BIOCHEMISTRY

Gay World All Gray to Some

Most of us live in a world of color, but some miss the reds and greens, while others never see yellows and blues. A few see all colors as shades of gray.

By MARTHA G. MORROW

➤ WE LIVE in a world of color, most of us. Green trees, blue skies, red and green stop-and-go traffic signals, hueful girls—and now even color TV.

But there are a very few of us for whom every color is seen as a shade of gray. For others—as many as 80 men and 5 women in every thousand—the full beauty of reds and greens is never seen. For a few others—one in several thousand—the yellows and blues can never be experienced as bright, pure colors.

You may not realize it if nature is cheating you of a few of the rainbow hues. You may not know that your best friend is color-blind, if he is adept at using intensity to guide his naming of colors.

We are going to learn more about color blindness because scientists here in the United States are creating tests that will tell more about a person's color deficiency than any yet devised.

Until a decade or so ago, there were no widely used American-designed tests for color vision. But recently scientists here in the United States have been designing new ones and improving old favorites. Tiny lights that flash on and off, bits of colored paper mounted in bottle tops, designs hidden amid hundreds of colored dots are all used to spot people who are color deficient.

New Color Test Planned

Today one of the most promising of these new tests for color vision is painstakingly being checked and double checked by color experts throughout the country. This latest U. S. test-in-the-making, to be released for general use within another year or two, is designed to show both the nature and extent of the color deficiency.

The ability to see colors instantly and accurately is necessary for many jobs. Color matchers and dyers, and paint mixers must be adept at noticing small color differences. Railroad and marine engineers, airplane pilots and ship lookouts must recognize distant colored lights so they may act instantly upon the signal. The work of laboratory technicians and chemists often depends on color.

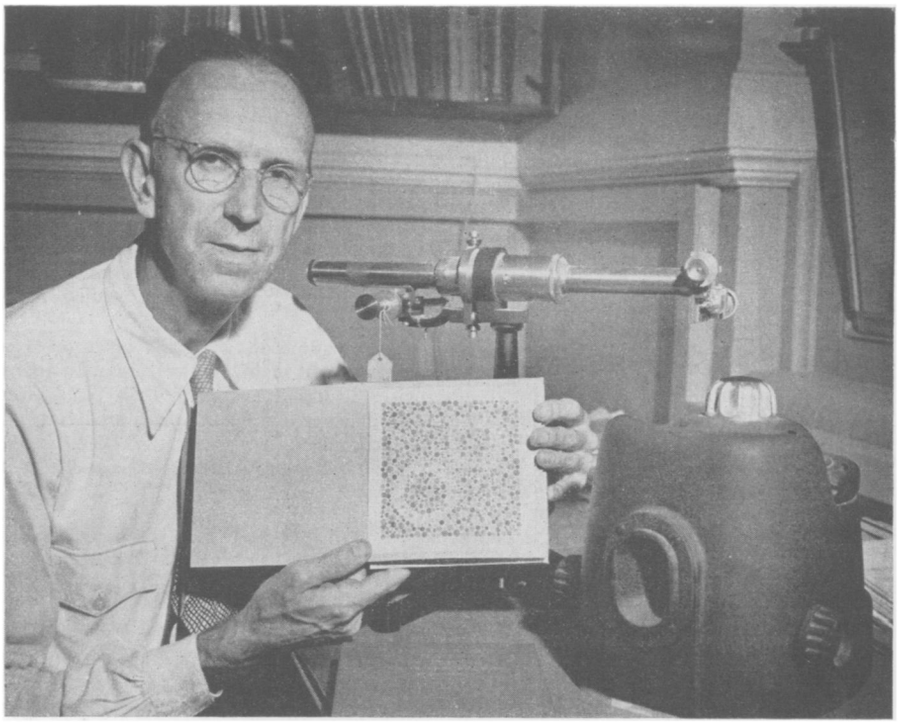
Late some moonless night, when lights have been turned out, go outdoors and look around. If the illumination is low enough, the house and its surroundings will be seen in various shades of gray. You will not be able to tell whether the trees have green or brown leaves, or whether your sweater is red or blue. This gray scene illustrates the kind of world that a totally colorblind person sees—black, white and gradations of gray.

People who are red-green deficient may find it difficult to pick ripe strawberries, currants or cherries against a background of green leaves. They may sometimes be caught wearing one green and one tan sock. Some of them actually confuse black and red ink in balancing their budget!

A simple but tricky new gadget that immediately shows which colors are confused by the different types of color defectives has just been created by Lt. Comdr. Dean Farnsworth of the Navy's Medical Research Laboratory at the New London Submarine Base. On it a person who is extremely color deficient will match a gray spot on a transparent disk with a red, violet or green spot on a master diagram beneath. Others, not quite so color deficient, will say the gray doesn't really match any of the spots, but looks nearer to one than the others. Immediately the device indicates which colors an observer confuses.

A number of ingenious methods have been used to detect color blindness. Probably the oldest still in use today and one of the simplest is the wool sorting test. Developed by Frithiof Holmgren following a shocking railway disaster in Sweden in 1875, it was designed to eliminate dangerously colorblind railway engineers and trackmen.

In this test skeins of colored yarn of many hues and shades are to be sorted into groups as they resemble three standard skeins—yellowish green, pale rose or purple, and a vivid red. Incorrect sorting shows up the color defective. Only about half of the colorblinds among those tested, however, and not necessarily those with the greatest color deficiency, are detected by such a test.



COLOR TEST—People who cannot see colors will not spot the figures on the card which the camera picked up through the use of a yellow filter. The designs are formed of colored dots against a background of gray dots in this Hardy-Rand-Rittler plate. Dr. Deane B. Judd of the National Bureau of Standards is holding the book of plates which he and other color experts through the country are now testing. The squatty New London U. S. Navy Lantern and the tube-like Anomoloscope, also used in testing color vision, are shown in this photo.