no estimates of precision of α and β were given. Asymptotic variances and correlation ρ of the estimators of α and β depend only on β and on the number n of observations. They involve complicated integrals which have to be evaluated numerically. Quadratic functions of β only approximate $n^{1/2}\sigma_\alpha$, $n^{1/2}\sigma_\beta$ and ρ for a large range of β . The table summarizes data concerning M_0 (revised by using Hubble constant 100 rather than 180), σ_M , the estimates of α and β and their standard errors and correlation, evaluated for eight combined types of field galaxies in the Humason-Mayall-Sandage catalogue. Analysis of joint confidence regions for α and β of the five most populous types shows that these types have different selection factors.

Polarization of the Radio Emission of Taurus A, Cygnus A, and Centaurus A. C. H. MAYER, T. P. McCULLOUGH, AND R. M. SLOANAKER, *U. S. Naval Research Laboratory*.—New observations have been made in 1961–62 using rotating, linearly polarized feed antennas at the focus of the 50-ft reflector to investigate the polarization of the radiation of the strong discrete sources at 3.15, 3.47, and 9.45 cm.

At 3.15 cm a strong modulation of the measured intensity with feed rotation was observed for the Crab Nebula, Cygnus A, and Centaurus A indicating partial polarization of 7% at 143 deg position angle for the Crab Nebula in satisfactory agreement with previous observations; 7.5% at 143 deg position angle for Cygnus A; and 13% at 144 deg position angle for Centaurus A. Negative results were obtained which determine an upper limit of linear polarization of 1% for Cassiopeia A, the Orion Nebula, the Omega Nebula, Sagittarius A and Virgo A.

At 3.47-cm partial polarization of 7% at 141 deg and 6.5% at 141 deg were observed for Cygnus A and Taurus A, respectively. Negative results with an upper limit of 1% for Cassiopeia A and the Orion Nebula were obtained.

The 9.45-cm observations confirm the previous observations of a polarized component for the Crab Nebula giving 3.8% at 135 deg position angle and the previous negative results with an upper limit for linear polarization of 1% from Cassiopeia A, Cygnus A, and Virgo A. A degree of polarization of 7.5% at 127 deg position angle was observed for Centaurus A.

V/R Variations of Some Bright Be Stars. DEAN B. McLAUGHLIN, *The Observatory, University of Michigan*.—In addition to stars previously

reported on, V/R variation has been studied on long series of spectrograms of X Persei, 105 Tauri, ζ Tauri, 48 Librae, and 8 Lacertae (northern component). In all cases measures show nearly coincident maxima and minima of V/R and hydrogen radial velocities. The table summarizes data from Michigan spectrograms. Because of its anomalous character, γ Cassiopeiae is omitted.

Star	V/R range	Velocity ranges, km/sec		Cycle, years
		Absorption	Emission	
HD 20336	0.5–2.3	–33 to +60	–33 to +63	4.5
X Per	0.5–2.2	–50 + 8	–40 +17	2–6
105 Tau	0.6–1.8	–18 +87	–1 +69	13:
25 Ori	0.4–2.3	–33 +72	–33 +67	3–5
ζ Tau	0.3–3.5	–14 +75	–10 +60	irreg.
β^1 Mon	0.4–2.5	+ 5 +67	0 +55	12.5
48 Lib	0.5–2.2	–50 +20	–60 + 6	10:
π Aqr	0.3–3.6	–92 +68	–83 +78	2–6
8 Lac	0.4–2.5	–65 +70	–53 +41	4–10

The large variations of 105 Tauri are noteworthy, in view of its apparent “pole-on” character.

ζ Tauri usually has equal emission components and varies only intermittently. Occasionally a metallic “shell” spectrum is strong, as in 1914, 1947, and 1956. Tabular data refer to a minimum of V/R in 1958–59 and a maximum in 1961–62. The velocities represent a large shift of the 133-day orbital curve between those two seasons.

Large variations of 8 Lacertae ceased in 1952, and emission had disappeared from $H\beta$ by 1958. This behavior parallels that of 25 Orionis.

Continuous H_2 Emission in B-Star Atmospheres. A. B. MEINEL, *Steward Observatory, University of Arizona*.—The ultraviolet deficiencies of B stars observed from rocket vehicles may be explained by considering the emission spectrum emitted by the molecular recombination of one normal and one excited hydrogen atom. The results by Coolidge, and later by Erkovich, indicate that the emission continuum extends from the visible to a maximum intensity near 2500 Å and rapidly falls off on the violet side. Different relative populations of the upper $^3\Sigma_g^+$ state result in different ultraviolet intensities in the 2000 Å region. A much lower effective temperature can be admitted for the continuous spectrum of a B star under the influence of this mechanism.

A similar mechanism occurs for two He atoms in the 1000–500 Å region and may be an effective low-temperature substitute for the Zanstra mechanism in the O stars.