The other fifty per cent. remains with the state and county chapters of the foundation, where it is used to provide direct medical assistance to infantile paralysis patients, regardless of age.

BY executive order of President Roosevelt, ten fish and wildlife preserves have been established in New York counties. The Department of the Interior will have jurisdiction over these areas and they will "be reserved as refuge and breeding grounds for native birds and other wildlife and for research relating to wildlife and associated forest resources." The land required for the sanctuaries will remain available to the State of New York for use and management by its conservation department, under the custody of the Fish and Wildlife Service of the Department of the Interior. The preserves in New York Counties include Schuyler and Tompkins, Chautauqua, Allegany, Allegany and Livingston, Ontario and Yates, Oswego, Jefferson and Madison, Delaware and Albany.

WILLIAM L. BATT, deputy chairman of the War Production Board and president of SKF Industries, Inc., of Philadelphia, made the address of welcome at the presentation of the Army-Navy Production Award (the Army-Navy "E") to the Leeds and Northrup Company on September 5. Admiral Henry A. Wiley, U. S. Navy retired, was the Navy's official spokesman and presented the "E" pennant. It was received by C. S. Redding, president of the company, and J. L. Johnson, president of the Employee's Association. Lieutenant Colonel Thomas H. Stilwell, Commanding Officer of the Eastern Pennsylvania District, was the Army's official representative at the ceremonies.

DISCUSSION

ANOMALIES OF COLOR VISION

THE article by Miss Murray on "Color Blindness and Borderline Cases" (SCIENCE, August 7, 1942), is an excellent exposé of the present confusion in regard to what is popularly called "color-blindness"; but in our opinion the revelation is not sufficiently comprehensive.

For twenty years we have been finding persons who fail on the chart tests (pseudoisochromatic tests), of Stilling, Ishihara, *et al.*; but who in all practical situations distinguish colors as well as do the persons called "normal" in color vision; and who have no difficulty with worsted tests and other practical tests. We have found others who pass the chart tests without difficulty, but who show serious defects of color vision in practical life and in real tests.

The reason for this apparent discrepancy is made apparent by the chart tests themselves. These tests usually include one or more charts which can be read by "color-blind" persons, but which can not be read by many who are considered as "normal." This is a paradoxical situation which should impress even a layman. The reading of the charts is assumed to depend on ability to distinguish the colors of which the numbers are made up from the colors of the background (the surrounding spots). Here, however, are charts which the person who is supposedly "normal" can not read, whereas a person who is presumably unable to distinguish the color reads them! The conclusion that the charts do not test color perception is inescapable.

Reading of the numbers in the charts requires that there shall be a difference in appearance between the numbers and the background. Obviously, the difference is not in hue. Actually, a difference in brightness is required; and if the numbers do not differ appreciably from the background in brightness, they can not be discerned. Even among persons classed as "normal," the relative brightness of colors of low saturation (low intensity of the chromatic factor) varies from individual to individual. In other words, some have a slightly higher threshold for certain colors than do others. Spots of small area (such as the spots composing the numbers in the charts), which appear to one person brighter or darker than the other spots composing the background may, to another person, be so little different in brightness that the numbers can not be read. On the other hand, spots which to the average person appear brighter than the background may appear to a really "color-blind" person darker than the background spots; and conversely, spots which to the average person appear darker than the background may appear to certain individuals darker than the background. In either case, the individual with abnormal color thresholds can read the charts easily, although he may be defective in practical color vision. It is obvious that in the charts the "normal" person can not read, the figures and background are nearly alike in brightness; whereas for the person (color-blind or not) who reads them, there is a brightness difference.

The facts above epitomized have long been known to psychologists, and have even been slowly percolating into elementary psychological texts. They have been ignored by promoters of chart tests and by those who have used them in routine work, because the chart tests can be applied rapidly by persons devoid of training in the psychology of color perception. The valid tests available up to the present time take time and

require an expert to use them. The extensive use of the chart tests in the present war emergency has brought sharply to public attention the fact that these tests are not only unfair, but are also unsafe. It would actually be safer to discard color tests altogether.

That there is some correlation between color thresholds and ability to distinguish colors at normal intensities may be admitted, although the amount of correlation is as yet undetermined. About 80 per cent. of persons who have flunked chart tests have been able, after use of Vitamin A in adequate quantities for an adequate period, to pass these tests. It is suspected that those who become normal for practical purposes, but still fail on some of the charts in a chart test are suffering from dietary insufficiency of protein; but this is not certain.

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THE USE OF GENERIC NAMES AS COMMON NOUNS

A GENERIC name is always a collective noun. It may be masculine or feminine or neuter, but it is always in the nominative case and it is always singular in number. It should be italicized and the first letter should be capitalized. A specific name is always a modifier of the generic name which it follows. It usually is an adjective, but it may be a noun in the genitive case or in apposition with the generic name. It must agree with the generic name in gender and number, and it should be italicized but not capitalized. Examples: *Paramecium caudatum, Amoeba dubia* (specific names, adjectives); *Paramecium calkinsii, Pelomyxa carolinensis* (specific names, nouns in the genitive case); *Amoeba proteus, Felis leo* (specific names, nouns in apposition with the generic names).

A generic name refers to all the individuals which are similar to the type specimens of the genus, and a specific name to all those which are similar to the type specimen of the species. Generic and specific names can therefore not be used to refer to a single organism or to a number of organisms smaller than the total number in the genus or species. To refer to a given number of individuals belonging to a species, *e.g., Amoeba proteus,* it is necessary to designate the number under consideration and add "specimens of," *e.g.,* "a specimen of *Amoeba proteus,*" or "the, some or × specimens of *Amoeba proteus.*" There is no such thing as an *Amoeba proteus,* or an *Amoeba* or the *Amoeba* or some *Amoebae* if the name is italicized and the initial letter is capitalized.

I have found that in some work it becomes very burdensome to use "specimen of" or "specimens of" every time I wish to refer to a given number of individuals belonging to a genus. I have consequently obviated this by using the generic name as a common noun, *e.g.,* an amoeba or some amoebae, without italics or capitals. If generic nouns are used as common nouns there obviously is no more justification for capitals and italics than there is in the use of other common nouns, *e.g.,* cat or cow. This procedure not only avoids excessive use of a cumbersome phrase but it also saves considerable space without any reduction in clarity and precision of meaning, provided the species is known. Wouldn't it be a nuisance if we had to use the phrase "male specimens of *Homo sapiens*" in place of "men" every time we refer to two or more human beings! Imagine an orator beginning his address with "female and male specimens of *Homo sapiens*" in place of "ladies and gentlemen"!

Some assert that it is "vulgar" and "illegitimate" to use generic names as common nouns, but no one, so far as I know, has ever maintained that it is either vulgar or illegitimate to use common names for organisms, *e.g.,* men and cats. I fail to comprehend why the use of a generic name, as a common name, should be considered more vulgar and illegitimate than the use of any other noun. Is it less vulgar, less refined, less common to call, *e.g.,* specimens of *Homo sapiens* "men" than it would be to call them "homines" and specimens of *Felis domestica* "cats" than it would be to call them "feles"? Moreover, a generic name as a common name has some outstanding advantages, for it at once indicates the genus to which the organism belongs, and is readily understood by foreigners as well as by natives. Is it not obviously more illuminating to call, *e.g.,* a specimen of *Chilomonas paramecium* a "chilomonad" than it would be to call it a "carbo" or some other common name?

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THEORIES AS TO THE ORIGIN AND NATURE OF LIFE

IN a recent number of SCIENCE,[1] Dr. A. L. Herrera published what is termed "a new theory of the nature and origin of life." An essential preliminary to the enunciation of any theory as to the origin and nature of life must be a statement of the criteria whereby the existence of a living unit may be established.

While there are difficulties in drawing a very sharp line of demarcation between living and non-living,[2] many, perhaps most biologists will accept the criteria of Alexander and Bridges[3]—self-duplication and the ability to direct chemical change by catalysis. The

[1] A. L. Herrera, SCIENCE, 96: 14, July 3, 1942.
[2] J. Alexander, "Colloid Chemistry," 4th ed. (New York, 1937).
[3] J. Alexander and C. B. Bridges, "Colloid Chemistry, Theoretical and Applied," Vol. II, pp. 9–58 (New York, 1928).