

World have a destiny to run, and a work of civilization to accomplish, to which the Old in its brightest achievements can furnish but a faint analogy. Scarcely two centuries have elapsed since coal was employed as an article of domestic use, or introduced upon the most limited scale into the manufactures; its now ascertained extent and boundless latent powers were not dreamt of or imagined even but half a century ago; and very recently the lamentation was general, that no coal measures existed in the mighty continent of America. Who now can fancy a limit to the social movement with which that vast hemisphere is heaving all over—the advancing tide of its population spreading in every region—the forests cleared and covered with a network of railways, the rivers bridged from end to end with a navy of steamships—and all vivified and in motion through the agency of this long undiscovered product of the earth? Geological time rolled on, and the surface of our planet was replenished with the hidden treasure and the man of science has no numbers to reckon the years that are past.—*The Course of Creation*, by Dr. Anderson.

### WOOD FOR FUEL.

The high price of fire-wood in many of our cities is becoming most sensible to the feelings and pockets of a very large class of the inhabitants; and the return of an old genuine Canadian winter like the present, is well calculated to awaken attention to the important matter of economizing fuel. There is evinced by many people, a negligence in this respect, which it is difficult to account for, upon any principles of common sense. How large a proportion of the fire-wood for which there is now paid a large price, is either green or more or less saturated with moisture, and not uncommonly in an advanced state of decomposition. Now much of this evil admits of an easy remedy, viz:—a little reasonable forethought and attention. Firewood, like hay, should be preserved in as dry a state as possible; and any outlay incurred in erecting suitable woodsheds and laying in a timely and ample stock against winter will be abundantly compensated, in the economy and increased comfort thereby secured. The following observations from the *Scientific American*, on this subject, cannot fail to be interesting and useful to our readers:

“Three cords of green or partly seasoned wood will not warm a room for as great a length of time as one cord well dried, and entirely free from moisture. The rationale is simple, and although to be found in books, is nevertheless true; it may be thus understood:

Substances contain heat as latent in proportion to their bulk. Thus if we pour a cubic inch of alcohol on our head and fan it, the one cubic inch assumes the form of vapour and becomes 1,700 cubic inches, capable of receiving a proportionate amount of heat, and therefore takes heat from the nearest hot object, the head, causing it to keep cool. Water placed on the head and then rapidly evaporated, will cool the head from the same cause. It may now be understood that a single pint of water contained in a piece of wood thrown on the fire, will first become 1,700 pin's of vapor, and that this vapor will increase in size one-five-hundredth part of its bulk for every degree added, so that it travels up the chimney, carrying

with it as much heat as would warm all the air in large room for a considerable space of time.

Many suppose that green wood may be burned stoves with profit. This is an error, for the vapour will pass up the pipe carrying with it the heat, and preventing its being received by the iron and radiated into the room.”

**MAGNETISM.**—Most extraordinary and inexplicable discoveries have been made, and are making, as experiments irrefragably prove, in regard to magnetism. They have been performed in Brighton, to the entire conviction of persons of the highest science, both foreigners and British—and yet altogether so incredible, that we almost fear to allude to them as realities. They will, however, come before the Royal Society at its earliest re-assembling, and be stated in all their details. Meanwhile, what will our readers, and especially our scientific readers, think of the fact that the magnetic force runs in transverse directions as it may be employed by the male or female sex—that is to say, that if in the hands of a male operator it proceeded from west to east, the same current in the hands of a female operator would immediately change to form north to south, or south to north, and cut the former line at about right angles. Thus magnetism is shown to derive different influences from the two sexes! But this is not all. A letter written by a woman weeks before, produces an effect upon the current of a like peculiar nature. And again any part of a dead animal, as the horn of a deer, a bit of ivory, and a dead fly held in the hand of any individual in contact, stops the magnetic action, which silk, the material from living worms, does not interrupt. In fine, there are wonders the most astonishing in store, and it does seem that we are, indeed, on the eve of what has for some time been prophesied, viz: penetrating deeply into the profoundest secrets and mysteries of this pervading agent in the whole economy of the universe, the globe we inhabit, and the human kind.—*London Paper*.

**THE SUPPLY OF CARBON.**—Carbonic acid is everywhere unceasingly generated, and especially in those regions of the earth where volcanoes are active, or probably were active in a former age. It is generated at the Grotto del Cane, near Naples, at Pyrmont, in Westphalia, and in the neighbourhood of the Lake of Laache, &c, and it oozes in a constant current from various crevices in different parts of the earth, and in all ordinary combustions. In the respiration of men and animals, as may easily be proved by blowing the air coming from the lungs through a glass tube into lime water, carbonate of lime is formed, which renders the clear liquid turbid. It is also generated in the fermentation which occurs in the making of wine, beer, and brandy. In this process the sugar is resolved into alcohol and carbonic acid; the former remains in the liquor, and imparts to it an intoxicating power, while the carbonic acid escapes in the air. It is produced by the decay and putrefaction of all animal and vegetable substances. Carbon is also contained in all organic bodies: during decay it is converted gradually by the oxygen of the air into carbonic acid; hence, wherever plants and animals exist, whether upon the earth, in the sea, or in the air, carbonic acid must be formed. All the carbonic acid thus formed is received into the air. If it should continue there, however, the air would become gradually deteriorated, more especially as in all the processes of breathing, combustion, and decay, free oxygen, or vital air, is taken from it. But this is not the case. The oxygen does not decrease, the carbonic acid does not increase. An unfathomable