatens to uproot, in a few years, all their young trees. The export returns for the past five years show an average of 2,000 bundles of sticks sent out of the island annually in the ordinary course of trade, and the returns for the first three-quarters of 1881 show an export of over 4,500 bundles, valued at $15,000. When it is remembered that each bundle contains from five hundred to eight hundred sticks, each of which represents a young bearing pimento tree, the extent of the destruction may be realized.