the variation of $J(t)$ with t is solely due to $\tau(t)$, and in the expansion (5) all except the τ terms vanish.

If $(\sigma_\nu + l_\nu)/\kappa$ changes linearly with depth, i.e.,

$$\frac{\sigma_\nu + l_\nu}{\kappa} = x_0(1 + \beta\tau), \quad (7)$$

we can integrate the formal solution and put the result in terms of tabulated functions. Thus we have computed four sets of line profiles with the same central depths (i.e., $R = 0.95, 0.9, 0.8$, and 0.7) for different values of β ($\beta = 2, 1, 0.5, 0, -0.5, -1.0$ and -2.0) and find that the shape of the wing varies very markedly with β .

If the dependence $(l_\nu + \sigma_\nu)/\kappa$ on depth cannot be approximated by a linear relationship, we can divide the atmosphere into layers, in each of which $(l_\nu + \sigma_\nu)/\kappa$ can be regarded as varying linearly with τ . Then in each layer τ can be solved for in terms of t , and the integration over t in the formal solution can be carried out separately in each layer. The final intensity, and thus the line depth can all be expressed in terms of tabulated functions.

1. A. S. Eddington, *M. N.* **89**, 620, 1929; R. v. d. R. Woolley, *M. N.* **92**, 482, 1932; **93**, 691, 1933; B. Ström-gren, *Ap. J.* **86**, 1, 1937; M. Tuberg, *Ap. J.* **103**, 145, 1946.

Yerkes Observatory,
Williams Bay, Wis.

Jenkins, Louise F. Preparation of a General Catalogue of Trigonometric Parallaxes.

It is now 16 years since the appearance of the second edition of the *General Catalogue of Parallaxes* and many inquiries have been received about a new edition. Investigation revealed that the trigonometric material is now about 50 per cent more than in the second edition. There is not available in published form any comparable increase in spectroscopic or dynamical parallaxes. The spectroscopic field seems to be at the present time in a state of flux and we are therefore limiting the new edition to trigonometric parallaxes.

The punched-card machines at Yale facilitated the intercomparison of the different series of parallaxes and of their probable errors. In general the new comparisons confirmed Dr. Schlesinger's scheme of corrections used for the second edition. One characteristic discovered in the course of these comparisons, and confirmed by a comparison with the spectroscopic parallaxes of the 1935 catalogue, is that in some cases the smaller paral-

laxes show a dependence of the correction needed on the size of the parallax itself. This is not true of the larger parallaxes. We have adopted precepts depending for the larger parallaxes on the trigonometric comparisons, and for the smaller parallaxes with greater weight on the spectroscopic comparisons. Though these corrections are in some cases very small, it seemed well to apply the indicated correction thus eliminating the dependence upon the source in the final value used. The same corrections for galactic latitude were used as in the 1935 catalogue. The precepts for correcting the probable errors were determined by a least-squares solution. New comparisons using the corrected values of the parallaxes show satisfactory improvement.

Probable users of this catalogue can be grouped into two classes, those who wish a value for the parallax of the star and those who wish to be able to refer to the sources of such a value. We are therefore giving on one page a line of information about each star; position, magnitude, spectral type, proper motion and adopted absolute parallax formed by the precepts given. On the opposite page will be given the individual determinations of the relative parallax for each star, except that if the two components of a double star have been observed separately or two determinations of a parallax have been made at one observatory, the separate values have been combined into one value, with the weight assigned corresponding to the probable error of the more accurate value. The observatory is listed and the weight with which that value enters the final value of the parallax.

We are indebted to many colleagues for their assistance in making the final result possible: to those who sent manuscript lists of parallaxes not yet published, to Dr. Kuiper who contributed largely in supplying lacking spectra and revised magnitudes for numerous fainter stars, to Dr. Vyssotsky who also supplied spectra for a long list of stars, and to Dr. Schilt who gave many valuable suggestions. We record with thanks the generous help of Dr. van Woerkom in the planning and supervision of the work of the punched card machines and our indebtedness to Dr. Brouwer who throughout has given of his time and thought in the guidance of the work.

At the present time the catalogue is being typed for photo-offset reproduction.

Yale University Observatory,
New Haven, Conn.