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NEW BLUE COLOR WANTED.

For army clothing, blue has been more universally adopted than any other color. It is possible to dye cloth this color by several processes and different substances; but the exigencies of a soldier's life demand that the color of his clothing should be permanent—that is, unchangeable by exposure to the sun and weather, and the action of alkaline solutions used for washing. Hitherto, only one substance has been generally used, possessing the best qualities for producing this color. It is known by the name of indigo, and is manufactured from a plant into small hard cakes, in which condition it is transported from tropical and intertropical regions, where the plant is cultivated. As a coloring substance, indigo has been employed in Africa, Asia, and South America, from time immemorial. The color which it imparts to cloth possesses the excellent quality of appearing fresh as long as the fabric endures. Within the past two years, the demand for blue army cloth has been so great, that it has been difficult to obtain a supply of indigo for dyeing; more especially as the best qualities of the drug have of late years been imported from sections in the East Indies, where there have been serious disturbances among the native cultivators of the plant. Its price—at all times high—has advanced from one dollar and a half to two dollars and a quarter per pound; and a sufficient quantity of the best qualities cannot be had at all. The introduction of a cheaper substitute for this material, would be of great importance to the community; and would undoubtedly realize a fortune to the inventor.

Within the past three years, colors manufactured from the products of coal tar, have come into very general use, and have superseded colors that were formerly derived from decoctions of various plants and "dye-woods." But the range of these new colors is limited, being chiefly confined to shades of purple and red. It is true that emeraldine—a green coal-tar color—has been manufactured; and also blue—termed *azuline;* but the latter does not possess the durable qualities of that produced from indigo. Still we think that this is the direction to which the chemist should look, as the most hopeful field in which he can labor for obtaining a substitute for indigo. The base—aniline—of coal colors was first obtained from indigo by distillation. Rosaniline is composed of C_{20} (carbon), H_{19} (hydrogen), N_{13} (nitrogen); and blue indigo is composed of C_{16}, H_{10}, N_2 O_2 (oxygen). What is called "white indigo" simply contains two atoms more of hydrogen than the blue indigo. There is therefore a close relationship between these colors and substances. The aniline blue which is now made for dyeing silk, is manufactured from the rosaniline products, by acting upon them with acids, under heat, in a close vessel; so that it is reasonable to conclude that a perfect substitute for indigo may be made from the products of coal tar. It is also much to be desired that the new blue color should be as easily applied to woolen fabrics, as the new red and purple colors are dyed upon silk and wool. These require no mordants; the fabric is dyed by simple immersion in a warm bath of the coloring agent. In dyeing wool with indigo, the vats for the goods are very difficult to manage, and are easily spoiled, because the indigo requires to be deoxodized by fermentation, before it will yield its coloring matter to cloth. Woad, bran, madder, &c., are employed as fermenting agents, and much experience and great skill are necessary to manage the operations. Large quantities of indigo are frequently rendered useless, for want of a little care and skill in preparing and managing indigo vats. A new color may be produced to obviate these difficulties, by which blue cloth may be dyed as permanently as with the best Bengalindigo. Never before has our country presented so great a prospect of reward to the discoverer of such a color. Our home woolen manufactures have increased to a prodigious extent during the past two years; and they must attain to still greater importance, as they are necessarily taking the place of cotton fabrics for many purposes.

THE BODY AND THE MIND.

By the exercise of a very little reflection we shall discover that the mind and the body are both dependent on each other. The mind, more especially, upon the physical structure; for without stimulant from bodily vigor, the brain refuses to work and thought is paralyzed. These are truisms, and are not put forth as embodying any new and startling doctrine. They are so true that all thinking men know the force of the remarks, but fail to take any steps to practice what is suggested by them; for when a man is told that his mind is weak, it implies bodily waste, and he must of necessity recruit the one to improve the other. This article is no plea for gymnasia, or other similar institutions; in fact we look upon these as the last resort for restoring lost animal strength, and invigorating the wasted tissues and muscles of the body. Rather do we seek in these lines to impress upon every person engaged in sedentary pursuits, the absolute need that exists for sensible and diverting bodily activity.

How does the case stand: how do men in general spend the few hours they can spare from business? Let the reader look around among his acquaintance, or ask himself, and he can see clearly that but few persons give the attention they ought to this subject. One individual for instance stands all day in his store, bends over his desk, and wearies out his body and mind by close attention to business. Possibly, at five o'clock he goes home, because he can't stand the strain any longer: what does he do then? He plays five minutes with his baby, or else doses in the corner over a newspaper, all doubled up like a jack-knife. Still other men of business snatch a hasty minute to dine, and come home at night, only to pore over ledgers and business accounts without end. These plans may be very excellent ones to get riches by, but there are demands of the body to be attended to, which neglected, all the wealth in the world cannot compensate for. The obvious remedy is to give each function and organ of the body its proper degree of care. The millionaire will not consent that his horses shall stand idle in the stable, for he knows that by so doing they lose in beauty and spirit; yet he denies to his own body what he recognizes as indispensable for the animal, and suffers his energies to waste for want of use. The mechanic who has an overabundance of muscular exercise, requires intellectual food, that his brains may develop and his ideas be enlarged; while the reverse is true of literary men.

In the beginning of this article we mentioned gymnasia, and their influence; we think that one great feature in developing our frames is too often overlooked, and that is the degree of interest or sympathy an individual has, in his efforts to become robust. Most persons will concede that if a man forces himself to walk about in a pen, open to air and sunlight, for a certain period, he will not necessarily present a picture of perfect health; and that mere tramping over a stated number of miles may not always bring him in sight of the fountains of youth. But let nature inspire the heart of man with all her beautiful sights and sounds; let him feel the sweet influences of the landscape filling his heart with joy and gratitude; and then a walk of half a mile is better for his body than five miles under other circumstances. It is not so much what we do for the restoration of lost physical energy, as *how* we do it. Active exercise is in fact only another name for recreation; and that this is imperatively necessary to a healthy body all will admit. Outraged nature inflicts sore present punishment upon men for their neglect of this law, as well as future unhappiness, in a line of degenerated and figuratively emasculated descendants.

RESISTANCE OF ARMOR VESSELS.

The London *Daily News* lately contained a long communication from Rear Admiral Halsted, R. N., in which he discussed the merits of the different armor-clad vessels that have been built, and those now being constructed for the British navy; also the effect of shot and shell upon them. He states that those ships which have been built with eighteen inches of teak wood, behind 4½-inch iron plates, exhibited greater powers of resistance to round shot, from smooth bore guns, than ships having 5½-inch plates, backed with only 9 inches of teak. But none of these vessels, he asserts, are proof against Whitworth's 130-pound shells, fired at a distance of 800 yards, with 27-pound charges of powder. He advocates, however, an inner skin of plate, behind all the wood backing of armor vessels, as being a great protection against splinters, and rendering the interior of the vessels fire-proof. The inner plating behind the wood of the frigate *Warrior*, and other broadside British iron clads, is ⅝ths of an inch thick. A greatly increased thickness of this inner plating is suggested. With respect to broadside and cupola, or turret armor ships, Admiral Halsted considers the latter superior. He says: "Of the plans now before us, the cupola ship bids higher than any other, as against both ships and forts, to become the type of future maritime strength. With unapproached facility for carrying and working the heaviest practicable guns, able to be burdened with the heaviest reasonable armor, freed for equipment with the highest powers of speed and sail, and with promise of superior sea-boat qualities, the cupola ship, as a true British invention, claims every support and encouragement the country can extend to her talented inventor, in his arduous struggle for her speedy, complete and successful development, as the future floating symbol of our naval power."

The little touch of national vanity about "the true British invention" may be overlooked, for the sake of the qualities which he points out as necessary to make such vessels truly effective. They must possess a high speed and be good sea-boats. None of our *Monitors*, yet constructed, possess these qualities, but several of those now being built will be good sea-going vessels; and it is expected they will have a high speed. We have constantly urged upon our naval authorities the positive necessity of high speed in any war steamer, to render it effective.

DECORATING MACHINERY.

The external appearance of some kinds of tools and utensils attracts public attention at once, and provokes criticism of a more or less favorable nature; according as the embellishment is in good or bad taste. In respect to the ornamentation of machines many different opinions exist. There are a certain class of manufacturers who build their machines without any attempt at decoration, and who reject all outward show, as detracting from the real merit of the article—which lies unquestionably in its capacity to do the work it was designed for. Yet another, and in this country a very numerous class, so overload their mechanism with paint, gilding, and gewgaws, that the appearance becomes tawdry in the extreme, and detracts very materially from the pleasure one experiences in looking at what may be an otherwise well-designed and efficient machine. Some locomotive engine tenders we have noticed, are so covered with a maze of scrolls, scratches, and dabs of paint, beginning nowhere, and ending in the same place, that one cannot but think the ghost of some crazy artist had risen at the dead of night, and wandering at random over the innocent iron, left traces of his revel in wild meaningless blotches and patches, without character or purpose.

It seems to us that in all cases where the ornamentation of a machine is determined upon, a safe rule would be to consult the well-established laws of design (and common sense also), before perpetrating abortions which will, perhaps, live long after the offender against good taste has departed. All appar-