

upon the few weekly shillings she earned. He had been wont to beat her, and, upon coming out of an hospital, where he had been for rheumatism, he heard an evil report of her, and because of it beat her with unusual severity. But that he meant to kill her, our author denies, on the reasonable ground that without her, he would have to work for his own living. Therefore, though it was a murder, it could scarcely be called "willful," for it was not intended.

#### THE CELESTIAL WORLD.

##### VENUS AND MARS.

The principal feature of planetary interest during December is the approach of the planets Venus and Mars, the former gaining upon the latter, and overtaking him on January 2, 1889, at 7 h. 47 m. A.M., Venus being 40' south at the time. The planets will not be visible at the time of conjunction, but will be near each other on the evening of the 1st, when Venus will be west of Mars, and also on the evening of the 2d, when she will be east of Mars. Both planets are moving eastward, Mars being in direct motion, slowly receding from the earth and approaching the sun. Venus is moving eastward, approaching the earth and receding from the sun. As she moves faster, on nearly the same track, she must overtake her rival. On the 1st they are 15° apart, on the 31st they are less than one degree, the difference in the time of setting being about six minutes. The rapid approach of the two stars will be easily discerned.

No planets in the system are more contrasted in tone and tint than Venus and Mars. The delicate pearly luster of the one and the ruddy hue of the other give a pleasing variety to the celestial picture that every evening adorns the southwestern sky, the two planets being the only "wanderers" among the countless throngs that glisten in the star depths. Our nearest inferior neighbor and our nearest superior neighbor hang side by side in the sky. They are simply stars to the unaided eye, the one the brightest starry gem the sky reveals, the other an unpretending ruddy star, his martial air and gorgeous coloring dimmed by distance, a king uncrowned.

How different is the picture revealed by the telescope! Venus is a sphere in gibbous phase, shining with an intense brightness, and surrounded by a dense atmosphere that hides her real face so completely as to leave but a faint hope that the impenetrable veil will ever be pierced by human eye. Her much talked of satellite is a myth and a nonentity. Even the time of her rotation on her axis and the inclination of her axis to her orbit are not determined beyond a doubt.

Let us turn the telescope upon Mars. He is in a condition unfavorable for observation, for he is drawing near the sun and will soon be lost to sight. But no one can look upon his ruddy face without a feeling of intense interest. The prestige of his appearance at his opposition on April 11 still lingers around him, as well as the distinction that he alone of all the planets displays his real surface to terrestrial star gazers. Perrotin, Schiaparelli, and Terby have made him famous for the marvelous sights they saw, as night after night, when skies were clear, they gazed upon his double canals, submerged continent, and polar ice, and watched the disappearance of old canals and the appearance of new ones in unexpected places. They are astronomers with practiced eyes, and saw objects which to ordinary observers are but cloudy haze. Men of science are waiting patiently for the next Martian opposition in 1890, when it is hoped that the Lick telescope will be in its best working order, and the telescope for the Los Angeles observatory, with its forty inch aperture, will be a new power in the field of observation. With such instruments and such observers, the capacity of the human eye will be the only obstacle in the way of obtaining all possible knowledge of the Martian planet.

#### Dosing Trees with Sulphur and Other Substances.

There is a prevailing and popular idea that insects may be driven from trees by boring holes through the bark into the wood, placing sulphur therein, and plugging the hole. There are some persons who profess to have tried the experiment with success, to have cleared trees, such as elms, of the destroying worm, etc. Prof. C. V. Riley, Entomologist of the Department of Agriculture, pronounces these remedies as fallacious.

"The belief in their efficacy," he says, "is founded on the supposition that the poison passes with the sap into general circulation and with it into the foliage, and is destructive to leaf-feeding insects. It is an entirely unfounded idea, and is based upon ignorance of the fact that the substance remains intact, and is not taken up in the circulation. Instances where it has seemed to succeed have been recorded, and in such cases its apparent efficacy was due to a coincident disappearance of the insect from some other cause. Sulphur which I plugged up in such holes many years ago was found to be perfectly unchanged after many months. All such remedies may be stamped as nonsense."

#### Waste in the Workshop and Counting Room.

One of the most common among the many sources of everyday expense incidental to the carrying on of an industrial business, and one most generally neglected by those whose duty it should be to prevent it, is that of waste in the workshop and among the employees. Although the amount in each particular case may be, and probably is, of small proportions, and is consequently considered of little or no consequence, yet in the aggregate it really becomes an expensive item, which tells heavily upon the debit side of the ledger when accounts are balanced up.

In some shops the quantity of small articles, such as screws, nails, panel pins, washers, etc., that may be seen lying upon the floor, kicked about by every passer-by, is astonishing. There seems to be no idea of their value either by the workmen or foreman. If a man drops such a slight article, he will not take the trouble to pick it up, and the result is that all around the ground is littered with them, they soon become covered with shavings, sawdust, and rubbish, and when the sweeper comes at stated times to clear up, he as likely as not shovels half of them into his barrow, wheels them away to the fire, where the rubbish is burnt, or throws them in with the ashes and other refuse of the ballast heap. Even if he carries a box, as he often does, into which he may throw say one half of what is dropped, they become of very little use, from the fact that nails and screws of all kinds and sizes become mixed and jumbled up together, unless properly sorted into their various kinds, and this is just what is left undone in the majority of cases. We do not imagine that it would be feasible for a man to stoop down every time he drops one of the small articles in question, but he at least might be made to take that trouble occasionally, and put them back in their proper receptacle in his nail box. As it is, whatever is once dropped may be considered lost. This looseness, too, leads to another and greater evil, and that is speculation and petty theft. It is not to be wondered at that a man, seeing these things treated as if of no value, says to himself, as he picks them up and puts them in his pocket, "These nails will come in useful to make that fence or fowl house in my garden," or "These screws will just do for the box I am going to make for my wife at home." In fact, the men almost look upon it as a kind of perquisite, to supply themselves. Even such comparatively large articles as bolts, nuts, and rivets are often seen strewn about the ground, especially out of doors where they get trodden into the earth. The amount of old iron, etc., that is shot out at the heaps or tips of rubbish would well pay the employer to keep a man to look them over. As it is, women and boys may often be seen outside the works raking over these heaps, and making quite a good thing out of the cinders and old metal which they collect. The same waste often takes place at the saw mills, where good sized pieces of expensive wood, such as oak, mahogany, etc., too small to be utilized on the premises, are cut up for fire wood instead of being sold to makers of small articles, fancy goods, or others. Again, the brass dust and filings made by the fitters are collected in trays fixed to the vises in some establishments, but are swept up with the dirt and wasted in others. Another instance may be mentioned in that of oil, which is often allowed to drip and fall from the shafting pedestals upon the floor, making everything about them greasy and dirty, but which, if caught in tin dishes suspended beneath, may be used again for the same or other purposes. In the case of gas, too, extravagance requires checking in some factories, where it is allowed to flare away at full pressure all over the place without any control, the supplies being of the largest size and most extravagant pattern. If a man leaves his work for an hour or two, he does not think to turn down his gas, but allows it to burn all the time. In another better regulated shop, however, the burners are of the duplex or some other economical kind, pressure regulators being fixed upon the various branch pipes to control the consumption, which often varies very much at different times as some divisions are turned off or put on. The waste in this item alone in a large manufactory with some hundreds of jets burning every day would, if carefully examined into, be found rather startling. Even in the offices, the difference may be often noticed between a loose and thrifty system of using the stationery. The waste paper, such as envelopes, etc., are in some places thrown away or burnt, while the clerks think nothing of taking a new sheet of writing or foolscap paper, or a memorandum form, to work out their calculations. In others, the envelopes, fly leaves of letters, etc., are set aside, not only for this purpose, but are utilized, as are the backs of useless vouchers, invoices, etc., by printing on them and using them about the premises for instructions to foremen, reports, etc., being as good as new for such purposes. In some drawing offices the amount of tracing paper and cloth wasted, too, is considerably more than there is any necessity for. Some draughtsmen will cut their paper recklessly, leaving five or six inches margin, which has to be cut off ultimately, or will put the roll of paper back in a dirty drawer, or on a dirty table, thus making a soiled

mark along the underside of the roll, which must be cut off by the next user, thus involving another waste of six or seven inches.

The greatest cause is carelessness among employees and want of sufficient supervision. It is their employer's material and not theirs, and so they do not trouble themselves to economize unless compelled to. The same men when they are at home are most careful of their own coals or gas, and if they are doing any little carpentering job of their own will drop on their knees and search for every nail in the most careful manner. A few words from the employer or foreman will generally suffice to put a check on the practices, while making an example by discharging a few men will have a wholesome effect upon the rest.

#### The Migratory Quail.

A correspondent of the *Forest and Stream* writes from the island of Anacapri, in the Mediterranean Sea:

The first quail arrived on the 23d of April, but not in great quantities; the pigeons straying along a few days before. *Le reti* or nets were in readiness, but the birds came very straggling. Every conceivable spot on the edge of the island was occupied, giving it the appearance of being fenced in. These nets are from nine to ten meters high, the higher the better, with rings on their sides, through which good-sized cords are run. These are securely fastened on the tops of immense high poles, and when the wind is not too strong are kept continually spread, otherwise they are unfastened and run down like a sail or a curtain. These nets are contrived in such a manner as to form a kind of sack, by leaving it in folds, or having a piece added to it, so at every interval of perhaps a meter or meter and a half comes one of these bags. The poor, unwary birds come flying, wearied and fatigued from their trip over the sea, on in full force, strike against the fence (no better name can I find for these nets, encircling the island as they do), fall into the bag, become entangled, and are immediately pounced upon by the greedy islanders. Sometimes, not often, after a lucky struggle, a bird frees itself and clears the net, but only to fall a victim to one of the numerous hunters with guns standing on the other side, scattered in all directions and distances from the shore.

From 50,000 to 60,000 quail are sent away from this island alive every year; how many are shot is more than I know. It seems that the renown of this island as a quail-hunting place is very old, for I have read that somewhere about the year 1786 the quail, doves, and other migratory birds were a source of increase to the revenue. The number caught varied every year, the greatest catch in one day was 12,000, and during the whole time of passage, which does not last more than fifteen days, they never caught more than 150,000 birds. Capri had a bishop who derived the most of his income from the quail, etc., and from this fact he was somewhat irreverently styled the Bishop of Quail.

#### A Novel Steam Launch.

At the American Institute Fair is being shown just now a novel type of launch, burning kerosene and with the boiler and engine at the stern of the boat. The method of firing the boiler is also new. Instead of atomizing the oil, as formerly, it is vaporized in a coil by heat, then driven out into the fire box and mixed with the air. The gas thus formed burns without smell or smoke and does not foul the tubes or sides of the boilers. The generator is of two horse power, its dimensions 12 inches wide, 12 inches deep, 24 inches high, and weight 150 pounds. It is made of Damascus steel and drawn brass tubes, tested to 600 pounds hydraulic strain. Three to four minutes, it is said, is ample time to get up steam and a working pressure of 140 pounds. The hull has a fine entrance, well rounded bilges, and a long, clear run. The wheel, well dipped, meets plenty of solid water. Length on deck, 22 feet 6 inches; beam, moulded, 4 feet 6 inches; estimated speed, six knots an hour.

#### Chicken Cholera and the Rabbit Pest.

Pasteur's method for ridding the Australian fields of the swarms of rabbits that infest them has not proved altogether successful; at least in the experimental tests. At Rodd Island, Port Jackson, New South Wales, pens were built of close wire netting, and a large number of rabbits collected within; pains being taken to get the several varieties, so to mark the effects of the poison on each. Vegetables, sprinkled with liquid containing the microbes of chicken cholera, were distributed freely about among others not so tainted. Then Bunny was set free among them, and fell to feeding with his usual avidity. So far as the investigations of the commission go, those rabbits which ate of the poisoned vegetables died; but others, apparently selecting their food among the untainted, survived, and, together with still others forbidden access to the field of trial, but put in the same pen with those which had died of the disease, were in nowise affected. In other words, there was no proof of the assertion that those taken with the disease would carry it to others; no signs of contagion.