

A NEW SHORT-WAVELENGTH CARBON DIOXIDE BAND IN THE SPECTRUM OF VENUS

T. OWEN and H. P. MASON
IIT Research Institute, Chicago, Ill., U.S.A.

In attempting to resolve the CO₂ band at 7159 Å identified in the spectrum of Venus by Spinrad (1962), we discovered a new band at 7105 Å. Both bands are fully resolved on our spectra and tentative *J* numbers have been assigned to the rotational lines. In both cases, the *P* branch appears to be anomalously weak. The 7159 Å band has been observed in the laboratory (unresolved) by Herzberg and Herzberg (1953) at path lengths on the order of 55 km atm. To our knowledge, the 7105 Å band has not been recorded previously. Following the predictions of Herman (1948) the two bands are given the assignments $5\nu_3 + 2\nu_2 + \nu_1$ (7159 Å) and $5\nu_3 + 2\nu_1$ (7105 Å). An unsuccessful attempt was made to find the third member of this triad, $5\nu_3 + 4\nu_2$. In view of the very large amount of carbon dioxide apparently required to produce these absorptions, further study in the laboratory and at the telescope is encouraged.

References

- Herman, R. C.: 1948, *Astrophys. J.* **107**, 386.
Herzberg, G. and Herzberg, L.: 1953, *J. Opt. Soc. Am.* **43**, 1037.
Spinrad, H.: 1962, *Astrophys. J.* **135**, 651.