evolves the star by $2\frac{1}{2}\%$ total change in energy until a dynamical collapse takes place. The validity of the calculation is limited to $\rho \leq 3 \times 10^{11}$ g/cc corresponding to a compression of the central zones of 10^4 at which point the transformation to a neutron star by inverse beta decay occurs within the dynamic time of the implosion. The pressure at this time is one-half that required for mechanical support of the star, so that further collapse to a neutron star is expected, provided the fractional energy in rotation or magnetic fields is small. The "bounce" of a neutron star due to adiabatic compression will occur at very much higher densities. We created a "bounce" artificially after 10^3 -fold compression, assuming that the initial rotational energy of the core was 10^{-3} of the internal energy. The bounce forms a shock wave which ejects approximately 1 solar mass with a specific energy (2×10^{18} ergs/g) equal to its gravitational potential. This potential at the ejection mass-cut depends in turn on the dynamical energy of the core implosion, but excluding the inverse beta decay, the shock strength heats the ejected mass to 4.0×10^9 deg and compresses it to 10^7 g/cc. The temperature and density time history of the subsequent expansion determines the nuclear composition of the ejected material and this is independent of the initial state because the fractional thermonuclear energy addition is small compared to the shock energy. The characteristic expansion time starts at 0.07 sec increasing to 0.4 sec at 10^5 density while the temperature falls $\frac{1}{3}$ as fast. This work was done under the auspices of the U.S. Atomic Energy Commission.

Experimental f values for 70 Elements. C. H. CORLISS, *National Bureau of Standards, Washington, D. C.*—Relative intensities of 39 000 spectral lines with wavelength between 2000 and 9000 Å have been determined on a uniform energy scale for 70 elements. The light sources were arcs between copper electrodes in which a single element was added in the amount of one atom of element to 1000 atoms of copper. The spectra were calibrated with standard lamps. The temperature of the arc was determined, by comparison of the observed intensities with published relative gf values, to be $5100^\circ\text{K} \pm 2\%$. The degree of ionization of each element in the arc was determined by comparison of intensities in spectra of neutral and ionized atoms with absolute gf values. Knowing the temperature and the ionization, relative values of gf on a uniform scale can be calculated for the 25 000 lines which have been classified. By calibration with known absolute gf values, the scale can be put on an absolute basis. It is expected that the resulting values will be of moderate precision.

Photometry of G and K Giants. D. L. CRAWFORD, *Kitt Peak National Observatory, Tucson, Arizona.*—Using the 36-inch and the 16-inch reflectors on Kitt Peak, the author has obtained narrow-band photoelectric photometry on about 200 bright G and K giants. Seven filters were used, with the characteristics shown in Table I. The first four filters define a four-color system currently in use on A and F stars by Dr. Bengt Stromgren, and by the author on B stars, as well as the G and K giants. Two color differences are formed from these filters: (1) $m = (y - b) - (b - v)$, an empirical measure of the metallic absorption in the v bandpass relative to the b and y bandpasses, and (2) $c = (b - v) - (v - u)$, a measure of the Balmer discontinuity. The last three filters define two indices of special interest for late-type stars. The first is a measure of the break in the spectrum across the G band, and is defined as $G = (I_{4370}/I_{4265})$. The second measures the break in the spectrum across the CN band head at 4216 Å; it is defined as $N = (I_{4265}/I_{4160})$.

TABLE I.

Filter	Wavelength	Half-width	Transmission
y	5480 Å	220 Å	72%
b	4700	100	80
v	4090	128	59
u	3450	380	38
a	4370	62	42
b	4265	66	41
c	4160	44	32

An analysis of the observed parameters indicates the following results: (1) The index G is strongly correlated with MK spectral type and with color index. (2) There is a clear separation in the index N between stars with space velocities greater than 60 km/sec and those with less than 20 km/sec. (3) Stars with strong or weak CN anomalies (in chemical composition) show such an anomaly in N as well, and to a smaller degree in the metallic-line index m . (4) There is a correlation between the CN strength and luminosity, and to some extent between m and luminosity. The correlations between m and M_V and between N and M_V are in the opposite sense to the correlation between chemical composition effects on N and on m . This makes it possible to use m to remove, at least to first order, the effect of varying chemical composition on the parameter N and hence to use the corrected N to obtain accurate absolute magnitudes.

It is intended to extend this spectrophotometric classification scheme to the G and K giants in the region of the north galactic pole.

The Solar Continuum in the Extreme Ultraviolet. C. R. DETWILER, J. D. PURCELL, and R. TOUSEY, *U. S. Naval Research Laboratory.*—The intensity