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).

simplest conceivable living unit would thus be a moleculobiont—a catalyst particle of molecular dimensions, capable of autocatalysis (self-reproduction). The ability to undergo heritable changes is generally observed in living units, and seems to be a third criterion of life, although we can conceive of units incapable of this basis of evolution. Heritable changes in biocatalysts (demonstrated in the case of genes but probable also with enzymes, carriers and prosthetic groups), underlie changes in chemical output due to synthesis and analysis, which in turn are the basis of changes visible in structure, form, physiology and function.

It has long been known that many of the phenomena developed by and in living units may be simulated by non-living systems. Traces of colloidal substances may cause crystallizing material to assume beautiful flower- or fern-like forms. "Colloidal gardens" have long been used as lecture demonstrations, and may be grown by dropping, *e.g.*, a crystal of copper sulfate into sodium silicate solution. "Enzoon," long thought to be a relict of early life, may be nothing but a Liesegang ring formation. Besides the interesting artifacts described by Dr. Herrera in his note above referred to, he has mentioned and illustrated many others in his paper on "Plasmogeny,"[4] and in the same book Professor Stéphane Leduc (Nantes) in a paper on "Solutions and Life" has described and illustrated similar work of his own. Petrologists (*e.g.*, Sir J. S. Flett) have described and simulated dendictic and margaritic forms found in rocks, and window-pane ice often shows beautiful plant- and flower-like tracery.[2]

Although these various artifacts may simulate many of the forms and activities of truly living units, none of them has as yet been shown to exhibit the criteria of life above outlined, which, on the other hand, are all shown by the smallest known bionts (genes, viruses, bacteriophages). Since the same physico-chemical forces and principles dominate both living and non-living units, it seems reasonable to believe that life originated by the chance formation of an autocatalytic unit of molecular dimensions; for the smaller its size, the greater the probability of its formation. Ultramicroscopic bionts which might develop now would have small chance of surviving to form a new race, because of the great number and variety of predatory forms of life now existing. And conditions existing when the first life emerged must have been quite different from present conditions on the earth. Very few living units can even now synthesize their necessary molecules from the "bare rocks," but are largely dependent upon molecules furnished by other bionts. Food thus has an important evolutionary biochemical aspect, and there is truth in the dictum: "Rien n'est la proie de la mort; tout est la proie de la vie."

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QUOTATIONS

THE WOODS HOLE MARINE BIOLOGICAL LABORATORY

THE meetings of the Corporation and Trustees this year were of special significance for they mark the end of Dr. F. R. Lillie's long and fruitful service as an active officer, and the beginning of Mr. Riggs's term as president. Dr. Lillie came to Woods Hole as a beginning investigator in 1891. Nine years later he was made assistant director, and after Dr. Whitman's death in 1908, he became director. During the years that followed, this institution, under his guidance, grew rapidly in prestige and in size. When the extensive building program, which gave us the Brick Building, the Dormitory and the Apartment House, was completed in 1925, he retired as director and was made president of the corporation, a position which he has held until now. Thus, he has seen the laboratory grow from infancy to maturity, and during the intervening years has played a very large part in shaping its policies. It is our good fortune that he will continue to work here and advise those who in the past have relied on his sound judgment and foresight.

To succeed him the trustees named as president Mr. Lawrason Riggs, for the past eighteen years our treasurer. The precedent of having a non-biologist in this position was set many years ago when Mr. C. R. Crane, the generous patron of the laboratory, was chosen. The office of vice-president was created, and was filled by the election of Dr. E. Newton Harvey, professor of physiology at Princeton. Mr. Donald Brodie was made treasurer. He is not a stranger to Woods Hole. For many years he was associated with Mr. Crane, and thus became familiar with the affairs of the laboratory. Dr. Otto Glaser was elected clerk of the corporation in place of Dr. P. B. Armstrong, who resigned. These officers assume their new responsibilities at a critical time. We are confident that under their leadership this institution will continue to serve its primary purpose of encouraging biological research, and will maintain its prestige.

The trustees elected eleven new members of the corporation and named Dr. Glaser and Dr. Metz to serve on the executive committee. The corporation re-elected all the trustees whose terms of office expired

[4] A. L. Herrera, pp. 81–91, and S. Leduc, pp. 59–79, "Colloid Chemistry, Theoretical and Applied," Vol. II.