measured velocity, R_f, is listed in column (13), and the ratio of the two, $R_f/R^{i,b}$, in column (14). Only for three galaxies is the coverage less than 70%: NGC 753 (55%), 709 (61%), and UGC 2885 (67%). Except for UGC 2885, the largest Sc we have identified, additional observations would add little to our conclusions.

Radial velocities for 13 of these galaxies are listed in RC2. The mean difference $|V_{RC2} - V_{here}| = 81 \pm 25$ km s^{-1}. For NGC 1087, the published velocity differs by $+321$ from our value. Once again, we stress that large velocity errors permeate existing catalogs.

III. THE ROTATION CURVES

We assume that the emission arises from H II regions which are moving in planar circular orbits about the center of each galaxy. The observed line-of-sight velocities along the major axis can then be projected to velocities in the plane of each galaxy, with $V(R) = (V_{obs} - V_0)/\sin i$. For galaxies for which the major axis ϕ is displaced from the position angle of the spectrum, η, the circular velocity is given by

$$V(R) = \frac{(V_{obs} - V_0)[\sec^2 i - \tan^2 i \cos^2 (\eta - \phi)]^{1/2}}{\sin i \cos (\eta - \phi)},$$

$$R = s[\sec^2 i - \tan^2 i \cos^2 (\eta - \phi)]^{1/2},$$

where s is the nuclear distance on the plane of the sky and R is the nuclear distance in the plane of the galaxy. Values for ϕ and i are listed in columns (7) and (8) of Table 1. The adopted rotation curve is formed from both sides of the major axis. In general, velocities are reasonably symmetrical on both sides of the major axis; the principal exceptions are NGC 3672, 1421, 4321, and 7541. A simple way to determine the symmetry properties of the velocities is to trace a smooth curve through the points in Figure 4, then rotate the tracing paper 180° about the origin and compare the traced line with the plotted points. The adopted rotation curves are plotted in Figure 5, arranged by increasing linear radii, and the velocities are listed in Table 2.
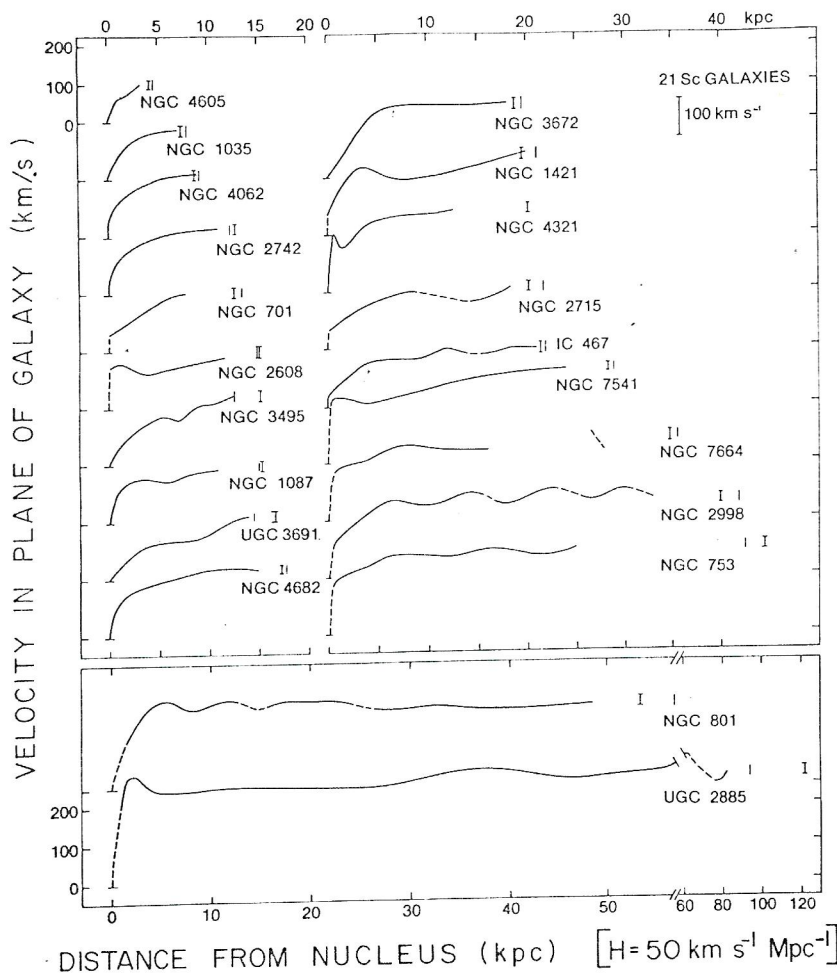

FIG. 5.—Mean velocities in the plane of the galaxy, as a function of linear distance from the nucleus for 21 Sc galaxies, arranged according to increasing linear radius. Curve drawn is rotation curve formed from mean of velocities on both sides of the major axis. Vertical bar marks the location of R_{25}, the isophote of 25 mag arcsec^{-2}; those with upper and lower extensions mark $R^{i,b}$, i.e., R_{25} corrected for inclination and galactic extinction. Dashed line from the nucleus indicates regions in which velocities are not available, due to small scale. Dashed lines at larger R indicates a velocity fall faster than Keplerian.

"Rotational Properties of 21 Sc Galaxies..."