sition to whatever is endeavoring to attack or to overcome it, and the amount of such opposition may be slight or great. "Resistance" properly does not and should not convey the idea of complete exemption or freedom from any infectious agent or from disease in man, animals or plants. An organism may be immune from disease in the sense of distinct injury and not be immune from the infectious agent. It is true that an organism may be immune or resistant only under certain conditions, and we have to recognize the factor of biological variations. The two words "immunity" and "resistance" are not legitimately commutable and should not be used synonymously. The word resistance is too useful in its original meaning for indicating that the force (virus in this case) encounters a clearly evident degree of opposition on the part of the host either to the process of infection or to the injurious effects which might be expected to follow such infection. The word "immune" should be reserved for those cases in which there is no evidence of disease or in which the infectious agent is unable to establish itself in the host.

N. J. GIDDINGS

BUREAU OF PLANT INDUSTRY,
U. S. DEPARTMENT OF AGRICULTURE,
RIVERSIDE, CALIF.

VITAMIN A FOR COLOR-BLINDNESS

PUBLICITY given in the press to our report to the Southern Society for Philosophy and Psychology has resulted in a flood of inquiries which make it desirable to summarize our results for the benefit of the scientific public, omitting the study by the junior author (now in process of publication) which led up to the practical work.

(1) We have found it desirable to administer Vitamin A in doses of 25,000 units. Most cases are cleared up in from three to eight weeks by one dose per day.

(2) Administering 50,000 units per day seems to accelerate the cure; but upset some digestive tracts. We suggest to inquirers that they take one dose (25,000 units) after breakfast, and a second dose after dinner. If digestive trouble results, to reduce to one dose per day.

(3) By "clearing up" a case, we mean enabling the patient to pass a standard color-vision test on which he has previously failed. The tests involved are chiefly of the chart type (Stilling, Ishahara, etc.), administered in the naval and air services. Performance on worsted tests, however, are likewise made normal.

(4) We do not know how "permanent" the cures are. That is a matter for further research.

(5) We find, so far, no clear correlation between color-blindness and diet; nor have we definite evidence as to the effects of past infectious disorders.

(6) Color-blindness, of the so-called "red-blind" type, obviously is not the simple "sex-linked Mendelian character" which popular theories have assumed it to be. Apparently, the causes of the condition are complex.

(7) Persons who, when tested, are found to be color-blind, but who have not known it, may now reasonably be suspected of not having been color-blind very long.

KNIGHT DUNLAP
ROBERT D. LOKEN

UNIVERSITY OF CALIFORNIA
AT LOS ANGELES

SCIENTIFIC BOOKS

DIMENSION

Dimension Theory. By WITOLD HUREWICZ and HENRY WALLMAN. 165 pp. Princeton University Press. 1941. $3.00.

A DESCRIPTION of a geometrical object has to include a list of properties concerning curvature, convexity, connectedness, etc. First in any such list, however, would have to be a specification whether the object is a solid, a surface or a curve.

If the object is simple, then this basic question concerning its geometric nature can easily be answered. The dimension of a simple object can, for instance, be characterized as the least number of parameters needed to describe its points.[1]

Up to the seventies of the last century all objects of geometry were so simple that their points could be described by parameters and equations. However, with the tremendous extension of the domain of geometry due to Cantor's theory of point sets innumerable entities were introduced which are far beyond the reach of these simple methods. They are defined by joining and intersecting infinitely many cubes and squares, by various successive approximations and limit processes, some even by processes involving infinitely many unspecified choices. Naturally, to most geometrical objects of this enormous domain the classical characterization of dimension in terms of numbers of parameters is completely inapplicable.

[1] *E.g.*, one parameter, t, is sufficient to describe the points of the circle $x = \cos t$, $y = \sin t$. Two parameters, u and v, are needed for the description of the sphere in the usual representation $x = \sin u \cos v$, $y = \sin u \sin v$, $z = \cos u$.