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SCIENCE AND PROGRESS.

DOES COLOR BLINDNESS LIE IN THE BRAIN AND NOT IN THE EYE?

An Apparatus That Renders Torpedo Boats Invisible at Night—Some of the Desirable Results Obtained by the Electric Lighting of Steamships.

The Peninsular and Oriental Steamship company has, during the past few years, been gradually fitted with the electric light. The plant is erected on the Victoria and Britannia by the Anglo-American Brush Electric Light company, London. The Peninsular and Oriental company's vessels pass through the Suez canal, and, according to the present regulations, are allowed to steam on at night, instead of being obliged to moor at dusk, if they are provided with search lights.



FIG. 1.—ELECTRICAL BOW LIGHTS, FOR SHIPS.
 For this purpose the Brush company provides the apparatus illustrated herewith, and recently described in Engineering. This consists of a cage, which is suspended over the bows of the vessel, and is lowered to within eight feet of the water. In this cage is mounted a lamp taking a current. The lamp is regulated by hand by an attendant, who sits behind it and feeds the carbons together as they are consumed. The beam is reflected by a mirror 22 inches in diameter and 12 inches focus, and then is spread sideways by a dispersion lens, which widens it into a sector subtending an angle of 22 degs. The direct rays of the arc are prevented from leaving the lantern by a carbon shield, but as the crater is turned toward the mirror there is very little loss from this cause.



FIG. 2.—ELECTRIC LIGHTING OF THE SHIP VICTORIA.
 By the use of this apparatus the time of passing through the canal is reduced from an average of 36 hours to 15 or 18 hours. In the case of a vessel fitted with a duplicate plant, the spare dynamo is employed to work the arc lamp in passing the canal. Vessels that are not fitted with electric appliances take them on deck on entering the canal and discharge them at the other end, and thus one set will serve a whole fleet of steamers.

The Origin of Color Blindness.
 Professor Ramsay suggests that the origin of color blindness lies in the brain and not in the eye. Science, commenting on this suggestion, tells how the principal of a school in Brooklyn some years ago insisted upon treating every case of the sort as being dependant on the will of the pupil. His remedy was the rod. This certainly seemed a tyrannical and unwarranted treatment, but the result was favorable to his theory. It is possible that a thorough examination will ultimately demonstrate that the fault lies very largely in the shiftless methods of observation which have grown up under the old classical system of education, and which have to a large extent become hereditary. Professor Ramsay's suggestion and his argument deserve careful attention, and, if found correct, we have another and overwhelming reason for the newer education. At first sight, it is not perfectly clear, on the above theory, why it is that color blindness should be more common among men than among women; yet it is possible that this will be found to bear out the suggestion made above, for, with the discontinuance of the wearing of colors by the men, their interest in colors to a large extent must have ceased; and if our old methods of education were to be continued much longer, it may be that, with the less use of color by women in their dresses, an increase of color blindness might result among them as well. It is doubtful, however, whether the introduction of the rod as a quick corrective will find many advocates.

Concealment of Torpedo Boats.
 One of the well known drawbacks in torpedo boats is the visibility of the flame and smoke when within a distance of 2,500 to 3,000 yards of the object to be attacked. Experiments at the Rochefort arsenal and on the Seine with an apparatus invented by an engineer of the name of Oriollo, of Nantes, as is reported, says Scientific American, have demonstrated that his arrangement is capable at night of quite obscuring the torpedo boat. The flame and sparks disappear, the smoke, which is reduced in temperature from 100 degs. to 35 to 40 degs., spreads itself out in a horizontal layer over the surface of the water, becomes inhalable, and envelops the boat in an impenetrable vapor, which defies the electric search light to discover the boat. A notable point in the application of the arrangement is that it in no way whatever interferes with the proper working of the engines of the boat. The steam pressure and the speed remain undiminished. The improvement is confined exclusively to the funnel, and the extra weight which it adds to the boat is insignificant. France is engaged in applying this improvement, and Spain and Italy will, probably, shortly introduce it to their navies.

Treatment of Loosened Belts.
 Belts that have been loosened by getting wet, should be thoroughly dried and fastened together by inserting cement into the cracks with a knife, and hammering until dry. A good cement for this purpose is equal proportions of good glue and Prussian gelatine dissolved in the same manner as ordinary glue.

The Monkey Wrench.
 The monkey wrench takes its name from Charles Monkey, the inventor, says Popular Science News, "who received only \$2,000 for his patent, and is now living at Brooklyn in a small cottage bought from the proceeds of this sale."

THE CURIOSITY SHOP.

Volapuk—A Language for All the World. How It Can Be Learned.

The new language is made up fundamentally from all the European languages, but it nevertheless resembles none of them. English contributes more largely to the new tongue than any other language. The general principle followed in the selection of words from the various languages was to use monosyllables as far as possible. From the monosyllables the root is built up a class of words akin to it in meaning. For instance: The English word "stem" was transferred to Volapuk without change of form or meaning; from it is made the verb penon, to write; the noun penot, a written word; the noun penel, a letter, and so on. Now the formation of the derived words from the original root proceeds according to iron rules, so that one needs to know few original words to be able to speak or write a great many. For instance, knowing that puk means language, the student may immediately decide that pukon must mean to speak, as indeed it does. In the same way he would know that pukut means a thing spoken, a discourse. Volapuk is a language without any exceptions. Attempts to make a literary language of it are discouraged by the leading Volapukists.

Man's Average Weight.
 Professor Huxley has given a table, in which is set forth what a full grown man should weigh, and how the weight should be divided. The arrangement is as follows: Weight, 154 pounds, made up thus—Muscles and their appendages, 68 pounds; skeleton, 24 pounds; skin, 10 1-2 pounds; fat, 28 pounds; brain, 3 pounds; thoracic viscera, 3 1-2 pounds; abdominal viscera, 11 pounds; blood, which would drain from the body, 7 pounds. This man ought to consume per diem—lean beefsteak, 5,000 grains; bread, 6,000 grains; milk, 7,000 grains; potatoes, 22,000 grains. His heart should beat 75 times a minute, and he should breathe 15 times a minute. In twenty-four hours he would vitiate 1,750 cubic feet of pure air to the extent of 1 per cent.; a man, therefore, of the weight mentioned ought to have 800 cubic feet of well ventilated space. He would throw off by the skin 18 ounces of water, 300 grains of solid matter and 400 grains of carbonic acid every twenty-four hours, and his total loss during the twenty-four hours would be 6 pounds of water and a little above 2 pounds of other matter.

Government Land.
 Government land may be taken up by settlers under three laws. First, homestead, the pre-emption and the tree claim law. One hundred and sixty acres may be taken by the settler under each law. Homestead lands cost nothing except the registry fee. Pre-emption lands cost from \$1.25 to \$2.50 per acre. Homesteads are only taken up on surveyed lands, but pre-emption can be taken on unsurveyed lands, and after survey the pre-emption may be changed into a homestead claim if desired. The laws in both the above cases require residence and cultivation to secure title. The tree land claims are free, except entry fees, but the claimant binds himself to set out every year after the third, a certain part of the land annually in trees or cuttings. Lands taken up under the "tree claim" are prairie land, or land naturally devoid of trees. Citizens, or those contemplating citizenship, may have the benefit of the homestead law. The United States land commissioner at Washington, D. C., will mail pamphlets relative to the above laws.

The Origin of O. K.
 More than a century ago the best tobacco and the best rum came from America (pronounced O. K.), and the best of anything was designated as Aux Cayes, or O. K. This meaning of the phrase is still retained. In the Jackson campaign every lie that could be invented was invented to blacken the general's character, and an indorsement that he had made, "this is O. K." (meaning the best), was taken by Seba Smith, and declared by him to be but an abbreviation of the general's customary indorsement of papers as "oll korrect." The Democrats took up this statement and fastened the mystic letters upon their banners. The meaning of "all correct" stuck to the letters, and since then they have been used in the two meanings of "the best" and "all right."

A Transit of Tellus.
 Dr. Copeland, an English astronomer, records an unusual observation. While watching one of Jupiter's satellites he was able to see it pass over his own shadow on the planet. For this to have happened the sun, the earth, the satellite and the part of Jupiter's disc occulted, must have been all in one straight line, and, as seen from Jupiter, the earth must have appeared making a transit across the sun.

International Marriage.
 International comity has established the rule that a marriage contracted in a foreign nation by a subject or citizen of another nation, if made in accordance with the law of the land where the marriage takes place, is held to be a valid marriage in the country to which either of the parties owes allegiance, provided the marriage was such as could be lawfully contracted there.

Confederate Constitution.
 "The permanent constitution of the Confederate States of America" was adopted at Montgomery, Ala., March 11, 1861, was ratified by Alabama, March 13; Georgia, March 16; Louisiana, March 21; Texas, March 23; Mississippi, March 30; South Carolina, April 5, 1861. These so called ratifications were submitted to the people.

Facing the West.
 The practice of burying the dead with the head toward the west is of Christian origin. The rising of the sun in the east was believed to be the sign that the second appearance of Christ will be in that direction, and that those who arise from their graves will face him. The custom is not followed as rigidly as heretofore.

Large Churches.
 St. Peter's, Rome, will accommodate 54,000; Duomo, Milan, 37,000; St. Paul's in Rome, 25,000; St. Sophia, Constantinople, 23,000; Notre Dame de Paris, 21,000; the Dome of Florence, 20,000; the Cathedral of Pisa, 15,000; St. Marc in Venice, 7,000.

A Question of Authorship.
 Who wrote the Arabian Nights entertainment is a question which has tested the best minds, the author's name continues in the limbo of obscurity. It is supposed to have been written in Bagdad about the Eleventh century.

A Last Kiss.
 "Who stopped to kiss a slave girl on his way to execution?" John Brown, of Ossawatimie, as he was generally called, on the morning of Dec. 2, 1859, at Charlestown, Va.

An Appropriate Name.
 "The Valley of Death" is in the Island of Java, and is simply the crater of an extinct volcano half a mile in circumference and filled with carbonic acid gas.

ALL AROUND THE HOUSE.

Fashionable 5 o'clock Tea—A Decorative Banner—Tested Recipes.

Luncheons and 5 o'clock teas remain popular entertainments, according to Good Housekeeping, which also points out the fact that the formal "5 o'clock tea" is entirely an American institution and bears no resemblance to the cup of afternoon tea, which in England is daily and informally served at 5 o'clock, whether there are callers or not. The men at afternoon tea, says this authority, is extremely simple. Tea is often prepared in the drawing room by a high spirit lamp with a swinging kettle. Tea is served in the daintiest porcelain cups the hostess possesses, and handed with cake and wafers. A more elaborate menu than this is considered in bad form. The silver tea ball is sometimes used as teas for daintily "brewing" a cup of tea. Enough tea for a portion is placed in a ball and the ball is put in the cup; boiling water is poured in the ball over the tea and slowly filters through it into the cup.

Excellent Cake that Keeps Well.
 Catherine Owen gives the following recipe for an excellent cake that will keep a month: Cream half a pound of butter with a scant pound of sugar; add the beaten yolk of eight eggs (ten if small), a wineglassful of sherry, a small nutmeg and the grated rind of a lemon with the juice of half, and one pound of fine, dry flour. Stir it all into a stiff paste, then add the whites of the eggs, beaten to a snow, with a pinch of salt; a pound of well washed and dried currants, floured and warmed, to be gently stirred in the last thing. Bake in pans lined with buttered paper, an hour and a half or three-quarters, in a moderate oven.

A Delectable Dessert.
 Sponge cream furnishes a very delicate and easily made dessert. The ingredients are: One pint of fresh milk, three tablespoonfuls of Cox's gelatine, three tablespoonfuls of sugar, three eggs. Put gelatine into cold milk, let it stand a little while; put on stove and bring milk to boiling point, then add the sugar and yolks of eggs which have been well beaten together. Remove from the fire and stir in the whites, which have also been beaten stiff. Add a little salt and flavor to suit and pour into molds; wet first so the cream will turn out easily.

Bouillon.
 For bouillon take four pounds of meat and two of bone; cut the meat and bones in small pieces; add two quarts of cold water and heat slowly; add one tablespoonful of salt, four pepper corns, four cloves and one tablespoonful of mixed herbs and simmer five hours. Boil it down to three pints; strain and remove the fat. This is a good soup with nothing additional, but is used also as the foundation of richer soups by the addition of various vegetables, macaroni, tapioca, fried bread or other materials.

Fried Oysters.
 A celebrated caterer's recipe for preparing fried oysters is to dust them with flour and pepper, drop into an equal mixture of lard and salad oil made smoking hot, and serve the instant the edges begin to curl. Some cooks roll them in cracker dust or Indian meal and then fry them. A substantial dish may be made of fried oysters by having ready some mashed potatoes nicely seasoned, and placed around the edge of a hot dish in such a way as to form a wall, and serving the oysters in this dish.

The Digestibility of Food.
 The digestibility of various kinds of meat and fish has been stated as follows: Meats—Easy to digest: mutton, venison, hare, sweet bread, chicken, turkey, partridge, pheasant grouse, beef. Hard to digest: pork, veal, goose, liver, heart, brain, lamb, duck, snail meat, sausage. Fish—Easy to digest: bass, brook flounder, sole, oysters, trout, pike. Hard to digest: mackerel, eels, salmon, herring, salt fish, lobster, crabs, mussels, cod.

How to Clean Silver.
 For cleaning silver wet up finely powdered whiting to the consistency of thick cream, either with water, alcohol or diluted ammonia. Rub this on the silver with a piece of soft flannel. By the time all the articles have been gone over the first will be dry. Then with a soft cloth clean off all the whiting; brush out all crevices with a brush kept for this purpose, and lastly polish well with soft chamois.

Rattan Furniture.
 Rattan furniture can be colored black as follows: Apply a strong solution of extract of logwood. When dry brush the surface and apply a weak solution of bichromate of potash. If light spots appear use the bichromate on them again, and rub the surface with flannel.

Flush Banner Screen.
 The screen shown in the cut represents not only a graceful style but decidedly artistic and unique coloring and design. It is of rich silk plush of dark moss green color, embroidered with silk and arseene, the latter a woolen chenille. The banner is one foot ten inches wide by two feet five and a half inches long. The leaves and stalks of the decoration are embroidered in various shades of dark green silk in satin stitch, while arseene in white and very pale tints of light green is used for the raised balls.



EMBROIDERED BANNER SCREEN.
 To make the foundation of the balls, a round piece of cloth three and three-quarter inches in diameter is cut out, gathered and drawn in tight, and the middle filled out with cotton wool. The outside is then sewed over with loops of arseene three-eighths or five-eighths inches long, and so that the white threads form the middle and the green ones the outer edge. The balls when finished are sewn at the back to the plush foundation. A moss green satin lining completes the embroidery, and a row of tassels made of narrow moss green ribbon the lower edge. Metal rings are sewn to the upper edge of the embroidery, and afterward slipped over a gilt pole with fine chains. "The cord and tassels are of olive green."

SCRIBNER'S MAGAZINE

Prospectus for 1888—Beautiful Christmas Number.
 Among the important articles to appear during the year 1888 are the following—Send for prospectus;

ROBERT LOUIS STEVENSON will contribute regularly to each number during the year. He will write of many topics, old and new, and in a familiar and personal way, which will form new bonds of friendship between the author and his thousands of readers. In his first paper entitled "A Chapter on Dreams," appearing in the January number, he relates incidentally, in connection with the general subject, some interesting facts concerning the origin of the now famous story "Strange Case of Dr. Jekyll and Mr. Hyde."

RAILWAY ACCIDENTS, by W. S. CHAPLAIN, will be the first of an especially important and interesting series of papers on railways, their administrations and construction, including great engineering feats, famous tunnels and passes and, indeed, those branches of the subject which in this day engage the attention of the whole country. The illustrations which will accompany this series will be very elaborate, original, and beautiful. The authors and the titles of the future articles will be announced later.

DR. D. A. SARENT'S papers on Physical Proportions and Physical Training will be continued by several of increasing interest, with as rich and unique illustration as those which have already appeared.

ILLUSTRATED ARTICLES of special interest will be those of the Campaign of Waterloo, by JOHN C. ROPES; on "The Man at Arms," by E. H. BLASHFIELD; two papers by EDWARD L. WILSON, illustrating results of recent Egyptian research; a further article by WILLIAM E. APGAR, on a subject connected with his recent contribution on Wagner, and many other of equal interest. PROFESSOR SHALEKES' articles on the Surface of the Earth will be continued and articles upon two of the most interesting groups of contemporary European writers will be accompanied by rich and novel portrait illustrations.

ELECTRICITY in its various applications as a motive power EXPL. SIVES, etc., will be the subjects of another group of illustrated articles of equal practical interest, by leading authorities upon three topics.

MENDELSSOHN'S LETTERS written to his friend, Moscheles, at a peculiarly interesting time of his career, will furnish the substance of several articles of great interest to musical readers, which will be illustrated with portraits and drawings from Mendelssohn's own hand.

THE FICTION will be strong, not only in the work of well-known writers but in that of new authors, in securing whose co-operation the Magazine has been so fortunate during its first year of publication. A serial novel, entitled "First Harvest," by FREDERIC I. STIMSON, will be begun in the January number, and early in the year no. etics will be published by HENRY JAMES and H. C. BUNNER. The short stories are of noticeable strength and freshness.

ILLUSTRATIONS. The Magazine will show increased excellence in its illustrations. They will be more abundant and elaborate than ever. It is the intention of the publishers to represent the best work of the leading artists, and to promote and foster the most skillful methods of wood engraving.

SPECIAL NOTICE.—To enable readers to possess the Magazine from the first number (January, 1887) the following inducements are ordered.

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