

Why Men Only Are Color Blind

Just think of it! Scarcely more than a hundred years ago it was not known that there was any human being who saw green when red was shown to him. In a word, color blindness was unknown. The bare fact that some eyes are born not to possess normal vision for colors was wholly unknown.

Then a non-medical man, the distinguished chemist Dalton, who discovered that he himself was color blind to red, started as usual the sceptical medical world with the announcement that there were many persons thus affected.

Indeed, physicians who did not scoff at Dalton called the trouble Daltonism, and the subject of color blindness was until the present generation, when the Swedish physiologist also not a doctor of medicine emphasized its relationship to railroad wrecks, wrecks on light-house reefs and similar emergencies.

Only in the past dozen years or so has it become imperative in all civilized countries, in recognition of the immense numbers of persons who are color blind without knowing it, to demand that all applicants for railroad, art, steamship and engineering positions shall submit to color tests.

The new discoveries about color blindness are many and increase almost every day. It has just been found that women are never color blind. Yet color blindness is a characteristic that is inherited and passes on from generation to generation.

This seems odd at first thought. Nevertheless color blindness is inherited, according to the laws of Mendelian heredity. If all are born girls, it remains dormant and reappears in one of every four male children of the next generation. In consequence of this, it is called a sex-linked characteristic.

One investigator, Dr. W. H. Howell, professor of physiology at Johns Hopkins University, reported that color blindness is more common among imperfectly educated persons than among college and university graduates. This is not true. It has nothing to do with education, although there is a form of defective vision which prevents the eye from seeing colors perfectly. This is due to tobacco and is not true of color blindness.

Another statement made in Prof. Howell's great volume on physiology is that one hundredth of 1 per cent.—one woman in ten thousand—of women are color blind. Women are never color blind. That is an error. Even the most masculine of the sex have not yet been shown to be color blind.

There are two types of complete color blindness, each of which has to do with genes of color—red to blue and white and black. When the color blind man has two important colors such as red and

green and their combinations affected he is said to be "dichromatic." When he is totally color blind and sees merely white, gray and black he is "monochromatic." The color blind who come into the world are divided into three groups. They are red blind, green blind and violet blind. Red blindness is the one most frequently encountered. These men are really blind to both green and red and they distinguish only yellows and blues.

To such unhappy persons green, red, and orange and yellow all appear as yellow of varying tints. Therefore if a man happens to see too much yellow and light browns around, he had best test his eyes for color blindness. He will run right past a red flag or a green light and think it yellow. He will also mistake greenish blues and bluish greens as gray and the blue violets and purples all strike his eye as blue. Moreover, if he looks at a rainbow or a spectrum of all the colors he will not see beyond the green, which will appear yellow. A neutral band of gray will also be seen sometimes in the rainbow or other spectrum between the blue and green.

In this common type of red blindness the peculiar defect is absence of any recognition of green. It is confused with dull reds and grays. Everybody knows that when one stares fixedly at a color and closes his eyes an opposite color called a colored after image—is to be seen.

In the other great division of color blindness there is an entire loss of vision for all colors. Everything appears in shades of gray. The eye is supersensitive to light.

Thus, to say a person sees everything with a jaundiced eye may be more true than poetic. The very central part of the inner back wall of the eyeball—the retina—contains the seat of color vision. Its innermost bulge contains the visual points for green. The next outer ring of the bulge is red, the third outer one blue, then white, and the outermost black. If you paint a target on the wall and make the rings from the bulge to the circumference such green, red, blue, white and black, you will have the condition in a healthy normal retina.

These questions are often asked: "I would like to become a sailor or an engineer. Can I be cured of color blindness? Can I train myself to an intellectual knowledge of the differences?" The answer at present is unfortunately no. The hereditary factor or "unit character," as it is called, which causes color blindness to pass on forever through the generations is contained in the mysterious Pandora's box of dark pigment present in the "nucleus" or yolk spot of the human egg. Until science unravels this, color blindness will continue to pass on from mother to son.

rates were hurriedly summoned to drag the spot where the

Submarine Disappeared

and after some hours work they succeeded in locating what was believed to be the sunken submarine. On October 18 word was flashed to the Minister of Marine in Paris that the Lutin had been found at a depth of 118 feet. He was informed that the vessel was lying on her side and that while the hull of the vessel was intact, the probable chances were that the entire crew had perished.

Despite all efforts the Lutin was not raised until October 23. The submarine was towed to the Ferryville dock near Tunis. Efforts were immediately made to remove the bodies from the vessel. They were found to be decomposed, principally by reason of the acids that escaped from the batteries.

A commission was formed to investigate the accident. On November 21 Minister of Marine Thomson announced its report.

The commission found that a pebble had been the direct cause of the accident. An interior bulkhead of one of the water ballast compartments near the stern was too weak to withstand the pressure of the intake of water and had given way. This abnormal pressure was due to the fact that the corresponding intake of water had not closed because of the presence of a pebble in front of the sluice gate of the sea valve.

According to the commission most of the crew had taken refuge in the manoeuvring compartment, but the members had quickly become affected by the increased air pressure. An attempt had been made to open the hood, but had failed, principally because of the weakened condition of the men. The bodies of three of the crew were found in a position which indicated they had made an attempt to escape through the open hood. The body of the commander was found with his right hand clutching the exit ladder below the hood. His left hand rested on the crank which opened the hood, but he had been unable to turn the crank because two bodies were wedged in the cup-

ola, in space hardly sufficient for the presence of one.

Two clocks were found on board the Lutin. One had stopped at 10:38 o'clock. The minute hand had fallen off the other clock, but the hour hand showed the time approximately 11:10. In spite of this the commission decided the imprisoned men had lived less than fifteen minutes.

A French submarine also was the victim of an accident which shocked the world in May, 1910. On the 27th of that month the submarine Pluviose left Calais at 1:45 P.M. for diversion tests. Half an hour later the steamship Pas de Calais of the Calais and Dover Line, carrying passengers and mail to England, left her pier. There were many Americans on board, who subsequently were witnesses to the fatal accident.

The Pas de Calais had got well out into the stream when her paddle wheel struck something which caused the steamer to rock violently and come to a stop. The captain thought he had hit a submerged wreck. As he stood deliberating the form of the Pluviose

Rose to the Surface.

in the wake of the steamer. The captain immediately ordered out the boats to go to the aid of the submarine.

The sailors quickly reached the submarine and climbed aboard her. They rapped loudly on the steel skin, but received no response. Suddenly the Pluviose began to sink, and the sailors barely had time to climb back into their boats. Without warning the submarine plunged beneath the waves. The Pas de Calais put back to port and transferred her passengers and mail to another vessel.

News of the accident quickly spread to Calais and Paris. Torpedo boat destroyers and two tugs were dispatched to the spot. The crew of the Pluviose consisted of a commander, three officers and twenty-four men.

The salvaging vessels formed a ring around the spot despite the strong north-easterly swell. Four divers made attempts to descend to rescue the imprisoned crew, but owing to the strong tide had to give up. Attempts at rescue were given up for the time being and it was decided to send powerful tugs and dredgers from Cherbourg to recover the submarine.

All the available chain in Calais was requisitioned and placed at the disposal of the divers. Although the submarine went down a mile from shore it was decided to fasten the chains to her and have powerful tugs drag the vessel to shallow water. The Pluviose lay in seventeen meters of water. As soon as petrol appeared on the surface of the water it was decided that the tanks had been broken by the collision and no hope was held out for the crew.

Less than a year after the sinking of the French submarine Pluviose Germany suffered the loss of a submarine when the U-3 was sunk in Kiel harbor on January 17, 1911.

The U-3, with a crew of thirty, was manoeuvring in the harbor when she plunged to the bottom shortly after noon. Her absence was discovered immediately and the repair ship Vulkan, tender for submarines, equipped with cranes, was brought to the spot. Divers descended and succeeded in placing heavy chains around the tapering ends of the submarine.

A feature of this accident was the fact that during the time the crew remained imprisoned in the submarine sixty feet below the surface they communicated

with their rescuers through a telephone attached to a buoy which was released from the bow of the submarine a few minutes after she had gone to the bottom. All through the rescuing operations the commander of the U-3 kept in communication with the rescuers and directed the work of rescue.

Although the U-3 slipped from the grappling chains of the Vulkan more than once, the rescue ship succeeded in bringing the submarine to the surface in three hours. Eight hours had elapsed from the time the U-3 went down until the Vulkan brought her up. The authorities were not worried by her prolonged submersion, because they knew that the submarine had enough oxygen in her tanks to last for twenty-four hours. They were

also reassured when the buoy telephone jumped to the surface and the commander at the other end of the wire told them all was well on board.

When the periscope of the U-3 appeared, all members of the crew except two officers and coxswain climbed through the submerged torpedo tube and rose to the surface, where they were quickly picked up. These men were equipped with diving helmets and suits.

The other three decided to remain with the submarine until she was raised completely, figuring there was enough oxygen left for them to remain aboard safely. When the work of raising was completed these men were found dead in the conning tower. Apparently they had not miscalculated the supply of oxygen, but death probably was due to atmospheric pressure on the heart and lungs rather than suffocation.

On April 15, 1910, Japan suffered the loss of the submarine No. 6, which sank in Hiroshima Bay with a commander and fourteen members of the crew.

News of the sinking did not reach Tokyo until the following day and then salvage apparatus was sent from the cruiser Topobashi. Divers descended and the sunken vessel was located. The salvage corps succeeded in raising it a few days after the accident. The crew had died from the results of carbonic acid gas poisoning, conditions indicating that death had come three hours after the sinking of the submarine, at 2 P.M.

A manuscript, a sailor's log, of rapidly approaching death, was

Found in the Conning Tower.

This manuscript had been prepared by Lieut. Sakuma, who commanded the submarine.

England sustained a severe loss when on February 9, 1912, the submarine A-3 collided with the British gunboat Hazard off the southwest coast of the Isle of Wight. The submarine went to the bottom like a

stone, causing the death of four officers and a crew of ten.

The A-3 was one of the oldest type of English submarines, a type which was very unfortunate. In February, 1905, the A-5, while stationed at Queenstown, was the scene of an explosion which cost the lives of six of the crew, twelve being injured. The A-8 sank off Plymouth in June, 1905, fourteen members of a crew of eighteen losing their lives. The A-6 sank at Portsmouth in November, 1905, but

The Entire Crew Was Rescued with great difficulty. The old A-1 collided with the steamer Berwick Castle in 1904, twelve members of the crew being drowned, while seven members of the crew of the new A-1 were injured in an explosion which occurred on August 6, 1910.

A peculiar accident happened to the United States submarine F-1 on October 11, 1912, when the submarine was manoeuvring in the water near Fort Watsonville, Cal. The vessel crashed into a pier and drifted out of the reach of assistance. Two members of the crew, John Schroeder and E. Throett, were drowned. The body of Schroeder drifted ashore, but how he escaped from the watertight submarine remained a mystery.

SOLD FIRST TEA IN ENGLAND.

Dan Rawlinson's Sign Still Hangs Over Successor's Shop.

Two tradesmen, or rather two firms, mentioned by Pops, still exist—Hill, the Bond Street violin maker, and Dan Rawlinson of Fenchurch Street, the first grocer to sell tea in England, whose concern survives under the name of Davidson, Newman & Co. The identical sign of three sugar leaves that hung over Rawlinson's shop adorns the present establishment. There too may be seen the canisters and scales dating from the 17th century. Dan Rawlinson charged his customers 15s a pound for tea.

Scheme to Invade Britain

Populace Still Firmly Believes That Kaiser's Army Can March Victoriously Over England.

Two movements, apparently diverse in character, but in reality correlated, recently sprang into existence in Germany, writes a neutral correspondent who has been on a business trip to Germany. These movements seem to have the same aim in view, namely, to bring about a speedy close of the war. Both parties are working silently; no documents referring to their projects are allowed out of the hands of their trusted agents; everybody is approached personally, so that no information may leak out, either through treachery or an incautious act. No official name is attached to either of the movements, though the government is cognizant of every step taken by the chief promoters and has sanctioned everything that has been done.

The secrecy enables the authorities to keep doors open for escape in the event of failure, and the government would then be able to declare that everything done had been done without its knowledge and would not, had the facts been known, have obtained under any circumstances its permission. The first movement refers to the collection of funds, already said to have reached several million marks, to be presented as a special reward to the army which has been assembled and is now ready to invade Great Britain. This event is to take place when the British fleet has been substantially reduced by means of submarine attacks and losses which the forcing of the Dardanelles—an impossibility in the opinion of the German authorities—must entail.

The invasion plan is reported to have been worked out in such detail that German railway officials have been appointed to take charge of the railway stations in the particular district where a landing is contemplated, and every one of these new station masters knows exactly where to go. The invasion scheme is a strong favorite with a

large percentage of the German public, who have still not a shadow of doubt about the empire's final victory.

The contributions to the fund vary from the groschen—about one and a half cents—which the school children bring to the schoolmaster, up to the more substantial amounts collected by women by organized house to house canvassing. Children, schoolmasters and women, of course, play a prominent part in the many war propaganda which still are very much to the front in all grades of society in Germany.

The other movement is patronized by the more serious part of the German nation, that part which knows where the shoe pinches. As it costs nothing to join this movement—an attraction never despised at any time in Germany—it has met with much support, especially among business men, house and land owners, artisans, these chiefly among the building trade, and last, but not least, a certain section of the social democrats, the so-called "rebels." The promoters endeavor to concentrate upon obtaining signatures to a petition which is intended to present to the Kaiser, having for its object the stopping of the war at the earliest possible moment, as the financial losses suffered have been almost ruinous.

Admiration of the glorious victories achieved by the army is expressed in no measured phrasing, and while the signatories have not the slightest doubt of Germany's ability to crush the countries' enemies, they nevertheless venture to suggest to the Kaiser's advisers that peace on reasonable terms would be exceedingly welcome to them.

In well-informed circles it is said that the Kaiser is behind this stop-the-war movement; indeed, that he has even expressed guarded approval of the scheme. In any case, however, it will be interesting to watch developments in connection with this matter.



FLEETS OF FORMER DAYS

WAR CRAFT OF EARLIER DAYS NUMERICALLY STRONG.

Spaniards Mustered More Ships Than are Gathered Together by Nations Now.

There is no certainty as to the total number of the allied fleet gathered at the Dardanelles, but whatever the number, it is a mistake to say that it is the largest number of any naval fleet ever assembled. The most formidable, no doubt, in tonnage, weight of metal and other elements of offence, but not the largest numerically.

At La Hogue, May 19, 1932, the French had 16 vessels and the British and Dutch allies 56-60. Blake had 45 vessels at Dungeness, Nov. 23, 1852, against Van Tromp's 38, and the Dutch under Van Tromp off Goodwin Sands, Oct. 20, 1639, had 110 vessels to 87 in the Spanish fleet. Sept. 1, 1591, occurred what Rawlinson in his "Twenty Famous Battles" calls "the most conspicuously gallant fight in the annals of naval warfare," when 53 Spanish vessels were fought single handed at Flores, in the Azores, by the English man-of-war Revenge, commanded by Sir Richard Grenville, who scored to follow the other five British line of battleships of Howard's fleet when they ran from what they regarded with reason as a hopeless fight. The Spanish had 120 ships; in the Armada they launched against England July 29, 1588, and the English a scratch fleet of 137 vessels, mostly small ones, no match for the formidable Armada, which evidently expected to tow the British islands home with them. At Lepanto, Oct. 7, 1571, the Spaniards had 200 ships and the Venetians 316.

Mark Antony's Fleet.

If we go still further back we find at Actium, B. C. 31, 500 ships under Mark Antony and 350 under Octavius Caesar. The young Octavius won the battle by his possession of more mobile vessels. The pirates at Illyria had devised a light and powerful craft, long and narrow, sharp at either end, with a powerful ram, a mast in the centre and two banks of oars. They were of light draught, easily handled, and possessed one of the great indispensable factors of naval success—speed, a factor which can never be disregarded with impunity in the construction of ships. This sort of vessel contributed largely to the effective force of Octavius.

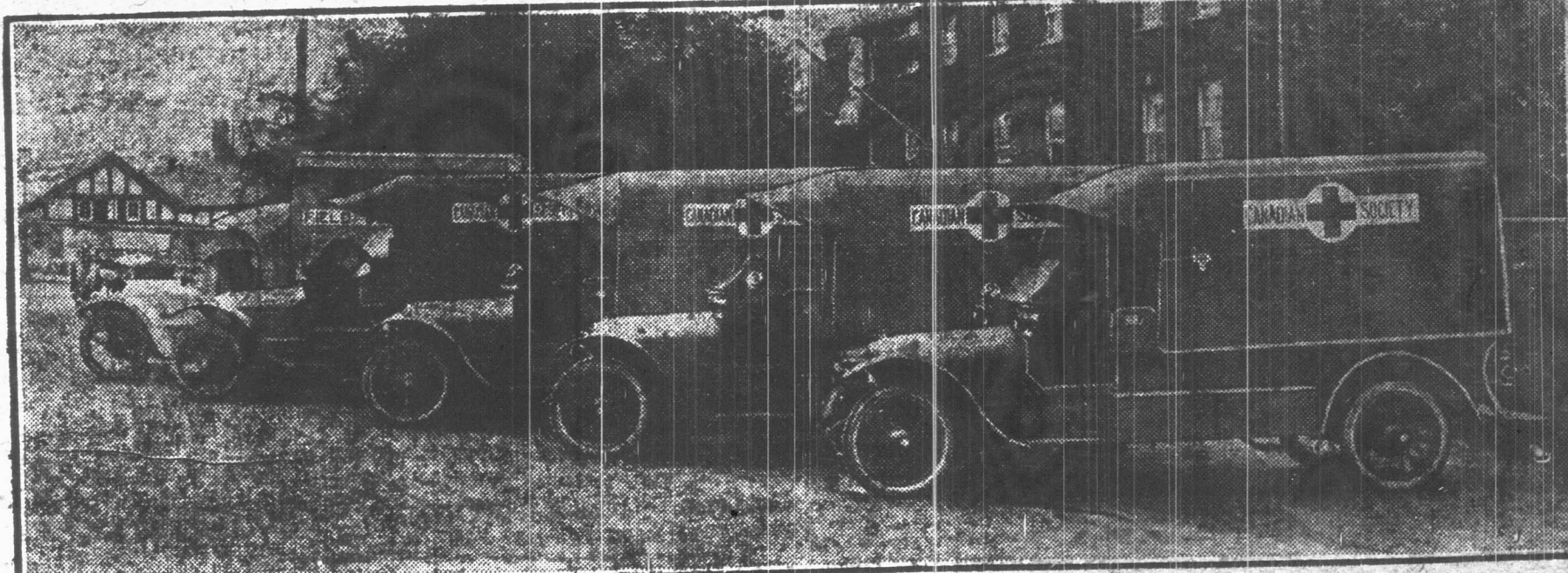
The largest fleets in numbers were at Salamis, 481 B. C., when the Persians had 700 vessels of the class considered formidable in that day and the Greeks 380. These vessels were mostly triremes, boats with three benches for the rowers, and a mast that could be raised or lowered by means of stays. This mast-carried square sails.

There was some cavalry in a naval fight in the good old days of Blake and Van Tromp, when sneaking submarines and barbarous torpedoes were unknown, and naval commanders "courted war like a mistress."

When the Spanish Admiral Oquendo declined to come out of the shallow waters of Goodwin Sands to fight because he had no powder, Van Tromp said: "I have powder enough for both. I will give you half of mine."

"It is not only powder I need, but masts for my ships," replied Oquendo. To which Van Tromp replied: "I have plenty of masts, a whole shipload of them, and you can have them if you will only come out and meet me."

The result justified the caution of Oquendo, for when the two fleets did meet the Spaniards were so terribly beaten by the Dutch that of 67 ships only 18 reached Dunkirk in safety.



Fleet of Four Motor Ambulances and a Field Kitchen Presented to the Canadian Red Cross Association for Service in Europe by Major R. W. Leonard, St. Catharines.