LETTERS TO THE EDITOR

Prompt publication of brief reports of important discoveries in physics may be secured by addressing them to this department. Closing dates for this department are, for the first issue of the month, the twentieth of the preceding month; for the second issue, the fifth of the month. The Board of Editors does not hold itself responsible for the opinions expressed by the correspondents.

Identification of the (2, 2) Band of Neutral OH. Satellite Series of the (1, 1) Band. Extensions of the (0, 0) Band

Analysis of some plates which we have obtained with very intense exposures of the ultraviolet "water vapor" bands, due to neutral OH, permit us to make approximately 150 new assignments of lines in the band sequence in the neighborhood of λ3064. Among these are about 75 lines which form the six principal branches of the (2, 2) band with its principal head at about λ3185. This brings the number of bands which have been identified in the OH system to a total of eight. The assignments are confirmed by application of the combination principle, both with respect to the upper level, by comparison with the $(\Delta F')$'s of the (2′, 0″) and (2′, 1″) bands, and with respect to the lower level by comparison with the $(\Delta F'')$'s of the (1′, 2″) band, recently identified by Johnston, Dawson and Walker.[1] Rotational and vibrational constants derived for the new (2, 2) band are in good agreement with the values derived from the (1′, 2″) band.

The remaining lines (approximately 75 in number) include the $^{RR}R_{21}$ and the $^{PP}P_{12}$ satellite series of λ3122, which have, heretofore, been unobserved, as well as extensions of the principal R series of both λ3122 and λ3064 and of the satellite series of λ3064. We also confirm Shaw's recent measurements[2] of 63 new assignments in the principal Q and P branches of λλ3064 and 3122.

A more complete description of the work will be submitted to this journal.

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March 7, 1933.

[1] Johnston, Dawson and Walter, Phys. Rev. **43**, 473 (1933).
[2] R. M. Shaw, Astrophys. J. **76**, 202 (1932).

The Molecular Structure of Ozone

The author had independently reached Badger and Bonner's[1] conclusion that an obtuse-angled model for the ozone molecule is to be preferred to an acute-angled one in interpreting Gerhard's[2] careful results on the infrared absorption bands of that substance. It still seems of interest to submit the present interpretation, which differs from Badger and Bonner's in the frequency assumed for the missing fundamental ν_2, if only to emphasize the need for further measurements. Table I compares the various interpretations.

$\nu_2=440$ is thus seen to give somewhat worse agreement with the observed combination bands than does 760. Moreover, Wulf's[3] assignment of the 440 cm^{-1} interval between two progressions in the visible band system to ν_2 of the normal state does not seem secure, as it is unsupported by measurements of temperature coefficient of

[1] Badger and Bonner, Phys. Rev. **43**, 305 (1933).
[2] Gerhard, Phys. Rev. **42**, 622 (1932).
[3] Wulf, Proc. Nat. Acad. Sci. **16**, 407 (1930).

TABLE I. *Various interpretations.*

Observed Frequency (cm^{-1}) and type	*Calculated* Gerhard	Badger & Bonner	Benedict
——	$\nu_2=528$ (Z)	$\nu_2=440$ (D)	$\nu_2=760$ (D)
879 (N_2O_5 as impurity?)	——	$2\nu_2=879$ (D)	——
1030–1060 (irregular D)	$\nu_3=1033$ (D) $2\nu_2=1055$ (Z)	$\nu_1=1050$ (D)	$\nu_1=1046$ (D)
1355 (Z)	$\nu_1=1355$ (Z)	$\nu_3=1355$ (Z)	$\nu_3=1357$ (Z)
1515 (?)	$\nu_2+\nu_3=1561$ (D) $3\nu_2=1584$ (Z)	——	$2\nu_2=1520$ (D)
2108 (wide, irregular)	$2\nu_3=2066$ (Z) $2\nu_2+\nu_3=2088$ (D) $4\nu_2=2110$ (Z)	$2\nu_1=2100$ (D)	$2\nu_1=2085$ (D) $\nu_2+\nu_3=2117$ (Z)
2710 (?)	$2\nu_1=2710$ (Z)	$2\nu_3=2710$ (D)	$2\nu_3=2710$ (D)