## EYE-SIGHT.

Milton's blindness was the result of overwork and dyspepsia.

One of the most eminent American divines having for some time, been compelled to forego the pleasure of reading, has spent thousands of dollars in value, and lost years of time, in consequence of getting up several hours before day and studying by artificial light. His eyes never got well.

Multitudes of men or women have made their eyes weak for life by too free use of the eye-sight, reading small print and doing fine sewing. In view of these things, it is well to observe the following rules in the use of the eyes:

Avoid all sudden changes between light and darkness.

Never begin to read, or write, or sew for several minutes after coming from darkness to a bright light.

Never read by twilight, or moonlight, or of a very cloudy day.

Never read or sew directly in front of the light, or window, or door.

It is the best to have the light fall from above, obliquely over the left shoulder.

Never sleep so that, on the first waking, the eyes will open on the light of a window.

Too much light creates a glare, and pains and confuses the sight. The moment you are sensible of an effort to distinguish, that moment cease, and take a walk or ride.

As the sky is blue and the earth green, it would seem that the ceiling should be a blueish tinge, and the carpet green, and the walls of some mellow tint.

The moment you are prompted to rub the eyes, that moment cease using them.

If the eyelids are glued together on waking up, do not forcibly open them, but apply the saliva with the fingers—it is the speediest diluent in the world—then wash your face and eyes in warm water.—*Exchange.*

This has been going around for about 10 years, and its ownership, we guess, is lost; but it is good enough to go on indefinitely.

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The German Standard for Portland Cement.—From a paper read by Mr. John Grant, an English authority on cement, is taken the following brief summary of the requirements adopted in Germany for Portland cement: "In January, 1877, a committee, appointed the year before of four associations of engineers, architects, and manufacturers of cement, etc., had, at their meeting in Berlin, agreed upon a series of rules to be observed in the production and supply of cement. By these, the weight to be supplied in casks and sacks was determined, and certain tests established for the quality of cement, particularly as to its fineness and tensile strength. The latter was to be tested by briquettes of uniform shape and dimensions—five square centimetres breaking area—made of cement and sand, in the proportion of one part of cement to three parts of sand. The apparatus for this purpose was agreed upon. The age of the briquettes when tested was to be twenty-eight days. The cement was to be ground so fine that the residue on a sieve of 900 square centimetres, equal to 72.2 per lineal inch, should not exceed 25 per cent. This was afterwards reduced to 20 per cent. The sand for testing was to pass through a sieve of 60 meshes per square centimetre, and to be retained on one of 120 meshes per square centimetre, equal to about 20 and 28 meshes per lineal inch. The tensile strength after twenty-eight days was at first eight kilogrammes per square centimetre, equal to about 114 pounds per square inch, but was afterwards increased to ten kilogrammes per square centimetre, or about 142 pounds per square inch. There could be no doubt that the standards thus established for fine grinding, and for testing the cementitious value of cement when mixed with a large portion of sand, had exercised a beneficial influence on the quality of the Portland cement manufactured and used in Germany. This result has been arrived at by a combination of the knowledge and ability of those who produced, and those who had to use this important article. The same standard rules, with slight modifications, were afterwards adopted in Austria. To these standards all cement manufactured in or imported into countries must conform. In England engineers and cement manufacturers had not been idle, and the subject was now much better known than it was twenty years ago."

The Largest Sewing Machine in the World.—Mention has already been made, says *Design and Work*, of the modifications of the Singer sewing machine to adapt them to certain kinds of work. The latest of these we must allude to more prominently, and introduce the reader to the largest sewing machine in the world. This gigantic stitcher has just been completed, and may thus be described:—The machine weighs over four tons, and is in some respects of a new design, uniting much simplicity of construction with great strength of parts. It is adapted for general manufacturing purposes of the heavier sort, although specially made for stitching cotton belting, an article which is just now taking the market as a cheap and serviceable institution for gearing and the ordinary leather belting. The material used is of great strength and toughness, and is sewed together in plies or layers up to an inch in thickness. The belting in being sewed together is passed through heavy feed rollers some nine inches in diameter and over eight ft. in length, getting stretched and pressed in the process. There are two needles at work, with two shuttles, and the shuttles can be removed from the bottom without disturbing the overlying plies of belting. The rollers between which the work passes are actuated by reversible worm and cam motions, and the machine has, in addition to these roller-feeds, what is known as a top-feed motion, suitable for a lighter class of work. The stitch, as in the ordinary sewing machine, can be easily adjusted from one-eighth inch upward, and the pressure of the rollers on the work passing through the machine can be regulated at the will of the operator. The machine, which is driven by steam, has been made for a manufacturing firm in Liverpool.

The Use of Copper by the Ancients.—Copper is widely spread over the face of the earth, and man, in all ages, has adapted it to his wants. It was one of the greatest articles of commerce with the Phœnicians, who derived a large supply from the mines of Nubia, that at one time supplied the whole of the known world, and combined with it the tin obtained from the islands of Great Britain. It was used by some of the northern nations of Europe in the fabrication of weapons, at a period and under circumstances when steel appeared to be more precious than gold. This has been illustrated in Denmark, by the opening of many Scandinavian tumuli of very remote ages, and from which have been collected specimens of knives, daggers, swords and implements of industry, which are preserved in the museum at Copenhagen. There are tools of various kinds, formed of flint, or other hard substance, in shape resembling our wedges, axes, chisels, hammers and knives, the blades of which are of gold, while an edge of iron is attached for the purpose of cutting. Some of these tools are formed principally of copper, with edges of iron, and in many of these implements the profuse application of copper and gold, when contrasted with the parsimony evident in the expediture of iron, seems to prove that at that unknown period, and among the unknown people who raised these tumuli, gold as well as copper were much more common products than iron.

Respiration Affected by Food.—A very careful examination by Dr. Speck, of the changes produced in the respiratory process by the use of fatty food, of coffee, quinine, alcohol and water, and by the inspiration of air respectively rich in carbonic acid, poor in oxygen and rich in oxygen, has led him to the following conclusions: With an increased proportion of hydrogen in diet, the amount of air inspired and expired decreases, and nutriment, such as sugar, which contains little hydrogen in comparison with their oxygen, involves more exertion of the respiratory organs than such as are rich in hydrogen like the fats; the more carbon predominates in the food, in proportion to hydrogen, the more air is exhaled in proportion to that inhaled; the more carbon increases in the diet in proportion to hydrogen, the more carbonic acid is evolved and the more oxygen is taken up—while the richer the diet in hydrogen the less oxygen is required. An atmosphere containing 5% or 6% of carbonic acid could be breathed for some minutes without oppression; at 11·51% great exertion would be needed to breathe for one minute; at 7.2 all carbonic acid produced in the body is retained in the blood.

The Value of Bric-a-Brac.—A *bonheur de jour* table, 2 feet wide 18 inches deep, and 2 ft 9 inches high, beautifully and elaborately decorated, one of the Welbeck "properties" inherited by the Duke of Portland, has been valued for probate at 10,000 guineas. There is nothing very astonishing in this, for when, during the bankruptcy of the late Duke of Newcastle, there was a dispute as to the ownership of a cup, whether it belonged to the Duke or to Mrs. Hope, some one suggested that such a trifle was not worth so much discussion, whereupon it came out that at the death of Mr. Henry Hope the said cup had been valued at £10,000.