to be a small number of sources above the galactic plane for which there is no obvious explanation. The approximate flux from each of these stars was determined. The observed values of flux will be compared with values computed by model atmosphere techniques. Many more observations will be required before the law of interstellar reddening can be determined for this spectral region.

Byram, E. T., Chubb, T. A., Friedman, H. and Kupperian, J. E., Jr. 1956, *A. J.* 61, 9.

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Layzer, David. On the interpretation of galaxy counts.

This paper describes a simple and flexible model for the spatial distribution of galaxies, and develops formulae connecting parameters that characterize the model with parameters that can be derived from an analysis of galaxy counts.

The number of galaxies contained in a fixed volume fluctuates from one region of space to another. These fluctuations arise partly from the statistical character of the distribution and partly from a tendency toward clustering. The essential feature of the present model is that it distinguishes between the two sources of fluctuation in an explicit way.

To take account of the tendency toward clustering we introduce a continuous random function of position, $\lambda(x)$, which we may regard as the density of a fictitious continuous medium co-extensive with the actual discrete distribution. We postulate that the medium is statistically homogeneous and isotropic. This implies that none of its average properties, such as the mean density, the variance of the density, and the density correlation, serves to define a preferred position or direction in space.

To relate the properties of the continuous medium to those of the discrete distribution we make the following assumptions. (i) For any realization of the medium the numbers of galaxies in non-overlapping regions of space are mutually independent random variables. (ii) The probability of finding n galaxies in any given region V is given by Poisson's law $P(n) = e^{-\Lambda} \Lambda^n / n!$, where $\Lambda = \int \lambda(x) dV$. Thus, if we take the average mass of a galaxy as our unit of mass, and contemplate a large number of non-overlapping regions of the same mass Λ , then the numbers of galaxies in these regions have a Poisson dis-

tribution about the mean value Λ . One can show that these postulates are consistent. They define a model that can be made to exhibit any degree of clustering, from none at all to a hierarchy of distinct, well-separated aggregates.

From a formal point of view, average properties of the discrete distribution result from two successive averaging processes, the first over all realizations of the discrete distribution for a given realization of the continuous medium, the second over all realizations of the continuous medium. We assume that the order of averaging can be inverted, and that the double ensemble average is identical with a simple spatial average. The second assumption, whose justification lies in the realm of ergodic theory, is made plausible by the statistical uniformity of the distribution.

The properties of the model have been worked out in detail. One unexpectedly simple result is the following: The quasi-correlation coefficient $Q(r)$ of the counted numbers of galaxies in two volume elements whose centers are a fixed distance r apart approaches the true correlation coefficient $R(r)$ of the fictitious medium as the volume elements diminish in size.

The problem of tying in the present model with galaxy counts has been treated along lines laid down by Neyman and Miss Scott, who make full use of probability-generating functions and their properties. The present discussion differs from previous discussions of similar problems chiefly in the handling of the cosmological aspect.

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Lovell, D. J. and Miczaika, G. R. Practicable limitations to infrared stellar photometry.

The noise-equivalent powers of several photoconductors are compared. Lead sulfide is shown to be advantageous for many problems associated with infrared stellar photometry. Cell design is an important adjunct to techniques designed to achieve optimum cell performance. Electronic techniques to attain optimum results include synchronous conversion of the modulating frequency and the subsequent use of an RC filter. The basic elements of such a system are designed in block diagram form which shows schematically how the signal and noise voltages are separated. The limitations of these techniques are discussed.

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