

able. Woolen blankets are preferable in these respects to all other coverings. The sheets should be at least two and three-quarter yards in length when finished, that they may be tucked in under the mattress and at the foot. This is specially important for nervous people, to whom a wrinkle or a movement of the sheet may mean the loss of a night's sleep. Blankets should be put on with the opening at the top that part of the cover may be easily turned back if the sleeper is too warm. The pillows should not be filled too full, and the cases should fit loosely. If the patient is at all sensitive too cold, both sheets and pillow cases should be of cotton, as linen chills. In putting on the upper sheet leave the lower part loose for the feet, and the upper part long enough to turn back over the blanket. The counterpane should be the same length as the sheet to fold over, but the blanket not so long. If the patient is very ill, the lower sheet should be pinned in place, and a draw sheet laid across the bed, reaching from the shoulders to the knees. This can readily be changed if desired.

As the time for the renewal of the annual subscription to magazines draws near, a suggestion for the popular Neighborhood Magazine club may serve as a reminder to those who have never tried the experiment. While the idea is oftentimes carried out in suburban towns on a large enough scale to include ten or twelve of the leading periodicals, a smaller club, including four or five families and the same number of magazines, will be found very satisfactory. Sometimes the families decide upon the magazines together, and get advantage of the club rates, while in other cases each family decides for itself what magazine they specially wish and subscribe for that. The rules and regulations for the guidance of one of these clubs may be comprised in a nutshell. No family shall retain a book more than the specified number of days, after which it is to be handed over to the next family on the list. This may be arranged alphabetically or according to residence. A handing his magazine to B, B to C, and C to D, after which it is returned to A. At the end of the year each family may have their own magazine for binding, and meanwhile have had the benefit of several magazines at the price of one. It is needless to say that punctuality is a cardinal virtue in an association of this kind.

Strong black coffee settled with the white of egg or shell—not the yoke, as that would be too rich—is one of the most acceptable beverages after an operation.

With the pouring out of the treasures of autumn, spiced grapes again become a beneficent factor to add to the housekeeper's store of "good things to eat." Select grapes with thin skins, and if not entirely ripe, so much the better. The last few pickings of the Isabellas are especially good for this purpose. Press the pulp from the skins and cook the pulps in one granite or porcelain kettle with a little water until the seeds separate from the pulp. Cook the skins in another kettle with a little water until quite tender. Pass the cooked pulps through a colander which holds the seeds, and add the strained liquor to the skins. Now measure the grapes and allow to four pounds of the fruit two pounds of sugar, one pint of cider vinegar, and cinnamon, cloves and allspice to taste. Cook on back of range until rather thick, and if the glass cans have all been filled, pour in an earthen jar. These keep indefinitely and prove a delicious and piquant accompaniment to the Sunday roast.

EMMA PADDOCK TELFORD.

SCIENTIFIC MISCELLANY.

The reproduction of the truffle is a perplexing problem for botanists. Some land-owners of Lot and Corzeze have been experimenting to determine whether the spores are not diffused through the intermedium of cattle and particularly of certain domestic animals of quick digestion, but M. Grimbolot seems to have proved that the diffusion of the spores is effected by wood mice. This throws doubts upon another common belief. It has been supposed, probably without good reason, that both this valuable fungus and the common mushroom produce spores which will not develop until they have passed through the intestines of the cow or horse.

The walking of a fly on the ceiling is a familiar phenomenon not yet fully understood. A recent paper by Mr. D. H. Dierhold mentions that the microscope quickly disproves the old theory that flies hold to smooth surfaces by means of suckers, and that Hooke's idea that flies stick to glass by a viscid secretion was shown a dozen years ago to be only partly sound. Dr. Rombout has established the fact that the flies hang on by the help of capillary adhesion—the molecular attraction between solid and liquid bodies. It is true the foot hairs are very minute, but, as each fly is said to have 10,000 or 12,000, we need not be surprised at what they can do.

The method proposed by Herr E. Moyat for producing large artificial diamonds consists essentially in sealing pulverized coal, iron chips and liquid carbolic acid in a strong steel tube, and submitting to the action of the electric arc. Unlike other methods, this process generates enormous pressure during the operation of the electric current, and it is believed larger diamonds will crystallize out as the mixture cools.

The British Isles have now 3,219 rainfall observers, with one station in every 21 square miles in England, every 36 square miles in Wales, 74 square miles in Scotland, and 179 in Ireland.

Methods of overhead connection for electric cars without the use of trolley wires have been devised by a French and a German engineer. M. Rochert and Herr Rottsepper. The former places along the top of each car a conducting rail, to which the current passes from arms projecting over the track from side posts, and connects two or three cars together in such a way that constant connection is kept up as the cars pass in turn under the charged arms. The drawbacks to this system are the great number of posts required and the necessity of running more than one car at the time. These objections are overcome by Herr Rottsepper by the use of a secondary battery, which is fully charged at the terminal stations and partially wherever a stop is made, the stopping stations being at charging posts where the conducting rail—which may be on top—is automatically brought into the circuit from the distributing station. This system requires few posts, while the accumulators, being recharged at short intervals, may be of the lightest character. The current, of course, is transmitted from post to post by underground wires.

Few scientific deductions are more striking than the recent one of Lord Kelvin on the world's underground fuel supply, much of which is still hidden. The coal is the residue of ancient vegetation, and the oxygen of the air was probably all derived from this vegetation, which experiment shows must have furnished three tons of oxygen for each ton of coal. This is the proportion of oxygen consumed in burning coal. The surface of the earth

has an area of 510,000,000 millions of square meters, each square meter bearing ten tons of air, of which two tons is oxygen, and a simple calculation shows with great probable accuracy that the total fuel supply in the earth is 340,000,000 millions of tons. It was determined in 1831 that England, Scotland and Wales had 146,000 millions of tons of coal surely available, with 56,000 millions of tons more possibly available. This is more than Great Britain could burn with its own air, that country having therefore more than an average supply.

In his latest researches, M. C. Candolle finds that seeds of Indian corn, oats, fennel and other plants, are still capable of germinating after 118 days' exposure to cold of forty degrees below zero Fahr.

Our condition of hairlessness has been a subject of study by Dr. Exner, a German biologist. Our ancestors, he holds, were totally covered with hair, and its disappearance may be accounted for by the fact that its absence was regarded as a beauty, preference being given in choosing mates to those having the least of it. The hairs are modified sense organs, which have lost all connection with the nerves. Primitive man was probably clothed in an irregular covering of hair, which varied in length, color, structure and thickness with the functions for which it was intended. The hair now remaining was left for a definite purpose. Certain hairs serve as organs of touch, notably the eyelashes, and in a less degree the eyebrows. Both serve to protect the eyes. In animals the hair serves to maintain and regulate the body heat, but in man the hair of the scalp alone has such purpose.

Incandescent burners, having mantles similar to those used for a coal-gas flame, are now made for oil and spirit lamps. The kerosene is drawn up into a small chamber by a number of wicks, vaporized there by a small external flame, and after two minutes and a half supplies sufficient vapor to keep the mantle at a white heat. The disadvantage of this burner is the delay of two minutes and a half before it is ready for use.

Thin sheets of wood are glued together, in a factory of Warsaw, Russia, so that the grain crosses, an elastic plate which cannot be twisted out of shape being thus obtained. These plates are used for roofing tiles. They stand the weather well after being pitched, and can be made fireproof by saturation with potassium silicate (soluble glass). The roofing weighs 12 pounds a square yard.

A substance believed to be a new element has been obtained from cast-iron and boiler-dust by Mr. G. G. Buocher, an English chemist, and has been submitted to Prof. Wm. Crookes for spectroscopic investigation. Another assayer, Mr. F. G. Ruddock, has noticed a like material in steel drillings from the Continent.

Acetylene is now used for lighting Paris omnibuses, generator and carbide weighing about 30 pounds.

The elder of the two men arrested September 26th in Portland, Or., for holding up the Oregon Railroad and Navigation company's train near Clarnie, seven miles from the state capital, has been identified by Special Officer James B. Hume of Wells, Fargo & Co. of San Francisco as Mittle more than 50 years old, has a long criminal record and is well known in police circles along the coast. He was sent to San Quentin in 1867, from Santa Clara county, for two years and six months on a conviction for grand larceny. He had scarcely left prison before a repetition of the same offense in San Bernardino county in 1870 gained for him a sentence of four years.