electron number density of roughly 350 cm^{-3} at 0.6 lunar radii above the surface on the moon-sun connecting line. There is only slow variation with angle of the radial location and magnitude of the maximum of the layer until about 60° off this direction; then rapid decreases in both quantities begin. During times of high solar activity the ionosphere according to this model would increase radically.

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75-cm Galactic Background Polarization: Progress Report. GART WESTERHOUT (now at the *University of Maryland*), W. N. BROUW, C. A. MULLER, AND J. TINBERGEN, *Leiden Observatory*.—The detection of a linearly polarized component in the galactic background radiation at 75-cm wavelength has been fully confirmed by several new series of measurements with the 25-m Dwingeloo radio telescope.

Most of the regularity in direction of polarization, reported earlier (van de Hulst, *Afd. Nat., Kon Ned. Akad. Wet. Amsterdam* 70, 23, 1961; Seeger and Westerhout, *Astron. J.* 66, 294, 1961) was due to effects of ground radiation in sidelobes, which could be corrected for to a large extent. Moreover, different antenna adjustments have decreased the instrumental effects considerably.

Excellent correlation between polarization angle and ionospheric Faraday rotation is now found, proving that the radiation indeed comes from outside the earth's atmosphere. Also, polarization observations can now be used to determine the total number of electrons in the line of sight in the ionosphere. Up to 10% polarization is apparent in two main regions of sky: around $l^{\text{II}}=140^\circ$, $b^{\text{II}}=+5^\circ$, over approximately 400 sq deg, and around $l^{\text{II}}=0^\circ$, $b^{\text{II}}=+65^\circ$, and in some points near $l^{\text{II}}=150^\circ$, $b^{\text{II}}=-50^\circ$. Large regions of sky emit only very little or an undetectable amount of polarized radiation. Faraday rotation in the ionized interstellar medium is probably so large at this wavelength that most of the polarized radiation observed must come from the first few hundred parsecs around the sun. Measurements at shorter wavelengths will perhaps enable us to somewhat extend our field of view, and in particular, to estimate the effect of interstellar Faraday rotation and thus get some idea of the nearby interstellar magnetic fields.

The results of the first two series of measurements have just been published in *Bull. Astron. Inst. Neth.* 16, 187 (No. 518), 1962. The observations were

begun by Ch. L. Seeger and financed by the Netherlands Organization for the Advancement of Pure Research (ZWO).

Stellar Duplicity. CHARLES E. WORLEY, *U. S. Naval Observatory*.—The available observational evidence indicates that a large fraction, probably a majority, of stars exist in binary or multiple systems. Below are tabulated three groups of stars for which some degree of completeness has been attained in the search for companions.

	No. of Systems	No. of Stars	Percentage
<i>M-dwarf stars</i>			
Single	442	442	63
Nonsingle	119	261	37
	561	703	100
<i>Nearby stars</i>			
Single	17	17	37
Nonsingle	13	29	63
	30	46	100
<i>(Apparently) brightest stars</i>			
Single	15	15	27
Nonsingle	15	41	73
	30	56	100

Many of the nonsingle systems have three or more components, as tabulated below:

Percentage of nonsingle systems of higher multiplicity

M dwarfs	23
Nearby stars	31
Brightest stars	56

Several other samples confirm this incidence of higher multiplicity. A recent catalogue of 510 visual binary orbits contained 126 systems, or 25%, with three or more components. Petrie (Petrie, R. M. *Proc. IAU Symp. No. 17, "Visual Double Stars," Publ. Astron. Soc. Pacific* 74, 11, 1962) recently reported that of 32 wide binaries investigated, 18 showed evidence of velocity variations indicating the existence of a third component.

If the above statistics are generally valid, then theories of star formation and evolution must start with the assumption that the normal star is formed and exists in a binary system, and then explain the existence of "abnormal" single stars.