24 March. The corresponding figures for the diffuse enhanced spectrum are 1470 and 1710 km/sec. The Orion lines showed velocity displacements generally similar to that of the diffuse enhanced lines, but fluctuating.

The emission lines of hydrogen spread over at least 25 Å. Their profiles have fairly flat tops except where other absorption lines are superimposed. Within the four days 9–12 February, the sharp lines of the principal spectrum weakened markedly. By 2 April the principal spectrum had nearly disappeared and the Orion spectrum was dominant. As the absorption lines of hydrogen weakened they split into multiple components.

The interstellar K line of ionized calcium showed at least three components. Their combined equivalent width was measured to be 0.2 Å, which, according to the calibration of Beals and Oke, corresponds to a distance of approximately 500 pc.

Modern Stellar Interferometry. WILLET I. BEAVERS, *University of Indiana*.—The present availability of sensitive photoelectric cells and fast films not available to the early workers using the 20- and 50-ft interferometers has suggested the possibility of making quantitative measurements of the fringe strength. Such measurements would reduce the mirror separation needed to measure any given angle by at least a factor of 4, and would make it possible to measure the limb darkening of a number of stars.

A 12-ft interferometer has been built and used on the 24-inch Morgan telescope at Lowell Observatory. Although the fringe motion is too rapid for the present dc photoelectric system, it has been possible to obtain numerous photographs of the fringes.

Appearance of Spicules on the Solar Disk. JACQUES M. BECKERS, *Sacramento Peak Observatory*.—The study of the dark fine structures visible on high resolution $H\alpha$ spectroheliograms obtained with the Sydney 1/8 Å birefringent filter led to the following properties: (a) They are often elongated, the average length is 4".5 compared with a width somewhere between 0.7 and 1".8. (b) Lifetime averages 15.5 min. (c) They are first visible mainly in the violet $H\alpha$ wing, later in the red wing. (d) Near the solar limb the direction of elongation is predominantly radial, indicating them to be mostly vertical to the solar surface. (e) The total number on the sun is found to be 3.5×10^5 . (f) The contrast is greatest 0.5 Å from the $H\alpha$ -line center. From the variation of the contrast with wavelength the source function, optical depth and Doppler width are found to be, re-

spectively, 3×10^{13} erg $\text{sr}^{-1} \text{cm}^{-3} \text{sec}^{-1}$, 4 and 0.50 Å. All these properties correspond with those known for the spicules as observed outside the solar limb. From this their identity is concluded.

Iron-Rich Star HR 6870. W. P. BIDELMAN, *University of Michigan Observatory* AND L. H. ALLER, *University of California, Los Angeles*.—HR 6870-HD 168733, spectral class about B8, has an unusual spectrum in which iron appears in three stages of ionization. Spectral energy scans, secured by D. J. Faulkner at Mt. Stromlo, indicate a color temperature in the neighborhood of 18 000°K and a Balmer discontinuity D about 0.25. An effective temperature of 14 000°K was adopted. From the total intensities of the Balmer lines we find $\log P_{\epsilon} = 2.55$.

The abundance of helium is uncertain while the abundance ratio of carbon, magnesium, silicon, and calcium to hydrogen is about the same as in the sun. Although manganese does not appear enhanced in abundance, titanium, chromium, and iron appear to be overabundant by factors of about 200, 15, and 50, respectively, while strontium appears to be overabundant by a factor exceeding 1000. Further study with the aid of model atmosphere methods is underway.

Color Indices of Giant M Stars. V. M. BLANCO, *Warner and Swasey Observatory*.—Variability among the giant M stars makes it difficult to establish the relationship between spectral classes and color indices. To obviate this difficulty, a program of observations was initiated at the Warner and Swasey Observatory in which photometric and spectroscopic data for selected groups of giant M stars were to be gathered within reasonably simultaneous periods of time.

Several areas rich in giant M stars were selected near clusters where photoelectric magnitudes and colors were available. For spectral classifications, objective prism observations were made in the near-infrared region of the spectrum. For photometric purposes, photographic plates matching the B and V colors of the (U, B, V) system and the I color defined by Kron and his co-workers were obtained. For each area three plates were obtained in each color, in addition to two spectroscopic plates. It was possible to collect in each area of study all the desired observations within 24-hour periods. The absorption law was established in each region in order to correct the observed colors for the effects of interstellar absorption.

Preliminary results are now available for about 200 stars in four different regions of the sky. In