**Microwave Detection of *OH* in the Interstellar Medium.** A. H. BARRETT, M. L. MEEKS, AND S. WEINREB, *Research Laboratory of Electronics and Lincoln Laboratory, MIT.*—Spectral observations have revealed the presence of the 18-cm lines of the hydroxyl (*OH*) radical in absorption in the direction of the Cassiopeia A radio source. The *OH* ground state is $^2\pi_{3/2}$, $J=3/2$, and has microwave transitions at 1667.357 and 1665.402 Mc/sec which are attributed to Λ-doubling and hyperfine structure. We have observed both lines in the interstellar medium with an intensity ratio in agreement with both the laboratory measurements and molecular theory. The observations were conducted with the 84-ft parabolic antenna of the Millstone Hill Observatory of Lincoln Laboratory, MIT, and the spectral-line autocorrelation radiometer designed by Weinreb. The receiver examined a 100 kc/sec portion of the spectrum with a frequency resolution of 7.5 kc/sec. The over-all system temperature was 420°K, of which 110°K was due to Cas A.

*H* line observations show absorbing clouds in the direction of Cas A with radial velocities of −0.8, −38.1, and −48.2 km/sec. The *OH* observations also show absorption at frequencies corresponding to radial velocities of −0.8 and −48.2 kc/sec for both the 1665 and 1667 Mc/sec lines; however, the cloud with velocity −38.1 kc/sec appears to be composed of two clouds with radial velocities of −37.4 and −42.1 km/sec. This result is not inconsistent with the *H* observations because *H* observations of these clouds would show a single line due to the large thermal broadening and greater optical depth of the interstellar *H*.

The *OH* lines disappeared when the antenna beam was positioned off Cas A, and the lines moved 20 kc/sec between 17 October and 29 October, in agreement with the shift expected from the orbital velocity of the earth during this period.

If we assume an excitation temperature of 10°K for the *OH* radicals, then our observations indicate that the clouds contain $2\text{–}5\times10^{14}$ *OH* radicals/cm$^2$. This can be compared with the *H* observations to give an *OH*/*H* abundance ratio of $\sim10^{-7}$.

The work of one of the authors (A. H. B.) was supported in part by the U. S. Army, the Air Force Office of Scientific Research, and the Office of Naval Research, and in part by the National Aeronautics and Space Administration (Grant NsG-419). Lincoln Laboratory is a center for research and development operated by Massachusetts Institute of Technology with the support of the U. S. Air Force.

**Evidence Suggesting a Meteorite Impact Origin for Lac Couture, Quebec.** C. S. BEALS, M. R. DENCE, AND A. J. COHEN, *Dominion Observatory.*—Lac Couture is a circular lake of diameter 16 km with a central island-free area of 10 km diameter and depth 150 m. The central area is surrounded by a shallower zone characterized by numerous islands and peninsulas all of which show marked indications of glacial action, the direction of ice movement being from east to west.

An examination of the bedrock of the islands showed many locations of heavy shattering with some indications of stratified gneisses tilting away from the lake center. Most of the islands and peninsulas examined showed numerous boulders and other types of glacial debris, and on a number of islands on the westward side of the lake this debris included large quantities of rock breccia of the type normally associated with meteorite impact. Since no evidence was found of consolidated sediments in the lake or sedimentary rock fragments in the glacial debris, it was concluded that the rock breccia had been dredged from the lake bottom by glacial action. The evidence as a whole suggests an ancient and eroded meteorite crater of approximately 12 km diameter, of which the circular fringe of islands and peninsulas represents the remains of the rim, formerly several hundred meters in height.

**Motions in the Corona from Repeated Spectrographic Observations.** DONALD E. BILLINGS AND CARL G. LILLIEQUIST, *High Altitude Observatory.*—Climax observers have made as many as 56 repeated spectrographic observations in λ5303 on the same bright emission feature in the corona. The spectrographic dispersion is 2.5 Å/mm and the exposure time 30 sec. Precise microphotometry reveals small wavelength shifts of a periodic nature. In some instances the entire profile is shifted; in other cases only one wing.

We have evidence that the shifts are on the spectrograms rather than being a result of random fluctuations in the tracings or the analysis. Furthermore, by comparing two series of observations at 2-min intervals with one at 30-sec intervals we have established that a portion of the line shifting is solar in origin. A careful analysis of our best data gives for the solar component of the line-of-sight velocity an rms value of 0.3 km/sec and a period of about 300 sec. Since this period is so close to that of photospheric oscillations, we suggest that the observed motion is the statistical residual of random motions of cell-size comparable to or larger than granulations. Such cells would have an rms velocity of about 3.5 km/sec$^{-1}$ or less, which is much too small to explain the excess of linewidth over ionization temperature in the corona.

**Solar Emission Line Spectrum from 1 to 25 Å.** R. L. BLAKE, T. A. CHUBB, H. FRIEDMAN, AND