

The concluding chapter is entitled *Further theory of ideals and commutative rings* and is fairly concentrated. It is concerned with Noetherian rings and algebraic manifolds and is designed, probably, to leave the reader in a more humble frame of mind.

It is surprising that this book and the one by Jacobson (*The theory of rings*, Mathematical Surveys, no. 2, New York, 1943) overlap so little. Doubtless McCoy planned it that way. Jacobson had more space at his disposal and his book has not been supplanted for reference purposes. But the McCoy book has many novel points of view and some more recent material, and as an introduction to the powerful and highly abstract method of thinking which now characterizes modern algebra, it is a gem.

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Mathematical analysis of binocular vision. By R. K. Luneburg. Princeton University Press, 1947. 6+104 pp. \$2.50.

An attempt is made in this study to derive a metric for the psychological space of binocular vision. It is first shown that the recognition of greater and smaller and of greater and smaller contrast uniquely determines the psychometric coordination of numbers to sensation within the limits of a linear transformation. In order to proceed there is then introduced a rather strong hypothesis which is suggested by some experimental observations.

Let an observer first view a point P with head fixed. For this situation a convenient set of coordinates is γ, ϕ, θ , where γ is the angle of convergence (angle LPR , L and R representing the eyes), ϕ is a lateral angular deviation ($PLR/2 - PRL/2$), and θ is the angular elevation of the plane PRL from the horizontal plane. Next let the observer be permitted to rotate his head about a vertical axis so that the eyes converge symmetrically on P . For this situation another set of coordinates $\gamma^*, \phi^*, \theta^*$ is introduced. The corresponding angles are very similarly defined. In the transformation from cartesian coordinates to these starred coordinates the distance d' between the line through the eyes and the axis of rotation enters as a parameter.¹

Now suppose we have two different configurations of object points, the first being viewed with fixed head, the second being viewed with rotating head. If there is a correspondence between the two such that γ for the first equals γ^* for the second and similarly $\phi = \phi^*, \theta = \theta^*$,

¹ It would seem that d' could be experimentally made to take on values from zero, or even less, to many times the normal value. If so it would be of interest to determine whether or not the hypothesis would hold when the effect is accentuated by choosing extreme values of d' .