Some studies in the infra-red region of the spectrum

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APPENDIX.
Fig. 1.
Fig. 1. First Experimental Arrangement

Monochromatic Method.

A. V. Ammeter and Voltmeter.
M. Mernst filament.
S. Shutter.
S_s. Spectrometer slits.
W. Wadsworth mirror.
P_l. Prism. Rock salt.
Sc. Wave-length scale.
Te. Reading telescope.
G. T. Gas tubes.
T. Thermopile.
G. Galvanometer.
L. Galvanometer lamp and scale.
P. A. Potentiometer arrangement.
Experimental Arrangement Fig. 2

Fig. 2.
Fig. 2.  Second Experimental Arrangement.

A. V.  Ammeter and Voltmeter
N.  Nernst filament.
S.  Shutter.
S S.  Spectrometer Slits.
1 2  Wadsworth mirror.
P.  Rock salt prism.
1  T.  Thermopile.
G. T.  Gas tubes.
G.  Galvanometer.
T.  Telescope.
L.  Galvanometer scale and lamp.
P. A.  Potentiometer arrangement.
Sc.  Wave-length scale.
Fig. 5.
Fig. 3: Thermopile Holder No. 1.

T. Thermopile.
R. Rock-Salt Window.
W. Observation Window.
E. Ebonite Support.
R.W. Rubber Washer.
Fig. 5.
Fig. 5. Thermopile Holder No. 2.

R.W. Rubber Washer.
R. Rock salt window.
W. Observation window.
E. Microscope eyepiece.
C. 'Screw-on' Brass Cover.
T. Thermopile.
S. Spectrometer Slit.
FIG. 7.
Fig. 7. Gas Tubes and Carriage

H. Handle for carriage.
T. Tubes to Gas apparatus.
S. Adjustable Stops.
G. Gas Tubes.
R. Rock salt windows.
S. Screw Adjustments for Gas Tubes.
C. Carriage.
W. Wooden support for carriage.
Fig. 9.
Fig. 9. Cell for Liquids.

H. Hold for filling cell with liquid.
L. Liquid film.
F. Fluorite windows.
W. Rubber washer.
P. Brass plungers.
S. Brass Screw-on End Caps.
Fig. 11.
Fig. 11.  **Potentiometer Device.**

A.V. Ammeter and Voltmeter.

R. Controlling Rheostat.

N. Nernst filament.

K.K. Plug Keys.

R\textsubscript{1}. Low-resistance Rheostat.

R\textsubscript{1}. High-resistance Rheostat.

R\textsubscript{2}. Medium-resistance Rheostat.

S.C. Standard Cadmium cell.
FIG. 13.
Fig. 13. Gas Apparatus.

P$_1$, P$_2$, P$_3$. Phosphorus pentoxide drying tubes.

F. Preparation.

D. Dropping funnel.

W. Washing Bottles containing Potassium Hydroxide.

R. Reservoir.

G. Pressure gauge and scale.

M. Manometer.

T.P. Toepler pump.

T. Trap.
Fig. 46. Calibration Chart of Rock Salt Prism Spectrometer.
Fig. 21.

Galvanometer deflection vs. wavelength (Å) for Hg arc line at 1.014 μ.

Fig. 21.
Fig. 21. The Emission Line at $1.014\mu$
in the Mercury Arc Spectrum.
Fig. 14.

**ABSORPTION BAND OF CALCITE AT 580 µ**

- **1st Position** of No. 2 Wedgwood Monochromator
- **2nd Position**
- **3rd Position**

**% TRANSMISSION**

**WAVE LENGTH (A. M. U.)**

Fig. 14.
Fig. 14. Absorption Band of Calcite at 3.90 μ.

1st Position. Setting A. = 3.89 μ.
2nd Position. Setting B. = 3.94 μ.
3rd Position. Setting C. = 3.91 μ.
Fig. 15.

Emission Curves of Nearest Filament

Three Settings of Wadsworth Mirror
Fig. 15.

Case A. 1st Position.

Case B. 2nd Position.

Case C. 3rd Position.
Fig. 16.

Graphs to show the effect of alteration of the Prism Temperature.

Case 1. Prism Temperature 19.9°C.
Wadsworth Mirror set at 20.9°C.

Case 2. Prism Temperature 19.8°C.
Wadsworth Mirror set at 20.9°C.

Case 3. Prism Temperature 20.1°C.
Wadsworth Mirror set at 20.9°C.

Curve A shows values corrected for temperature.

Slit widths. [(Entrance slit 5/1000". (Exit slit 5/1000".}
Fig. 17.

Absorption Band of Calcite at 46 μ

A. Corrected Values
B. Observed Values

At 20°C

Wavelength (nm)
Fig. 17.

Absorption Band of Calcite at 4.6 μ.

Case 1. Prism Temperature 20.3°C.
Case 2. Prism Temperature 20.2°C.

Curve A shows values corrected for temperature.

Slit widths: (Entrance Slit 5/1000"
(Exit Slit 5/1000"


Fig. 18.

Absorption Bands of Calcite

A = Corrected Values
A' = Observed Values

Wavelength (μm)

Transmission (%)
The Absorption Bands of Calcite taken at different Prism Temperatures.

1. Case A. Prism Temperature 20.4°C. Wadsworth Mirror set at 19.5°C.
2. Case B. Prism Temperature 20.9°C. Wadsworth Mirror set at 19.5°C.
3. Case C. Prism Temperature 18.0°C. Wadsworth Mirror set at 19.5°C.
4. Case D. Prism Temperature 17.5°C. Wadsworth Mirror set at 19.5°C.

Slit Widths. (Entrance slit 10/1000" (Exit Slit 10/1000")
ABSORPTION BAND OF NITRIC OXIDE AT 5.50 µ.

FIG. 19.
Fig. 19.

The Absorption Band of Calcite at 5.30\mu taken with the Prism Temperature kept constant.

Case 1. Prism Temperature 20.7°C.
Wadsworth Mirror set at 20.8°C.

Case 2. Prism Temperature 20.7°C.
Wadsworth Mirror set at 20.8°C.

Slit widths. (Entrance Slit 10/1000". Exit Slit 10/1000".)
Fig. 20.
Fig. 20.

The Absorption Bands of Calcite observed at Different
Prism Temperatures

Case 1. Prism Temperature 21.2°C.
Wadsworth Mirror set at 22.9°C.

Case 2. Prism Temperature 20.3°C.
Wadsworth Mirror set at 22.9°C.

Case 3. Prism Temperature 20.1°C.
Wadsworth Mirror set at 22.9°C.

Case 4. Prism Temperature 19.2°C.
Wadsworth Mirror set at 22.9°C.

Slit widths: (Entrance slit 5/1000" (Exit slit 5/1000")
**Fig. 22.**

**Inequality of Transmission of Gas Tubes**

**Fig. 22.**
Inequality of Transmission of the Two Gas Tubes.

2. Case 2. Prism Temperature 20.6°C. Wadsworth Mirror set at 21.2°C.

(One Tube tilted slightly with respect to the other).

Slit widths. (Entrance slit 5/1000". Exit slit 5/1000".)
FIG. 23.

INEQUALITY IN TRANSMISSION
OF GAS TUBES

FIG. 23.
Inequality in Transmission of the Two Gas Tubes in the Region 4.0μ - 7.0μ.

4.0μ - 5.0μ. Prism Temperature 23.1°C. Wadsworth Mirror set at 21.3°C.

6.0μ - 6.5μ. Prism Temperature 19.6°C. Wadsworth Mirror set at 21.5°C.

Slit Widths. (Entrance slit 5/1000". Exit slit 5/1000").
Transmission Ratio of Gas Tubes with Rock Salt Windows Removed

Fig. 24.

TRANSMISSION

<table>
<thead>
<tr>
<th>.100</th>
<th>.20</th>
<th>.80</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>70</td>
<td>75</td>
<td>80</td>
</tr>
</tbody>
</table>

WAVE LENGTH (in μm)
Graphs showing that the difference in Transmission Powers of the Tubes is constant when the rock-salt and plates are removed.

Region 4.0μ - 5.0μ. Prism Temperature 18°C. Wadsworth Mirror set at 21.2°C.

Region 5.0μ - 6.20μ. Prism Temperature 19.5°C. Wadsworth Mirror set at 21.2°C.
FIG. 25.

INEQUALITY IN TRANSMISSION
OF GAS TUBES

AVE LENGTH (Ang.)

Fig. 25.
Fig. 25.

Graphs showing the persistence of the inequality of Transmission Powers of the two Gas Tubes when the rock salt and plates were replaced.

11 and 1V show the effect of tilting one tube slightly.
FIG. 26.

ABSORPTION BANDS
OF CARBON DIOXIDE
AT 2-72 \mu

FIG. 26.
Fig. 26.

Absorption Curves of Carbon Dioxide at 2.73 μ.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>28.8°C</td>
<td>23.2°C</td>
<td>5/1000&quot;</td>
<td>5/1000&quot;</td>
<td>40.3</td>
</tr>
<tr>
<td>11.</td>
<td>24.7°C</td>
<td>23.2°C</td>
<td>5/1000&quot;</td>
<td>5/1000&quot;</td>
<td>65.0</td>
</tr>
<tr>
<td>111.</td>
<td>23.7°C</td>
<td>23.2°C</td>
<td>7/1000&quot;</td>
<td>7/1000&quot;</td>
<td>40.2</td>
</tr>
</tbody>
</table>
FIG. 27.

Absorption Band of Carbon Dioxide AT 426 μμ.

Transmission.

Wave Length (Angstroms)

40 44 48
Fig. 27.

Absorption Curve of Carbon Dioxide at 4.25 μ.

Prism Temperature 19.7°C. Wadsworth set at 20.1°C.
Gas Pressure 35 cm. Mercury.
Entrance Slit 7½/1000"; Exit Slit 7½/1000".
Fig. 28.
ABSORPTION BAND
% TRANSMISSION OF CARBON DIOXIDE
AT 1437\mu.

WAVE LENGTH (\lambda, \mu)

Fig. 28.
Fig. 28

Absorption Band of Carbon Dioxide at 14.8 μ.

Prism Temperature 23.3°C.
Wadsworth Mirror set at 24.1°C.
Entrance Slit. 20/1000".
Exit Slit. 20/1000".

Gas pressure 50.0 cm. Mercury.
Fig. 29.

Transmission Absorption due to Carbon Dioxide in the Region 10μ - 20 μ

- A: Gas Pressure 750 mm Hg
- B: Gas Pressure 100 mm Hg

Wave Length (Å)
Fig. 29.

Absorption due to Carbon Dioxide in the region 1.0 µ - 2.0 µ.

A. Prism Temperature 21.5°C.
   Wadsworth Mirror set at 20.1°C.
   Gas Pressure 75.0 cm. Mercury.
   Entrance slit 2½/1000"; Exit slit 2½/1000".

B. Prism Temperature 22.8°C.
   Wadsworth Mirror set at 20.1°C.
   Gas Pressure 101.1 cm. Mercury.
   Entrance slit 2½/1000"; Exit slit 2½/1000".
Fig. 30.

Transmission

Absorption Band

of Nitric Oxide

at 53 μ

Wave Length (μm)

400 90 80 70 60 50 40

Fig. 30.
### Absorption Band of Nitric Oxide at 5.30 μ

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20.5°C</td>
<td>23.9°C</td>
<td>10/1000&quot;</td>
<td>10/1000&quot;</td>
<td>35%</td>
<td>69 cm.</td>
<td>51</td>
</tr>
<tr>
<td>2.</td>
<td>20.8°C</td>
<td>23.9°C</td>
<td>10/1000&quot;</td>
<td>10/1000&quot;</td>
<td>34%</td>
<td>65 cm.</td>
<td>52</td>
</tr>
<tr>
<td>3.</td>
<td>19.5°C</td>
<td>23.9°C</td>
<td>10/1000&quot;</td>
<td>10/1000&quot;</td>
<td>31%</td>
<td>64 cm.</td>
<td>48</td>
</tr>
</tbody>
</table>
Fig. 31.

TRANSMISSION

ABSORPTION BAND

OF NITRIC OXIDE

AT 5-30 μ

WAVE LENGTH (XIN μ)

Fig. 31.
### Absorption Band of Nitric Oxide at 5.30 μ

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>20.3°C</td>
<td>20.1°C</td>
<td>10/1000&quot;</td>
<td>10/1000&quot;</td>
<td>26%</td>
<td>52.0</td>
<td>.50</td>
</tr>
<tr>
<td>V</td>
<td>20.8°C</td>
<td>20.1°C</td>
<td>10/1000&quot;</td>
<td>10/1000&quot;</td>
<td>3.5%</td>
<td>73.0</td>
<td>.50</td>
</tr>
</tbody>
</table>
Fig. 32.

Transmission absorption band of nitric oxide at 2.68 μm

Wave length (λ in μm)

2.5 3.0 3.25
### Fig. 32.

**Absorption Band of Nitric Oxide at 2.68 μ.**

<table>
<thead>
<tr>
<th>Case</th>
<th>Prism Temp.</th>
<th>Wedgworth Mirror Set at.</th>
<th>Entrance Slit</th>
<th>Exit Slit</th>
<th>Gas Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2</td>
<td>27.1°C</td>
<td>20.8°C</td>
<td>5/1000&quot;</td>
<td>5/1000&quot;</td>
<td>50.0 cm. Mercury</td>
</tr>
<tr>
<td>1.2</td>
<td>23.3°C</td>
<td>20.8°C</td>
<td>7½/1000&quot;</td>
<td>7½/1000&quot;</td>
<td>50.0 cm. Mercury</td>
</tr>
</tbody>
</table>
**Fig. 32.**

Absorption Band of Nitric Oxide at 2.68 μ.

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Prism Temp.</th>
<th>Wedgworth Mirror set at</th>
<th>Entrance Slit</th>
<th>Exit Slit</th>
<th>Max. Absorption %</th>
<th>Gas Pressure cm Hg</th>
<th>Abs. Gas Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>I11</td>
<td>19.2°C</td>
<td>19.3°C</td>
<td>5/1000&quot;</td>
<td>5/1000&quot;</td>
<td>9.0</td>
<td>46</td>
<td>0.17</td>
</tr>
<tr>
<td>IV</td>
<td>19.4°C</td>
<td>19.3°C</td>
<td>5/1000&quot;</td>
<td>5/1000&quot;</td>
<td>15.0</td>
<td>86.0</td>
<td>0.18</td>
</tr>
<tr>
<td>V</td>
<td>19.6°C</td>
<td>19.3°C</td>
<td>5/1000&quot;</td>
<td>5/1000&quot;</td>
<td>19.0</td>
<td>114</td>
<td>0.16</td>
</tr>
<tr>
<td>VI</td>
<td>19.8°C</td>
<td>19.3°C</td>
<td>5/1000&quot;</td>
<td>5/1000&quot;</td>
<td>24.0</td>
<td>143</td>
<td>0.17</td>
</tr>
</tbody>
</table>
Fig. 34.

**Absorption Band of Nitric Oxide at 2.68 μ**

**Fig. 34.**
**Fig. 34.**
Absorption Band of Nitric Oxide at 2.68 μm

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>VII.</td>
<td>19.9°C.</td>
<td>20.1°C.</td>
<td>5/1000&quot;</td>
<td>5/1000&quot;</td>
<td>10.5%</td>
<td>62.0</td>
<td>.17</td>
</tr>
<tr>
<td>VII.</td>
<td>19.6°C.</td>
<td>20.1°C.</td>
<td>5/1000&quot;</td>
<td>5/1000&quot;</td>
<td>16.0%</td>
<td>94.0</td>
<td>.17</td>
</tr>
</tbody>
</table>
Absorption by Nitric Oxide in the Region 1.0 - 2.0 μ

% Transmission

Wavelength (λ μm)

Fig. 35.
### Table: Absorption by Metallic Oxide in the Region 1.0 μ-3.0 μ

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18.7°C.</td>
<td>20.1°C.</td>
<td>2'/1000&quot;</td>
<td>2'/1000&quot;</td>
<td>70.0 cms.</td>
</tr>
<tr>
<td></td>
<td>17.8°C.</td>
<td>20.1°C.</td>
<td>&quot;</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>11</td>
<td>20.1°C.</td>
<td>20.1°C.</td>
<td>2'/1000&quot;</td>
<td>2'/1000&quot;</td>
<td>57.0 cms.</td>
</tr>
<tr>
<td></td>
<td>18.8°C.</td>
<td>20.1°C.</td>
<td>&quot;</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>111</td>
<td>17.4°C.</td>
<td>20.1°C.</td>
<td>2'/1000&quot;</td>
<td>2'/1000&quot;</td>
<td>84.1 cms.</td>
</tr>
<tr>
<td></td>
<td>16.6°C.</td>
<td>20.1°C.</td>
<td>&quot;</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
</tbody>
</table>
FIG. 36.

Absorption Bands of Water
In Region 10 μ - 2.5 μ

Fig. 36.
Absorption Bands of Water in the Region 1.9 \mu \text{m} - 2.5 \mu \text{m}

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27.6°C.</td>
<td>27.0°C.</td>
<td>5/1000&quot;</td>
<td>2½/1000&quot;</td>
<td>0.1 cms.</td>
</tr>
<tr>
<td>11</td>
<td>26.4°C.</td>
<td>27.0°C.</td>
<td>5/1000&quot;</td>
<td>2½/1000&quot;</td>
<td>0.05 cms.</td>
</tr>
<tr>
<td>111</td>
<td>22.9°C.</td>
<td>27.0°C.</td>
<td>2½/1000&quot;</td>
<td>2½/1000&quot;</td>
<td>0.05 cms.</td>
</tr>
</tbody>
</table>
FIG. 37

Absorption Bands of Water in Region 1.0 μ - 2.0 μ

% Transmission

Wavelength (μm)

FIG. 37
Fig. 37.

Absorption Bands of Water in the Region 1.0 μ - 2.0 μ.

Case V. Prism Temperature 24.0°C.
Wadsworth Mirror set at 27.0°C.
Slits: (Entrance 2½/1000".
    (Exit 2½/1000".
FIG. 38.

Absorption Band of Water in the Region 2.4μ-3.5μ

% Transmittance

Wave Length (μm)

Fig. 38.
## Fig. 38.
Absorption Band of Water at 3.0 μm

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Brightness</th>
<th>Wadsworth Mirror Set at</th>
<th>Entrance Slit</th>
<th>Exit Slit</th>
<th>Thickness of Film</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27.5°C.</td>
<td>27°C.</td>
<td>2.5/1000&quot;</td>
<td>2.5/1000&quot;</td>
<td>1/100 mm.</td>
</tr>
<tr>
<td>11</td>
<td>27.0°C.</td>
<td>27°C.</td>
<td>2.5/1000&quot;</td>
<td>2.5/1000&quot;</td>
<td>1/50 mm.</td>
</tr>
<tr>
<td>111</td>
<td>24.5°C.</td>
<td>27°C.</td>
<td>2.5/1000&quot;</td>
<td>2.5/1000&quot;</td>
<td>1/200 mm.</td>
</tr>
<tr>
<td>1V</td>
<td>27.4°C.</td>
<td>27°C.</td>
<td>2.5/1000&quot;</td>
<td>2.5/1000&quot;</td>
<td>1/200 mm.</td>
</tr>
</tbody>
</table>
Fig. 39.

Absorption due to water transmission in the region 40 - 59 µ

Fig. 39.
Absorption Due to Water in the Region 4.9\mu - 5.9\mu.

**Case I.** Prism Temperature 22.8°C. Entrance Slit 7\frac{1}{1000}" Thickness Wadsworth set at 27°C. Exit Slit 5\frac{1}{1000}" of film 1/200 mm

**Case II.** Prism Temperature 24.3°C. Entrance Slit 7\frac{1}{1000}" Thickness Wadsworth set at 27°C. Exit Slit 5\frac{1}{1000}" of film 1/250 mm
FIG. 40.

Absorption Band of Water in Region 5.5–6.5 μ

% Transmission

Wave Length (λ in μ)

Fig. 40.
**Fig. 40.**

Absorption Band of Water in the Region 5.5μ - 6.5μ.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25°C.</td>
<td>27°C.</td>
<td>7.5/1000&quot;</td>
<td>7.5/1000&quot;</td>
<td>1/200 mm.</td>
</tr>
<tr>
<td>11</td>
<td>23.9°C.</td>
<td>27°C.</td>
<td>7.5/1000&quot;</td>
<td>7.5/1000&quot;</td>
<td>1/250 mm.</td>
</tr>
<tr>
<td>111</td>
<td>25.0°C.</td>
<td>27°C.</td>
<td>7.5/1000&quot;</td>
<td>5/1000&quot;</td>
<td>1/100 mm.</td>
</tr>
</tbody>
</table>
ABSORPTION DUE TO ETHYL ALCOHOL
IN THE REGION 40μ - 2.5μ

Fig. 41.
Absorption Due to Ethyl Alcohol in the Region $1.0 \mu - 2.5 \mu$.

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>23.1°C.</td>
<td>27°C.</td>
<td>2.5/1000&quot;.</td>
<td>2.5/1000&quot;.</td>
<td>1 mm.</td>
</tr>
<tr>
<td>II</td>
<td>23.4°C.</td>
<td>27°C.</td>
<td>2.5/1000&quot;.</td>
<td>2.5/1000&quot;.</td>
<td>0.75 mm.</td>
</tr>
</tbody>
</table>
FIG. 42.
Absorption Due to Ethyl Alcohol in the Region 2.5–4.5 μ
Absorption Due to Ethyl Alcohol in the Region 2.5\(\mu\) - 4.5\(\mu\).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>23.4°C.</td>
<td>27°C.</td>
<td>4/1000&quot;</td>
<td>4/1000&quot;</td>
<td>1 mm.</td>
</tr>
<tr>
<td>11</td>
<td>23.4°C.</td>
<td>27°C.</td>
<td>4/1000&quot;</td>
<td>4/1000&quot;</td>
<td>0.5 mm.</td>
</tr>
<tr>
<td>111</td>
<td>22.1°C.</td>
<td>27°C.</td>
<td>5/1000&quot;</td>
<td>2.5/1000&quot;</td>
<td>0.7 mm.</td>
</tr>
</tbody>
</table>
Fig. 43.
Absorption due to Ethyl Alcohol in the Region 55-78\mu
Fig. 42.

Absorption Due to Ethyl Alcohol in the Region 5.5 μ - 8.0 μ.

Prism Temperature 22.4°C. Entrance Slit 7.5/1000".
Wadsworth Mirror set at 27°C. Exit Slit 5/1000".
Thickness of Liquid Film 1/50 mm.
Absorption due to Water and Carbon Dioxide in the Regions 1.4 - 1.5μ and 2.5 - 3.0μ.

Fig. 44.
Fig. 4.

Absorption Due to Water and Carbon Dioxide.

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Prism Temp.</th>
<th>Wedgworth Mirror Set at</th>
<th>Entrance Slit.</th>
<th>Exit Slit.</th>
<th>Water</th>
<th>Carbon Dioxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26.6°C.</td>
<td>27°C.</td>
<td>2.5/1000&quot;</td>
<td>2.5/1000&quot;</td>
<td>Water</td>
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<td></td>
<td>27.2°C.</td>
<td>27°C.</td>
<td>2.5/1000&quot;</td>
<td>2.5/1000&quot;</td>
<td></td>
<td>Carbon Dioxide</td>
</tr>
<tr>
<td>2</td>
<td>28°C.</td>
<td>27°C.</td>
<td>'2.5/1000&quot;</td>
<td>2.5/1000&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fig. 45.

Absorption by Aqueous Solution of Potassium Permanganate

Fig. 45.
Fig. 45.

Absorption Due to an Aqueous Solution of Potassium Permanganate.

Prism Temperature 25.5°C. Entrance Slit 7.5/1000".
Wadsworth Mirror set at 27°C. Exit Slit 5/1000".
Thickness of Liquid Film 1/100 mm.