

4th Nov. 23.

filters used.

- I Blue filter - transmits indigo, blue + slightly green
- II Dark green - mostly green + some blue
- III light-green do.
- IV Orange - orange red + yellow
- V red Red.

When seen thro' pocket spectrocope.

Rama 46 name brown red. Sangha.

| | | | | | |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 8500 | 8573 | 8695 | 8530 | 8802 | 8860 |
| 7300 | 7146 | 7310 | 7060 | 7600 | 7220 |

acid - p 80
 glycerin - p 114
 water - p 118

also

Vol III p. 23, 24.

also Vol IV

5 NW

The Propyl chloride (Kahlbaum)

shelf no. 11

(1) white light Readings for intensity 20. $\tan^2 \theta$

(1) $68^\circ 4'$ } $44^\circ 26'$

$111-20$
 $113-40$ } $112^\circ 30'$ }
 $67-40$ (2) } $68^\circ 12'$ } $43^\circ 36'$
 $68-44$ } $111^\circ 48'$ }

(3) $68^\circ 10'$ } $44^\circ 24'$

$110-50$
 $114-12$ } $112^\circ 34'$ }

$67-52$
 $69-10$ } (4) $68^\circ 34'$ } $44^\circ 4'$

$110-50$
 $114-20$ } $112^\circ 38'$ }

~~110-44~~
 $68-0$
 $69-40$ (5) $68^\circ 50'$ } $43^\circ 12'$

$110-44$
 $113-20$ } $113^\circ 58'$ } $43^\circ 12'$

note
Smith's
reading
x 4

$114-32$ } $112^\circ 2'$ }

mean $2\theta = 43^\circ 56'$

" $\theta = 21^\circ 58'$

T. 6057
T. 2114

163

3
water control from P ()

28th March 24

Green mead

| | | |
|----|---------|---------|
| | 65' 44' | 96' 28' |
| 96 | 65' 20' | 96' 32' |
| | 65' 8' | 96' 20' |
| | 65' 28' | 96' 8' |
| | 64' 56' | 96' 24' |

20 = 31' 3'

65' 19' 96' 22'

Green scatt

| | | |
|-----|---------|-------------|
| | 64' 56' | 97' 20' |
| 144 | 65' 4' | 98' 28' 168 |
| | 64' 44' | 97' 44' |
| | 64' 36' | 97' 8' |
| | 63' 28' | 98' 44' |
| | 64' 12' | 98' 4' |
| | 63' 24' | 97' 40' |

20 = 33' 32'

64' 21' 97' 53'

Orange mead

| | | |
|---|---------|-----------|
| ✓ | 65' 4' | 96' 48' |
| | 65' 16' | 97' 4' 58 |
| | 65' 4' | 97' 36' |
| | 65' 8' | 97' 9' |

20 = 32' 1'

29th March

White mead

| | | |
|------------|---------|---------|
| | 63' 8' | 97' 44' |
| red ground | 34' 36' | |

Orange mead

| | | |
|-----|---------|---------|
| | 63' 48' | 98' 4' |
| | 64' 8' | 97' 32' |
| | 64' 36' | 98' 12' |
| 176 | 65' 20' | 97' 0' |
| | 64' 44' | 96' 52' |
| | 64' 0' | 96' 32' |
| | 64' 20' | 97' 44' |

64' 25' 97' 25'

20 = 33' 0'

Orange scatted

| | | |
|----|---------|----------|
| | 60' 44' | 101' 48' |
| | 61' 44' | 100' 40' |
| | 61' 36' | 101' 16' |
| 88 | 60' 56' | 101' 12' |
| | 61' 28' | 101' 12' |
| | 61' 18' | 101' 14' |

20 = 39' 56'

Green mead

| | | |
|-----|---------|---------|
| | 66' 12' | 97' 20' |
| | 66' 12' | 96' 28' |
| 312 | 66' 24' | 96' 8' |
| | 65' 0' | 96' 48' |
| | 65' 52' | 97' 16' |
| | 65' 32' | 97' 44' |
| | 65' 52' | 96' 57' |

20 = 31' 5'

4
white

Green matt.

| | | | |
|-----|----------------|----------------|-----|
| | 65' 20' | 96' 48' | |
| | 66' 4' | 96' 36' | |
| 242 | 64' 32' | 98' 12' | 152 |
| | 64' 0' | 97' 16' | |
| | 64' 56' | 98' 40' | |
| | <u>64' 58'</u> | <u>97' 30'</u> | |
| | 24 = | 32' 32' | |

White

| | | |
|------------|-------------|--------------------|
| | 5 x 34' 54' | |
| | 8 x 34' 14' | 0 |
| | 1 x 34' 36' | 112 |
| | | 418 |
| | | 138 |
| 174 | 30 | 20 = 34' 30' |
| 273 | 52 | |
| 34 | 36' | $\theta = 17' 15'$ |
| <u>482</u> | <u>58</u> | |
| | | 9.6% |

Orange matt

| | | |
|------------|-------------|--------------------|
| | 5 x 32' 12' | |
| | 3 x 32' 1' | |
| | 7 x 33' 0' | |
| 161' | 0' | |
| 96' | 3' | 483 |
| <u>231</u> | | |
| 488 | 3' 14 | 32' 32' |
| | | $\theta = 16' 16'$ |

Orange matt

| | | |
|--|-------------|------|
| | 6 x 37' 29' | 8.5% |
| | 1 x 38' 28' | |
| | 5 x 36' 24' | |
| | 5 x 39' 56' | |

| | |
|-----|-----|
| 8' | 54' |
| 2' | 28' |
| 2' | 0' |
| 19' | 40' |

962
112

33' 2 1' 57'

11-87- 20 = 37' 57'
 $\theta = 18' 59'$

Green matt

5 x 34' 12' Royal

5 x 31' 3'

+ 6 x 31' 5'

16' 40'
1' 3'

20 = 31' 4'

$\theta = 15' 32'$

Green matt

7.91- 20 = 32' 3'
 $\theta = 16' 2'$

Green matt

5 x 36' 49'

7 x 33' 32'

5 x 32' 32'

209

24' 5'

10' 44'

2' 40'

37' 29'

34' 12'

$\theta = 17' 6'$

9.5

Blue wind

5 x 41 39
5 x 41 38

14.57. ~~20~~ = θ = 20 49'

Blue Seated

5 x 34 27
5 x 35 24

20 = 34 35'

9.47. θ = 17 27'

30th march

Green Seated

63 52' 98 32'
64 12' 98 24'
64 32' 98 40'
64 8' 98 0'
64 12' 97 48'

Green wind

64 8' 97 8'
64 40' 97 24'

66 8' 96 36'
65 24' 96 36'
66 40' 96 20'
65 44' 96 44'
65 52' 96 4'

~~5th nov~~
5th nov

~~7th~~ Acetylene tetra. Bromide requires met. Kahlban
Ethylene Bromide (Kahlban)
~~24th nov. 1880.~~

White light

Readings for = 20 tan² θ
intensity

- (1) $\left. \begin{array}{l} 49^{\circ} 44' \\ 51^{\circ} 28' \end{array} \right\} \left. \begin{array}{l} 50^{\circ} 36' \\ 126^{\circ} 10' \end{array} \right\} 75^{\circ} 34'$
- $\left. \begin{array}{l} 124^{\circ} 40' \\ 127^{\circ} 40' \end{array} \right\}$
- (2) $\left. \begin{array}{l} 49^{\circ} 24' \\ 52^{\circ} 20' \\ 125^{\circ} 48' \\ 127^{\circ} 40' \end{array} \right\} \left. \begin{array}{l} 50^{\circ} 42' \\ 126^{\circ} 44' \end{array} \right\} 76^{\circ} 2'$ 82
142
- (3) $\left. \begin{array}{l} 48^{\circ} 36' \\ 50^{\circ} 52' \\ 124^{\circ} 24' \\ 126^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 49^{\circ} 44' \\ 125^{\circ} 30' \end{array} \right\} 75^{\circ} 46'$
mean 75° 47'
- (4) $\left. \begin{array}{l} 49^{\circ} 12' \\ 52^{\circ} 28' \end{array} \right\} \theta = 37^{\circ} 54'$
light went off. had to stop.

.606

T. 8912
T. 7824

16th Nov. 23.

Allyl bromide sp. no. 14
Kahlbaum - contains some
dust particles.

White light

20.

| | | | | |
|-----|------------------------|-------------------------|---------|----|
| (1) | 50° 24' } 52° 36' } | 51° 30' } 126° 44' } | 75° 14' | 74 |
|-----|------------------------|-------------------------|---------|----|

| | | | | |
|-----|------------------------|-------------------------|---------|--|
| (2) | 51° 12' } 52° 24' } | 51° 48' } 127° 12' } | 75° 24' | |
|-----|------------------------|-------------------------|---------|--|

| | | | | |
|-----|------------------------|--|---------|--|
| (3) | 51° 32' } 52° 12' } | 51° 52' } 123° 56' } 130° 8' } rejected | 74° 36' | |
|-----|------------------------|--|---------|--|

| | | | | | |
|----------|--------------------------|------------|--------|---------|-------------|
| repeated | 125° 20' } 127° 36' } | 126° 28' } | 75° 5' | 37° 33' | <u>.591</u> |
|----------|--------------------------|------------|--------|---------|-------------|

The fringe on the left hand side was colored slightly bluish in colour when the disk.

T. 8858
T. 7716

6th nov.

IV Iso-Butyl-Bromide.
Shelf no. I-5.

White light
20.

| | | | |
|-----|--------------------------|-------------------------|---------|
| (1) | 61° 44' } 64 4' } | 62° 54' } 117° 46' } | 54° 52' |
| | 116° 52' } 118° 40' } | | |

| | | | | |
|-----|--------------------------|-------------------------|---------|-----------|
| (2) | 62° 0' } 63° 40' } | 62° 50' } 116° 42' } | 53° 52' | 138 78 |
| | 115° 36' } 117° 48' } | | | |

| | | | |
|-----|--------------------------|-------------------------|---------|
| (3) | 63° 8' } 63° 28' } | 63° 16' } 117° 50' } | 54° 34' |
| | 117° 28' } 118° 12' } | | |

54° 26'
θ = 27° 13' 264

7.7112
7.4224

6th nos

~~Propyl~~ Propyl bromide No no 16.

contains a lot of particles - requires re-
distillation even ^{twice} to get reliable results

white light 20

| | | | | |
|----|--------------------------|-----------------------|---------|----|
| 0) | 62° 48' } 63° 0' } | 62° 54' } 63° 0' } | 53° 28' | |
| | 115° 16' } 117° 28' } | 116° 22' } | | 80 |

| | | | | |
|-----|--------------------------|-----------------------|---------|--|
| (2) | 63° 8' } 64° 8' } | 63° 38' } 64° 8' } | 52° 36' | |
| | 115° 56' } 116° 32' } | 116° 14' } | | |

| | | | | |
|-----|-------------------------|------------------------|---------|--|
| (3) | 62° 12' } 63° 28' } | 62° 50' } 63° 28' } | 53° 16' | |
| | 115° 12' } 117° 0' } | 116° 6' } | | |

6990
3980

53° 7'
26° 34'

250

6th Nov.

ethyl bromide¹⁰ kahlben ~~sharp~~ ~~no~~ ~~IT~~
white light

Some brilliant specks are always present
wh seem to be crystalline. in the field.

(1) ~~61° 0'~~ } 61° 16' }
 61° 32' } 55° 24'
 116° 16' }
 117° 4' } 116° 40' }

(2) 60° 28' } 61° 48' }
 63° 8' } 55° 6'
 116° 16' }
 117° 32' } 116° 54' }

(3) 59° 40' } 60° 28' }
 61° 16' } 56° 54'
 117° 4' }
 117° 40' } 117° 22' }
 55° 48'

144

~~280~~ a lot of white substance sticking
 to the bulb so that the
 background is dark not quite
 72° 36' = dark due to
 a mass of particles
 of same material.

27° 54' 280

3^{ms} deep) 61° 52' } 116° 0' }
 62° 24' } 115° 36' }
 62° 8' } 115° 48' } 53° 40' }
 115° 20' }
 115° 0' }
 115° 10' } 58° 0' }
 115° 20' }
 115° 36' }
 115° 28' } 58° 16' }
 115° 8' }
 115° 16' }
 115° 12' } 58° 0' }

(2) 62° 20' }
 62° 0' } 115° 20' }
 62° 10' } 115° 0' }
 115° 10' } 58° 0' }

(3) 62° 8' } 115° 20' }
 62° 16' } 115° 36' }

afternoon
 (4) 62° 12' } 115° 28' } 58° 16' }
 62° 8' } 115° 8' }
 62° 16' } 115° 16' }
 62° 12' } 115° 12' } 58° 0' }

(5) 62° 16' } 115° 20' }
 62° 8' } 115° 40' }
 62° 12' } 115° 30' } 53° 18' }

(6) 62° 4' } 115° 16' }
 61° 52' } 114° 52' }
 61° 58' } 115° 4' } 53° 6' }

(7) 61° 52' } 115° 4' }
 62° 28' } 115° 32' }
 62° 10' } 115° 18' } 53° 8' }

(8) 62° 28' } 115° 16' }
 61° 52' } 115° 36' }
 62° 10' } 115° 26' } 53° 16' }

(5) 61° 40' }
 62° 8' }
 61° 54' }

6th row

¹⁷ Amylene. (Kahl) ~~to no. 18~~

white light
20

$$\begin{array}{l} 59^{\circ} 56' \\ 62^{\circ} 36' \end{array} \left. \vphantom{\begin{array}{l} 59^{\circ} 56' \\ 62^{\circ} 36' \end{array}} \right\} 61^{\circ} 16' \left. \vphantom{\begin{array}{l} 61^{\circ} 16' \\ 116^{\circ} 42' \end{array}} \right\} 55^{\circ} 26'$$

$$\begin{array}{l} 115^{\circ} 28' \\ 117^{\circ} 56' \end{array} \left. \vphantom{\begin{array}{l} 115^{\circ} 28' \\ 117^{\circ} 56' \end{array}} \right\} 116^{\circ} 42'$$

$$\begin{array}{l} 61^{\circ} 4' \\ 62^{\circ} 40' \\ 116^{\circ} 0' \\ 116^{\circ} 12' \end{array} \left. \vphantom{\begin{array}{l} 61^{\circ} 4' \\ 62^{\circ} 40' \\ 116^{\circ} 0' \\ 116^{\circ} 12' \end{array}} \right\} 61^{\circ} 52' \left. \vphantom{\begin{array}{l} 61^{\circ} 52' \\ 116^{\circ} 6' \end{array}} \right\} 54^{\circ} 14' \quad 136$$

$$\begin{array}{l} 61^{\circ} 52' \\ 62^{\circ} 0' \end{array} \left. \vphantom{\begin{array}{l} 61^{\circ} 52' \\ 62^{\circ} 0' \end{array}} \right\} 61^{\circ} 56' \left. \vphantom{\begin{array}{l} 61^{\circ} 56' \\ 116^{\circ} 32' \end{array}} \right\} 54^{\circ} 36'$$

$$\begin{array}{l} 116^{\circ} 16' \\ 116^{\circ} 48' \end{array} \left. \vphantom{\begin{array}{l} 116^{\circ} 16' \\ 116^{\circ} 48' \end{array}} \right\} 116^{\circ} 32' \left. \vphantom{\begin{array}{l} 116^{\circ} 32' \\ 54^{\circ} 45' \end{array}} \right\} 54^{\circ} 45'$$

$$27^{\circ} 23'$$

7143
4286

27
268

~~Dec 23~~ no parts. *Mytel*. 2nd sec cut

$$\begin{array}{l} 62^{\circ} 4' \\ 61^{\circ} 52' \\ 61^{\circ} 58' \end{array} \left. \vphantom{\begin{array}{l} 62^{\circ} 4' \\ 61^{\circ} 52' \\ 61^{\circ} 58' \end{array}} \right\} 116^{\circ} 44' \left. \vphantom{\begin{array}{l} 116^{\circ} 44' \\ 116^{\circ} 8' \\ 116^{\circ} 26' \end{array}} \right\} 54^{\circ} 28'$$

$$\begin{array}{l} 61^{\circ} 44' \\ 62^{\circ} 12' \\ 61^{\circ} 58' \end{array} \left. \vphantom{\begin{array}{l} 61^{\circ} 44' \\ 62^{\circ} 12' \\ 61^{\circ} 58' \end{array}} \right\} 116^{\circ} 8' \left. \vphantom{\begin{array}{l} 116^{\circ} 8' \\ 115^{\circ} 56' \\ 116^{\circ} 2' \end{array}} \right\} 54^{\circ} 4'$$

$$\begin{array}{l} 61^{\circ} 44' \\ 61^{\circ} 56' \\ 61^{\circ} 50' \end{array} \left. \vphantom{\begin{array}{l} 61^{\circ} 44' \\ 61^{\circ} 56' \\ 61^{\circ} 50' \end{array}} \right\} 116^{\circ} 4' \left. \vphantom{\begin{array}{l} 116^{\circ} 4' \\ 117^{\circ} 0' \\ 116^{\circ} 32' \end{array}} \right\} 54^{\circ} 42'$$

$$\begin{array}{l} 62^{\circ} 0' \\ 62^{\circ} 4' \\ 62^{\circ} 2' \end{array} \left. \vphantom{\begin{array}{l} 62^{\circ} 0' \\ 62^{\circ} 4' \\ 62^{\circ} 2' \end{array}} \right\} 115^{\circ} 44' \left. \vphantom{\begin{array}{l} 115^{\circ} 44' \\ 115^{\circ} 40' \\ 115^{\circ} 42' \end{array}} \right\} 53^{\circ} 40' \quad 24 = 53^{\circ} 52' \\ 26^{\circ} 56' \\ 25^{\circ} 8'$$

$$\begin{array}{l} 61^{\circ} 44' \\ 61^{\circ} 44' \\ 61^{\circ} 44' \end{array} \left. \vphantom{\begin{array}{l} 61^{\circ} 44' \\ 61^{\circ} 44' \\ 61^{\circ} 44' \end{array}} \right\} 61^{\circ} 44' \left. \vphantom{\begin{array}{l} 61^{\circ} 44' \\ 62^{\circ} 0' \\ 61^{\circ} 34' \end{array}} \right\} 116^{\circ} 0' \left. \vphantom{\begin{array}{l} 116^{\circ} 0' \\ 116^{\circ} 36' \\ 116^{\circ} 18' \end{array}} \right\} 54^{\circ} 44'$$

$$\begin{array}{l} 61^{\circ} 36' \\ 62^{\circ} 0' \\ 61^{\circ} 48' \end{array} \left. \vphantom{\begin{array}{l} 61^{\circ} 36' \\ 62^{\circ} 0' \\ 61^{\circ} 48' \end{array}} \right\} 115^{\circ} 52' \left. \vphantom{\begin{array}{l} 115^{\circ} 52' \\ 115^{\circ} 36' \\ 115^{\circ} 44' \end{array}} \right\} 53^{\circ} 56'$$

$$\begin{array}{l} 62^{\circ} 12' \\ 62^{\circ} 26' \\ 62^{\circ} 16' \end{array} \left. \vphantom{\begin{array}{l} 62^{\circ} 12' \\ 62^{\circ} 26' \\ 62^{\circ} 16' \end{array}} \right\} 115^{\circ} 52' \left. \vphantom{\begin{array}{l} 115^{\circ} 52' \\ 115^{\circ} 56' \\ 115^{\circ} 54' \end{array}} \right\} 53^{\circ} 38'$$

$$\begin{array}{l} 62^{\circ} 8' \\ 62^{\circ} 4' \\ 62^{\circ} 6' \end{array} \left. \vphantom{\begin{array}{l} 62^{\circ} 8' \\ 62^{\circ} 4' \\ 62^{\circ} 6' \end{array}} \right\} 116^{\circ} 12' \left. \vphantom{\begin{array}{l} 116^{\circ} 12' \\ 115^{\circ} 48' \\ 116^{\circ} 0' \end{array}} \right\} 53^{\circ} 54'$$

2nd sec

$$\begin{array}{l} 61^{\circ} 28' \\ 62^{\circ} 0' \\ 61^{\circ} 44' \end{array} \left. \vphantom{\begin{array}{l} 61^{\circ} 28' \\ 62^{\circ} 0' \\ 61^{\circ} 44' \end{array}} \right\} 115^{\circ} 28' \left. \vphantom{\begin{array}{l} 115^{\circ} 28' \\ 115^{\circ} 44' \\ 115^{\circ} 36' \end{array}} \right\} 53^{\circ} 52'$$

$$\begin{array}{l} 62^{\circ} 24' \\ 62^{\circ} 0' \\ 62^{\circ} 12' \end{array} \left. \vphantom{\begin{array}{l} 62^{\circ} 24' \\ 62^{\circ} 0' \\ 62^{\circ} 12' \end{array}} \right\} 116^{\circ} 16' \left. \vphantom{\begin{array}{l} 116^{\circ} 16' \\ 116^{\circ} 12' \\ 116^{\circ} 14' \end{array}} \right\} 54^{\circ} 2'$$

6th row

~~VII~~ Octane (Kehl.)
white light

~~Series 19~~

(1) $\left. \begin{array}{l} 69^{\circ} 40' \\ 70^{\circ} 16' \end{array} \right\} 69^{\circ} 58' \left. \vphantom{\begin{array}{l} 69^{\circ} 40' \\ 70^{\circ} 16' \end{array}} \right\} 39^{\circ} 40'$
 $\left. \begin{array}{l} 109^{\circ} 32' \\ 109^{\circ} 44' \end{array} \right\} 109^{\circ} 38' \left. \vphantom{\begin{array}{l} 109^{\circ} 32' \\ 109^{\circ} 44' \end{array}} \right\}$

(2) ~~$69^{\circ} 16'$~~
 ~~$70^{\circ} 16'$~~
 $\left. \begin{array}{l} 69^{\circ} 4' \\ 69^{\circ} 28' \end{array} \right\} 69^{\circ} 16' \left. \vphantom{\begin{array}{l} 69^{\circ} 4' \\ 69^{\circ} 28' \end{array}} \right\} 39^{\circ} 42'$
 $\left. \begin{array}{l} 108^{\circ} 36' \\ 109^{\circ} 20' \end{array} \right\} 108^{\circ} 58' \left. \vphantom{\begin{array}{l} 108^{\circ} 36' \\ 109^{\circ} 20' \end{array}} \right\}$

(3) $\left. \begin{array}{l} 69^{\circ} 52' \\ 71^{\circ} 20' \end{array} \right\} 70^{\circ} 36' \left. \vphantom{\begin{array}{l} 69^{\circ} 52' \\ 71^{\circ} 20' \end{array}} \right\} 39^{\circ} 8'$
 $\left. \begin{array}{l} 109^{\circ} 12' \\ 116^{\circ} 16' \end{array} \right\} 109^{\circ} 44' \left. \vphantom{\begin{array}{l} 109^{\circ} 12' \\ 116^{\circ} 16' \end{array}} \right\} \underline{39^{\circ} 30'}$
 $19^{\circ} 45'$

5551
+ 102

13
129

7th Nov. 23.

I (1) Pentane. of white liquid

Shelf no. I as begins to it has cond

- (1) $\left. \begin{array}{l} 74^\circ 32' \\ 75^\circ 32' \end{array} \right\} 75^\circ 2' \left. \begin{array}{l} \\ \\ \end{array} \right\} 29^\circ 4'$
 $\left. \begin{array}{l} 104^\circ 0' \\ 104^\circ 8' \end{array} \right\} 104^\circ 6' \left. \begin{array}{l} \\ \\ \end{array} \right\}$
- (2) $\left. \begin{array}{l} 74^\circ 24' \\ 74^\circ 12' \end{array} \right\} 74^\circ 18' \left. \begin{array}{l} \\ \\ \end{array} \right\} 30^\circ 38'$
 $\left. \begin{array}{l} 104^\circ 48' \\ 105^\circ 4' \end{array} \right\} 104^\circ 56' \left. \begin{array}{l} \\ \\ \end{array} \right\}$
- (3) $\left. \begin{array}{l} 74^\circ 8' \\ 74^\circ 0' \end{array} \right\} 74^\circ 4' \left. \begin{array}{l} \\ \\ \end{array} \right\} 30^\circ 42'$
 rejected $\left. \begin{array}{l} 103^\circ 20' \\ 105^\circ 48' \end{array} \right\} \left. \begin{array}{l} \\ \\ \end{array} \right\} 84$
 $\left. \begin{array}{l} 104^\circ 0' \\ 105^\circ 32' \end{array} \right\} 104^\circ 46' \left. \begin{array}{l} \\ \\ \end{array} \right\} 30^\circ 8'$
 $\left. \begin{array}{l} \\ \\ \end{array} \right\} 15^\circ 4'$

072

~~1.2114~~
2.5364
4301
2.8602

264
86

7th Dec

- (1) ~~72 56'~~
 $\left. \begin{array}{l} 72^\circ 56' \\ 72^\circ 40' \end{array} \right\} 105^\circ 12' \left. \begin{array}{l} \\ \\ \end{array} \right\} 32^\circ 50'$
 $\left. \begin{array}{l} 105^\circ 12' \\ 106^\circ 4' \end{array} \right\} 105^\circ 38' \left. \begin{array}{l} \\ \\ \end{array} \right\}$
 2) $\left. \begin{array}{l} 72^\circ 40' \\ 73^\circ 4' \end{array} \right\} 105^\circ 44' \left. \begin{array}{l} \\ \\ \end{array} \right\} 32^\circ 52'$
 $\left. \begin{array}{l} 105^\circ 44' \\ 105^\circ 44' \end{array} \right\} 105^\circ 44' \left. \begin{array}{l} \\ \\ \end{array} \right\}$
 3) $\left. \begin{array}{l} 72^\circ 28' \\ 73^\circ 36' \end{array} \right\} 105^\circ 24' \left. \begin{array}{l} \\ \\ \end{array} \right\} 32^\circ 20'$
 $\left. \begin{array}{l} 105^\circ 24' \\ 105^\circ 20' \end{array} \right\} 105^\circ 22' \left. \begin{array}{l} \\ \\ \end{array} \right\}$
 4) $\left. \begin{array}{l} 72^\circ 56' \\ 73^\circ 4' \end{array} \right\} 106^\circ 12' \left. \begin{array}{l} \\ \\ \end{array} \right\} 33^\circ 2'$
 $\left. \begin{array}{l} 106^\circ 12' \\ 105^\circ 52' \end{array} \right\} 105^\circ 52' \left. \begin{array}{l} \\ \\ \end{array} \right\}$
 $\left. \begin{array}{l} 105^\circ 52' \\ 106^\circ 2' \end{array} \right\} 106^\circ 2' \left. \begin{array}{l} \\ \\ \end{array} \right\}$

- (5) $\left. \begin{array}{l} 72^\circ 36' \\ 73^\circ 8' \end{array} \right\} 105^\circ 44' \left. \begin{array}{l} \\ \\ \end{array} \right\} 32^\circ 36'$
 $\left. \begin{array}{l} 105^\circ 44' \\ 105^\circ 12' \end{array} \right\} 105^\circ 28' \left. \begin{array}{l} \\ \\ \end{array} \right\}$
 $\left. \begin{array}{l} 72^\circ 52' \\ 73^\circ 20' \end{array} \right\} 105^\circ 36' \left. \begin{array}{l} \\ \\ \end{array} \right\} 32^\circ 10'$
 $\left. \begin{array}{l} 105^\circ 36' \\ 105^\circ 36' \end{array} \right\} 105^\circ 36' \left. \begin{array}{l} \\ \\ \end{array} \right\}$
 (6) $\left. \begin{array}{l} 73^\circ 20' \\ 73^\circ 32' \end{array} \right\} 105^\circ 36' \left. \begin{array}{l} \\ \\ \end{array} \right\} 32^\circ 10'$
 $\left. \begin{array}{l} 105^\circ 36' \\ 105^\circ 36' \end{array} \right\} 105^\circ 36' \left. \begin{array}{l} \\ \\ \end{array} \right\}$
 (7) $\left. \begin{array}{l} 73^\circ 8' \\ 72^\circ 40' \end{array} \right\} 105^\circ 12' \left. \begin{array}{l} \\ \\ \end{array} \right\} 32^\circ 24'$
 $\left. \begin{array}{l} 105^\circ 12' \\ 105^\circ 24' \end{array} \right\} 105^\circ 18' \left. \begin{array}{l} \\ \\ \end{array} \right\}$
 $\left. \begin{array}{l} 72^\circ 54' \\ 72^\circ 54' \end{array} \right\} 72^\circ 54' \left. \begin{array}{l} \\ \\ \end{array} \right\}$

Swarming very feeble - background
 thin faint dark and quite as well
 as in other bottles for other positions
 of insect now - 4 dark for the position
 of observation. None to be seen in
 readings.

7th Nov

I; 2 Iso pentane

Scatter ~~is~~ feasible
... month not quite
reliable since the
2 maps of the bank
ground are not
equally ^{large} bright for the
purpose of observation

| | | | | | |
|---------------------|----------|---|----------|---|---------|
| (1) | 74° 4' | } | 74° 32' | } | 28° 50' |
| | 75° 0' | | | | |
| 102° 48' | 102° 48' | } | 103° 22' | } | |
| Revised | 102° 56' | | | | |

| | | | | | |
|-----|----------|---|----------|---|---------|
| (2) | 73° 8' | } | 73° 46' | } | 29° 46' |
| | 74° 24' | | | | |
| | 103° 20' | } | 103° 32' | } | |
| | 104° 44' | | | | |

| | | | | | |
|-----|----------|---|----------|---|---------|
| (3) | 73° 48' | } | 74° 30' | } | 29° 56' |
| | 75° 12' | | | | |
| | 104° 52' | } | 104° 26' | } | |
| | 104° 0' | | | | |

| | | | | | |
|-----|----------|---|----------|---|------------|
| (4) | 73° 52' | } | 74° 8' | } | 30° 28' |
| | 74° 24' | | | | |
| | 104° 36' | } | 104° 36' | } | |
| | 104° 36' | | | | |
| | | | | | 280 |
| | | | | | 30° 0' |
| | | | | | 15° 0' |
| | | | | | <u>072</u> |

6th Jan 24

| | | | |
|--------------------|---------|----------|-----|
| (1) | 74° 22' | 101° 16' | |
| 73° 48' | 72° 8' | 101° 16' | |
| 73° 52' | 75° 20' | 100° 24' | 176 |
| | 222 0 | 302 56 | |
| | 74 | 100° 59' | |

| | |
|-------------|---------------|
| 73 36 | 101 0 |
| 74 52 | 100 32 |
| 76 0 | 101 4 |
| <u>74 9</u> | <u>100 52</u> |

| | | |
|--------------|---------------|-------|
| 74 40 | 101 8 | |
| <u>74 48</u> | <u>100 40</u> | |
| 74 44 | 100 54 | 26 10 |
| 74 20 | 100 36 | |
| 74 36 | 101 8 | |
| <u>74 28</u> | <u>100 52</u> | 26 24 |

26 59

| | |
|--------------|--|
| 53 55 | |
| <u>53 26</u> | |
| 52 20 | |
| <u>52 48</u> | |
| 21 32 | |
| <u>21 32</u> | |

| | | |
|-----|------------|---|
| 26 | 43 | 5 |
| 152 | | |
| 272 | | |
| | 17 | |
| | <u>129</u> | |
| | 20 | |
| | <u>48</u> | |
| | 374 | |

7 nov

I 3. Hexane.

$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 72^\circ 28' \\ 73^\circ 28' \end{array} \right\} \left. \begin{array}{l} 72^\circ 58' \\ 106^\circ 40' \\ 107^\circ 36' \end{array} \right\} \\
 \end{array}$$

34° 10'

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 70^\circ 48' \\ 72^\circ 12' \end{array} \right\} \left. \begin{array}{l} 71^\circ 30' \\ 106^\circ 28' \\ 107^\circ 16' \end{array} \right\} \\
 \end{array}$$

35° 22'

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 71^\circ 48' \\ 73^\circ 16' \end{array} \right\} \left. \begin{array}{l} 72^\circ 32' \\ 107^\circ 0' \\ 107^\circ 32' \end{array} \right\} \\
 \end{array}$$

34° 44'

$$\begin{array}{l}
 (4) \quad \left. \begin{array}{l} 72^\circ 44' \\ 72^\circ 32' \end{array} \right\} \left. \begin{array}{l} 72^\circ 38' \\ 107^\circ 28' \\ 107^\circ 56' \end{array} \right\} \\
 \end{array}$$

35° 4'

34° 50'

θ = 17° 25'

$$\begin{array}{l}
 30 \text{ nov} \\
 \hline
 \left. \begin{array}{l} 71^\circ 32' \\ 70^\circ 48' \end{array} \right\} \left. \begin{array}{l} 105^\circ 16' \\ 107^\circ 20' \\ 106^\circ 18' \end{array} \right\} 35^\circ 8'
 \end{array}$$

$$(1) \quad \left. \begin{array}{l} 71^\circ 24' \\ 72^\circ 4' \end{array} \right\} \left. \begin{array}{l} 106^\circ 24' \\ 106^\circ 16' \\ 106^\circ 40' \end{array} \right\} 34^\circ 44'$$

$$(2) \quad \left. \begin{array}{l} 71^\circ 24' \\ 72^\circ 4' \end{array} \right\} \left. \begin{array}{l} 106^\circ 16' \\ 106^\circ 40' \\ 106^\circ 28' \end{array} \right\} 34^\circ 44'$$

$$(3) \quad \left. \begin{array}{l} 71^\circ 20' \\ 71^\circ 20' \end{array} \right\} \left. \begin{array}{l} 106^\circ 44' \\ 106^\circ 40' \\ 106^\circ 42' \end{array} \right\} 35^\circ 6'$$

$$(4) \quad \left. \begin{array}{l} 72^\circ 4' \\ 71^\circ 8' \end{array} \right\} \left. \begin{array}{l} 106^\circ 28' \\ 106^\circ 56' \\ 106^\circ 42' \end{array} \right\} 35^\circ 6'$$

$$(5) \quad \left. \begin{array}{l} 71^\circ 56' \\ 72^\circ 0' \end{array} \right\} \left. \begin{array}{l} 106^\circ 40' \\ 106^\circ 52' \\ 106^\circ 46' \end{array} \right\} 34^\circ 49'$$

θ =

4965
9930

$$\begin{array}{l}
 29 \text{ nov} \\
 \hline
 (1) \quad \left. \begin{array}{l} 70^\circ 48' \\ 71^\circ 32' \end{array} \right\} \left. \begin{array}{l} 71^\circ 10' \\ 106^\circ 24' \\ 106^\circ 0' \end{array} \right\} 35^\circ 2'
 \end{array}$$

$$(2) \quad \left. \begin{array}{l} 71^\circ 48' \\ 72^\circ 4' \end{array} \right\} \left. \begin{array}{l} 71^\circ 56' \\ 105^\circ 44' \\ 106^\circ 8' \end{array} \right\} 34^\circ 0'$$

$$(3) \quad \left. \begin{array}{l} 72^\circ 28' \\ 71^\circ 44' \end{array} \right\} \left. \begin{array}{l} 106^\circ 24' \\ 106^\circ 28' \\ 106^\circ 26' \end{array} \right\} 34^\circ 20'$$

$$(4) \quad \left. \begin{array}{l} 71^\circ 52' \\ 72^\circ 4' \end{array} \right\} \left. \begin{array}{l} 71^\circ 58' \\ 105^\circ 48' \\ 105^\circ 56' \end{array} \right\} \left. \begin{array}{l} 105^\circ 52' \\ 33^\circ 54' \end{array} \right\}$$

$$(5) \quad \left. \begin{array}{l} 71^\circ 52' \\ 71^\circ 22' \end{array} \right\} \left. \begin{array}{l} 70^\circ 44' \end{array} \right\}$$

.098

7 nov

I 4. Heptane

$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 73^\circ 10' \\ 73^\circ 16' \\ 106^\circ 16' \\ 107^\circ 0' \end{array} \right\} \left. \begin{array}{l} 73^\circ 13' \\ 106^\circ 38' \end{array} \right\} 33^\circ 25'
 \end{array}$$

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 72^\circ 16' \\ 72^\circ 24' \\ 106^\circ 36' \\ 106^\circ 0' \end{array} \right\} \left. \begin{array}{l} 72^\circ 20' \\ 106^\circ 18' \end{array} \right\} 33^\circ 58'
 \end{array}$$

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 71^\circ 0' \\ 71^\circ 44' \\ 106^\circ 12' \\ 107^\circ 0' \end{array} \right\} \left. \begin{array}{l} 71^\circ 22' \\ 106^\circ 36' \end{array} \right\} 35^\circ 14'
 \end{array}$$

$$\begin{array}{l}
 (4) \quad \left. \begin{array}{l} 72^\circ 20' \\ 72^\circ 12' \\ 106^\circ 32' \\ 107^\circ 40' \end{array} \right\} \left. \begin{array}{l} 72^\circ 16' \\ 107^\circ 6' \end{array} \right\} \begin{array}{l} 34^\circ 50' \\ \hline 34^\circ 37' \\ 17^\circ 18' \end{array}
 \end{array}$$

147

30 nov
~~72.4~~ 72.4
~~72.16~~ 72.16
~~72.16~~ 72.16
~~106.16~~ 106.16
~~107.0~~ 107.0
~~106.36~~ 106.36
~~107.0~~ 107.0

A) $\frac{72.4}{71.44} \quad \frac{107.20}{107.36} \quad 35^\circ 22'$
 B) $\frac{71.54}{71.36} \quad \frac{107.16}{107.36} \quad 35^\circ 30'$
 C) $\frac{72.0}{72.16} \quad \frac{106.48}{107.48} \quad 35^\circ 10'$
 D) $\frac{72.8}{72.8} \quad \frac{107.18}{107.18} \quad 35^\circ 10'$

4934
9868

10
097

(4) ~~72.4~~ 72.4
~~72.0~~ 72.0
~~72.16~~ 72.16
~~72.8~~ 72.8
 106.44
 107.16
 107.0
 34.52

(5) $\frac{71.54}{72.0} \quad \frac{106.52}{106.48} \quad 34^\circ 52'$
 $\frac{71.56}{71.56} \quad \frac{106.52}{106.48} \quad 34^\circ 58'$
 (6) $\frac{71.52}{71.52} \quad \frac{106.80}{106.80} \quad 34^\circ 58'$

I 5 Octane see p. 16

I 6 Amylene p. 17

$$\begin{array}{l}
 (7) \quad \left. \begin{array}{l} 71^\circ 40' \\ 71^\circ 28' \\ 71^\circ 34' \end{array} \right\} \left. \begin{array}{l} 106^\circ 0' \\ 107^\circ 12' \\ 106^\circ 36' \end{array} \right\} 35^\circ 2'
 \end{array}$$

8th Nov. 23

- III 1. Ethyl bromide p. 16.
- III 2. Onopyl bromide p. 15.
- III 3. Isobutyl bromide p. 14.
- III 4. Allyl bromide p. 11.
- III 5. ethylene bromide p. 7.
- III 6. acetylene bromide - requires redistillation.

- IV (1) Propyl chloride p. 2.
- (2) Isopropyl chloride

8th Nov.

$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 67^{\circ} 8' \\ 68^{\circ} 24' \end{array} \right\} \left. \begin{array}{l} 67^{\circ} 46' \\ 112^{\circ} 0' \end{array} \right\} 44^{\circ} 14' \\
 \left. \begin{array}{l} 111^{\circ} 32' \\ 112^{\circ} 28' \end{array} \right\}
 \end{array}$$

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 67^{\circ} 40' \\ 69^{\circ} 4' \end{array} \right\} \left. \begin{array}{l} 68^{\circ} 22' \\ 112^{\circ} 6' \end{array} \right\} 43^{\circ} 44' \\
 \left. \begin{array}{l} 112^{\circ} 20' \\ 111^{\circ} 52' \end{array} \right\}
 \end{array}$$

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 67^{\circ} 44' \\ 69^{\circ} 0' \end{array} \right\} \left. \begin{array}{l} 68^{\circ} 22' \\ 111^{\circ} 44' \end{array} \right\} 43^{\circ} 22' \\
 \left. \begin{array}{l} 111^{\circ} 28' \\ 112^{\circ} 0' \end{array} \right\}
 \end{array}$$

$$\begin{array}{l}
 (4) \quad \left. \begin{array}{l} 67^{\circ} 52' \\ 68^{\circ} 12' \end{array} \right\} \left. \begin{array}{l} 68^{\circ} 2' \\ 112^{\circ} 10' \end{array} \right\} 44^{\circ} 8' \\
 \left. \begin{array}{l} 112^{\circ} 0' \\ 112^{\circ} 20' \end{array} \right\} \\
 \hline
 43^{\circ} 52' \\
 21^{\circ} 56'
 \end{array}$$

208

• 162
=

6049
2098

8th W.

IV 3. Allyl chloride.

$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 58^{\circ} 20' \\ 59^{\circ} 40' \end{array} \right\} \left. \begin{array}{l} 59^{\circ} 0' \\ 120^{\circ} 56' \end{array} \right\} 61^{\circ} 56' \\
 \left. \begin{array}{l} 121^{\circ} 8' \\ 120^{\circ} 44' \end{array} \right\}
 \end{array}$$

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 59^{\circ} 4' \\ 58^{\circ} 52' \end{array} \right\} \left. \begin{array}{l} 58^{\circ} 56' \\ 121^{\circ} 8' \end{array} \right\} 62^{\circ} 10' \\
 \left. \begin{array}{l} 120^{\circ} 40' \\ 121^{\circ} 36' \end{array} \right\}
 \end{array}$$

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 58^{\circ} 40' \\ 59^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 59^{\circ} 12' \\ 120^{\circ} 24' \end{array} \right\} 61^{\circ} 12' \\
 \left. \begin{array}{l} 120^{\circ} 0' \\ 120^{\circ} 48' \end{array} \right\}
 \end{array}$$

78
138

$$\begin{array}{l}
 61^{\circ} 46' \\
 30^{\circ} 53'
 \end{array}$$

7768
.5536

.36
= .358

8² NW

IV - 4 - ²⁵ iso-butyl chloride

$$\begin{array}{l}
 (1) \quad 67^{\circ} 20' \quad \left. \vphantom{67^{\circ} 20'} \right\} 67^{\circ} 30' \quad \left. \vphantom{67^{\circ} 30'} \right\} 44^{\circ} 34' \\
 \quad 67^{\circ} 40' \quad \left. \vphantom{67^{\circ} 40'} \right\} \\
 \quad 111^{\circ} 48' \quad \left. \vphantom{111^{\circ} 48'} \right\} 112^{\circ} 4' \\
 \quad 112^{\circ} 20' \quad \left. \vphantom{112^{\circ} 20'} \right\}
 \end{array}$$

$$\begin{array}{l}
 (2) \quad 67^{\circ} 24' \quad \left. \vphantom{67^{\circ} 24'} \right\} 67^{\circ} 56' \quad \left. \vphantom{67^{\circ} 56'} \right\} 43^{\circ} 44' \\
 \quad 68^{\circ} 28' \quad \left. \vphantom{68^{\circ} 28'} \right\} \\
 \quad 112^{\circ} 0' \quad \left. \vphantom{112^{\circ} 0'} \right\} 111^{\circ} 40' \\
 \quad 111^{\circ} 20' \quad \left. \vphantom{111^{\circ} 20'} \right\}
 \end{array}$$

$$\begin{array}{l}
 (3) \quad 68^{\circ} 8' \quad \left. \vphantom{68^{\circ} 8'} \right\} 68^{\circ} 6' \quad \left. \vphantom{68^{\circ} 6'} \right\} 44^{\circ} 22' \\
 \quad 68^{\circ} 4' \quad \left. \vphantom{68^{\circ} 4'} \right\} \\
 \quad 112^{\circ} 8' \quad \left. \vphantom{112^{\circ} 8'} \right\} 112^{\circ} 28' \\
 \quad 112^{\circ} 48' \quad \left. \vphantom{112^{\circ} 48'} \right\}
 \end{array}$$

$$44^{\circ} 13'$$

$$22^{\circ} 7'$$

6090

2180

.17.

.165

8th Nov.

~~IV~~ & $\sqrt{\quad}$ ²⁶ 1. methylene chloride.

| | | | |
|-----|--------------------------|-------------------------|---------|
| (1) | 60° 36' } 60° 36' } | 60° 36' } 120° 14' } | 59° 38' |
| | 119° 40' } 120° 48' } | | |

| | | | |
|-----|-------------------------|-------------------------|---------|
| (2) | 60° 8' } 61° 12' } | 60° 40' } 120° 22' } | 59° 42' |
| | 120° 0' } 120° 44' } | | |

92

| | | | |
|-----|--------------------------|-------------------------|---------|
| (3) | 60° 16' } 61° 12' } | 60° 44' } 119° 56' } | 59° 12' |
| | 119° 28' } 120° 24' } | | |

59° 31'
29° 45'

7571
5142

.33

.327

ginn.

V 2 ethylene²⁷ chloride

$$\begin{array}{l} (1) \left. \begin{array}{l} 58^{\circ} 0' \\ 59^{\circ} 4' \end{array} \right\} \left. \begin{array}{l} 58^{\circ} 32' \\ \end{array} \right\} 62^{\circ} 18' \end{array}$$

$$\left. \begin{array}{l} 120^{\circ} 20' \\ 121^{\circ} 20' \end{array} \right\} 120^{\circ} 50'$$

$$(2) \left. \begin{array}{l} 58^{\circ} 40' \\ 58^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 58^{\circ} 38' \\ \end{array} \right\} 62^{\circ} 4'$$

$$\left. \begin{array}{l} 120^{\circ} 44' \\ 120^{\circ} 40' \end{array} \right\} 120^{\circ} 42'$$

$$(3) \left. \begin{array}{l} 59^{\circ} 4' \\ 59^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 59^{\circ} 20' \\ \end{array} \right\} 61^{\circ} 16'$$

158

$$\left. \begin{array}{l} 120^{\circ} 48' \\ 120^{\circ} 24' \end{array} \right\} 120^{\circ} 36'$$

$$61^{\circ} 53'$$

$$30^{\circ} 56'$$

$$\begin{array}{r} .36 \\ \hline = .359 \end{array}$$

777
5554

sum.

3 Chloroform.

$$\begin{array}{r}
 (1) \quad 63^{\circ} 40' \} \\
 \quad \quad 64^{\circ} 24' \} \\
 \quad \quad 116^{\circ} 36' \} \\
 \quad \quad 116^{\circ} 20' \}
 \end{array}
 \begin{array}{r}
 \quad \quad 64^{\circ} 2' \} \\
 \quad \quad 116^{\circ} 28' \}
 \end{array}
 \quad \left. \vphantom{\begin{array}{r} 63^{\circ} 40' \\ 64^{\circ} 24' \\ 116^{\circ} 36' \\ 116^{\circ} 20' \end{array}} \right\} 52^{\circ} 26'$$

$$\begin{array}{r}
 (2) \quad 63^{\circ} 4' \} \\
 \quad \quad 63^{\circ} 24' \} \\
 \quad \quad 117^{\circ} 8' \} \\
 \quad \quad 116^{\circ} 48' \}
 \end{array}
 \begin{array}{r}
 \quad \quad 63^{\circ} 14' \} \\
 \quad \quad 116^{\circ} 58' \}
 \end{array}
 \quad \left. \vphantom{\begin{array}{r} 63^{\circ} 4' \\ 63^{\circ} 24' \\ 117^{\circ} 8' \\ 116^{\circ} 48' \end{array}} \right\} 53^{\circ} 44'$$

$$\begin{array}{r}
 (3) \quad 62^{\circ} 48' \} \\
 \quad \quad 62^{\circ} 0' \} \\
 \quad \quad 115^{\circ} 16' \} \\
 \quad \quad 115^{\circ} 0' \}
 \end{array}
 \begin{array}{r}
 \quad \quad 62^{\circ} 24' \} \\
 \quad \quad 115^{\circ} 8' \}
 \end{array}
 \quad \left. \vphantom{\begin{array}{r} 62^{\circ} 48' \\ 62^{\circ} 0' \\ 115^{\circ} 16' \\ 115^{\circ} 0' \end{array}} \right\} 52^{\circ} 44'$$

17+

$$52^{\circ} 58'$$

$$26^{\circ} 29'$$

- 25

- 248

6974
3948

8th Nov.

VI 1. Carbon bisulphide.

~~(1) 47 52
48 36~~

(1) $\left. \begin{array}{l} 45^{\circ} 16' \\ 47^{\circ} 12' \end{array} \right\} \left. \begin{array}{l} 46^{\circ} 14' \\ 128^{\circ} 40' \end{array} \right\} 82^{\circ} 26'$
 $\left. \begin{array}{l} 128^{\circ} 40' \\ 128^{\circ} 40' \end{array} \right\} 128^{\circ} 40'$

(2) $\left. \begin{array}{l} 45^{\circ} 16' \\ 47^{\circ} 32' \end{array} \right\} \left. \begin{array}{l} 46^{\circ} 24' \\ 128^{\circ} 34' \end{array} \right\} 82^{\circ} 10'$
 $\left. \begin{array}{l} 128^{\circ} 12' \\ 128^{\circ} 56' \end{array} \right\} 128^{\circ} 34'$

(3) $\left. \begin{array}{l} 46^{\circ} 0' \\ 46^{\circ} 32' \end{array} \right\} \left. \begin{array}{l} 46^{\circ} 16' \\ 128^{\circ} 4' \end{array} \right\} 81^{\circ} 48'$
 $\left. \begin{array}{l} 127^{\circ} 8' \\ 129^{\circ} 0' \end{array} \right\} 128^{\circ} 4'$

~~(4) 47 52
48 36~~

(4) $\left. \begin{array}{l} 46^{\circ} 0' \\ 47^{\circ} 24' \end{array} \right\} \left. \begin{array}{l} 26^{\circ} 42' \\ 128^{\circ} 38' \end{array} \right\} 81^{\circ} 56'$
 $\left. \begin{array}{l} 128^{\circ} 48' \\ 128^{\circ} 28' \end{array} \right\} 128^{\circ} 38'$

6th Dec.
(1) $\left. \begin{array}{l} 47^{\circ} 52' \\ 48^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 129^{\circ} 48' \\ 130^{\circ} 36' \end{array} \right\} 81^{\circ} 58'$
 $\left. \begin{array}{l} 130^{\circ} 12' \\ 130^{\circ} 4' \end{array} \right\} 130^{\circ} 4'$

(2) $\left. \begin{array}{l} 47^{\circ} 52' \\ 48^{\circ} 48' \end{array} \right\} \left. \begin{array}{l} 130^{\circ} 4' \\ 130^{\circ} 32' \end{array} \right\} 81^{\circ} 58'$
 $\left. \begin{array}{l} 130^{\circ} 18' \\ 130^{\circ} 18' \end{array} \right\} 130^{\circ} 18'$

(3) $\left. \begin{array}{l} 48^{\circ} 16' \\ 48^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 129^{\circ} 24' \\ 129^{\circ} 32' \end{array} \right\} 80^{\circ} 58'$
 $\left. \begin{array}{l} 129^{\circ} 28' \\ 129^{\circ} 28' \end{array} \right\} 129^{\circ} 28'$

~~(4) 47 52
48 36~~

(4) $\left. \begin{array}{l} 48^{\circ} 16' \\ 48^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 129^{\circ} 40' \\ 130^{\circ} 20' \end{array} \right\} 81^{\circ} 36'$
 $\left. \begin{array}{l} 130^{\circ} 0' \\ 130^{\circ} 0' \end{array} \right\} 130^{\circ} 0'$

(5) $\left. \begin{array}{l} 47^{\circ} 52' \\ 48^{\circ} 8' \end{array} \right\} \left. \begin{array}{l} 130^{\circ} 8' \\ 130^{\circ} 8' \end{array} \right\} 82^{\circ} 8'$
 $\left. \begin{array}{l} 130^{\circ} 8' \\ 130^{\circ} 8' \end{array} \right\} 130^{\circ} 8'$

(6) $\left. \begin{array}{l} 47^{\circ} 36' \\ 48^{\circ} 24' \end{array} \right\} \left. \begin{array}{l} 129^{\circ} 52' \\ 129^{\circ} 52' \end{array} \right\} 81^{\circ} 52'$
 $\left. \begin{array}{l} 129^{\circ} 52' \\ 129^{\circ} 52' \end{array} \right\} 129^{\circ} 52'$

(7) $\left. \begin{array}{l} 47^{\circ} 52' \\ 48^{\circ} 20' \end{array} \right\} \left. \begin{array}{l} 129^{\circ} 24' \\ 130^{\circ} 4' \end{array} \right\} 81^{\circ} 38'$
 $\left. \begin{array}{l} 130^{\circ} 4' \\ 129^{\circ} 44' \end{array} \right\} 129^{\circ} 44'$

(8) $\left. \begin{array}{l} 48^{\circ} 16' \\ 48^{\circ} 8' \end{array} \right\} \left. \begin{array}{l} 130^{\circ} 8' \\ 129^{\circ} 40' \end{array} \right\} 81^{\circ} 30'$
 $\left. \begin{array}{l} 129^{\circ} 40' \\ 129^{\circ} 54' \end{array} \right\} 129^{\circ} 54'$

82° 5'
41° 3'

76
759

mean of 6th Dec. 81° 49'
θ = 40° 54'

Ratio = 75.0%

9376
8752

9400
8800

~~(9) 47 52~~

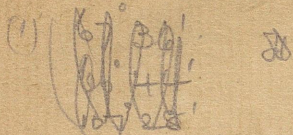
See p 74

130° 8'
129° 40'

340

8th Nov

VI 2 methyl sulphide.



$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 68^{\circ} 24' \\ 70^{\circ} 0' \end{array} \right\} \quad \left. \begin{array}{l} 69^{\circ} 12' \\ 108^{\circ} 52' \end{array} \right\} \quad 39^{\circ} 40' \\
 \quad \quad \left. \begin{array}{l} 109^{\circ} 8' \\ 108^{\circ} 36' \end{array} \right\}
 \end{array}$$

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 68^{\circ} 28' \\ 69^{\circ} 56' \end{array} \right\} \quad \left. \begin{array}{l} 69^{\circ} 12' \\ 108^{\circ} 54' \end{array} \right\} \quad 39^{\circ} 42' \\
 \quad \quad \left. \begin{array}{l} 109^{\circ} 12' \\ 108^{\circ} 36' \end{array} \right\}
 \end{array}$$

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 69^{\circ} 36' \\ 69^{\circ} 48' \\ 108^{\circ} 40' \\ 109^{\circ} 0' \end{array} \right\} \quad \left. \begin{array}{l} 69^{\circ} 42' \\ 108^{\circ} 50' \end{array} \right\} \quad \begin{array}{r} 39^{\circ} 8' \\ \hline 39^{\circ} 30' \end{array}
 \end{array}$$

~~The consistency of the readings is really remarkable~~

19° 45'

.13
.129

5551
 1102

8th Nov.

VI 3 Ethyl Sulphide.

| | | | |
|-----|-----------|-----------|-----------|
| (1) | 66° 36' } | 66° 32' } | } 45° 46' |
| | 66° 28' } | | |

| | | | |
|---|------------|------------|-----------|
| 2 | 112° 4' } | 112° 18' } | } 45° 36' |
| | 112° 32' } | | |

| | | | |
|-----|------------|------------|-----------|
| (2) | 67° 0' } | 67° 12' } | } 45° 36' |
| | 67° 24' } | | |
| | 113° 8' } | 112° 48' } | } 45° 44' |
| | 112° 28' } | | |

| | | | |
|-----|------------|------------|-----------|
| (3) | 67° 8' } | 66° 48' } | } 45° 42' |
| | 66° 28' } | | |
| | 112° 20' } | 112° 32' } | } 22° 51' |
| | 112° 44' } | | |

6247
2594

45° 42'
22° 51'

182

83
8th Nov.

VII. 1 Formic acid.

The scattered light is greenish + mil. bluish as in
contains very few dust? the case of other liquids.
partic. in glass.

$$\begin{array}{l} (1) \quad 44^{\circ} 20' \quad \left. \vphantom{44^{\circ} 20'} \right\} \\ \quad 44^{\circ} 48' \quad \left. \vphantom{44^{\circ} 48'} \right\} \quad 44^{\circ} 34' \quad \left. \vphantom{44^{\circ} 34'} \right\} \\ \quad 134^{\circ} 16' \quad \left. \vphantom{134^{\circ} 16'} \right\} \quad 134^{\circ} 42' \quad \left. \vphantom{134^{\circ} 42'} \right\} \\ \quad 135^{\circ} 8' \quad \left. \vphantom{135^{\circ} 8'} \right\} \quad \quad \quad \quad \quad \quad \quad \quad 90^{\circ} 8' \end{array}$$

$$\begin{array}{l} (2) \quad 43^{\circ} 28' \quad \left. \vphantom{43^{\circ} 28'} \right\} \\ \quad 44^{\circ} 52' \quad \left. \vphantom{44^{\circ} 52'} \right\} \quad 44^{\circ} 10' \quad \left. \vphantom{44^{\circ} 10'} \right\} \\ \quad 133^{\circ} 16' \quad \left. \vphantom{133^{\circ} 16'} \right\} \quad 133^{\circ} 50' \quad \left. \vphantom{133^{\circ} 50'} \right\} \\ \quad 134^{\circ} 24' \quad \left. \vphantom{134^{\circ} 24'} \right\} \quad \quad \quad \quad \quad \quad \quad \quad 89^{\circ} 40' \end{array}$$

$$\begin{array}{l} (3) \quad 44^{\circ} 20' \quad \left. \vphantom{44^{\circ} 20'} \right\} \\ \quad 45^{\circ} 8' \quad \left. \vphantom{45^{\circ} 8'} \right\} \quad 44^{\circ} 44' \quad \left. \vphantom{44^{\circ} 44'} \right\} \\ \quad 134^{\circ} 40' \quad \left. \vphantom{134^{\circ} 40'} \right\} \quad 135^{\circ} 2' \quad \left. \vphantom{135^{\circ} 2'} \right\} \\ \quad 135^{\circ} 24' \quad \left. \vphantom{135^{\circ} 24'} \right\} \quad \quad \quad \quad \quad \quad \quad \quad 90^{\circ} 18'. \end{array}$$

$$\begin{array}{r} 90^{\circ} 2' \\ \hline 45^{\circ} 1' \end{array}$$

100

(1) ~~55° 8'~~
~~55° 32'~~ } 55° 20' } 68° 50'
 124° 0' } 124° 10' }

(2) 54° 36' } 55° 40'
 56° 44' }
 light went off for the day.

10th nov

(2) 54° 56' } 54° 46' } ~~70° 16'~~
 54° 36' } } 70° 16'
 124° 44' } 125° 2' }
 125° 20' }

(3) 54° 36' } 54° 40' } 70° 40'
 54° 44' } }
 125° 24' } 125° 20' }
 125° 16' }

(4) 54° 40' } 54° 40' } 70° 0'
 54° 40' } }
 124° 32' } 124° 40' }
 124° 48' }

8476
 6952

θ: 35° 9'

.50
 =
 .496

See H 75476.

10th sec.

VII 3. Propionic acid

See p 101-102

(1) $\left. \begin{array}{l} 55^{\circ} 0' \\ 55^{\circ} 20' \end{array} \right\} \left. \begin{array}{l} 55^{\circ} 10' \\ 123^{\circ} 36' \end{array} \right\} 68^{\circ} 38'$
 $\left. \begin{array}{l} 123^{\circ} 36' \\ 124^{\circ} 0' \end{array} \right\} 123^{\circ} 48'$

(2) $\left. \begin{array}{l} 55^{\circ} 40' \\ 56^{\circ} 24' \end{array} \right\} \left. \begin{array}{l} 56^{\circ} 2' \\ 123^{\circ} 26' \end{array} \right\} 67^{\circ} 24'$
 $\left. \begin{array}{l} 123^{\circ} 0' \\ 123^{\circ} 52' \end{array} \right\} 123^{\circ} 26'$

(3) $\left. \begin{array}{l} 54^{\circ} 52' \\ 56^{\circ} 32' \end{array} \right\} \left. \begin{array}{l} 55^{\circ} 42' \\ 123^{\circ} 28' \end{array} \right\} 67^{\circ} 46'$
 $\left. \begin{array}{l} 124^{\circ} 0' \\ 122^{\circ} 56' \end{array} \right\} 123^{\circ} 28'$ 12°

(4) $\left. \begin{array}{l} 56^{\circ} 8' \\ 55^{\circ} 48' \end{array} \right\} \left. \begin{array}{l} 55^{\circ} 58' \\ 124^{\circ} 10' \end{array} \right\} 68^{\circ} 12'$
 $\left. \begin{array}{l} 124^{\circ} 12' \\ 124^{\circ} 8' \end{array} \right\} 124^{\circ} 10'$

68° 0'

D = 34° 0'

455

8290
6580

See p 78-79

10th NW.

VII 4 Butyric acid

26

(1) $\left. \begin{array}{l} 55^{\circ} 32' \\ 57^{\circ} 4' \end{array} \right\} \left. \begin{array}{l} 56^{\circ} 18' \\ 124^{\circ} 24' \end{array} \right\} 68^{\circ} 6'$
 $\left. \begin{array}{l} 124^{\circ} 8' \\ 124^{\circ} 40' \end{array} \right\}$

See N 99-100

(2) $\left. \begin{array}{l} 55^{\circ} 32' \\ 55^{\circ} 32' \end{array} \right\} \left. \begin{array}{l} 55^{\circ} 32' \\ 124^{\circ} 16' \end{array} \right\} 68^{\circ} 44'$
 $\left. \begin{array}{l} 124^{\circ} 4' \\ 124^{\circ} 28' \end{array} \right\}$

(3) $\left. \begin{array}{l} 55^{\circ} 36' \\ 56^{\circ} 24' \end{array} \right\} \left. \begin{array}{l} 56^{\circ} 0' \\ 124^{\circ} 20' \end{array} \right\} 68^{\circ} 20'$
 $\left. \begin{array}{l} 123^{\circ} 40' \\ 125^{\circ} 0' \end{array} \right\}$

 $68^{\circ} 23'$
 $34^{\circ} 12'$

~~.405~~

.46

.458

8806

6612

VII 5. acetic anhydride.

$$\begin{array}{l} (1) \quad 56^{\circ} 48' \\ \quad 57^{\circ} 24' \\ \quad 123^{\circ} 16' \\ \quad 123^{\circ} 48' \end{array} \left. \vphantom{\begin{array}{l} 56^{\circ} 48' \\ 57^{\circ} 24' \\ 123^{\circ} 16' \\ 123^{\circ} 48' \end{array}} \right\} \begin{array}{l} 57^{\circ} 6' \\ 123^{\circ} 32' \end{array} \left. \vphantom{\begin{array}{l} 57^{\circ} 6' \\ 123^{\circ} 32' \end{array}} \right\} 66^{\circ} 26'$$

$$\begin{array}{l} (2) \quad 57^{\circ} 20' \\ \quad 57^{\circ} 4' \\ \quad 123^{\circ} 52' \\ \quad 123^{\circ} 36' \end{array} \left. \vphantom{\begin{array}{l} 57^{\circ} 20' \\ 57^{\circ} 4' \\ 123^{\circ} 52' \\ 123^{\circ} 36' \end{array}} \right\} \begin{array}{l} 57^{\circ} 12' \\ 123^{\circ} 44' \end{array} \left. \vphantom{\begin{array}{l} 57^{\circ} 12' \\ 123^{\circ} 44' \end{array}} \right\} 66^{\circ} 32'$$

$$\begin{array}{l} (3) \quad 57^{\circ} 12' \\ \quad 56^{\circ} 52' \\ \quad 123^{\circ} 32' \\ \quad 123^{\circ} 36' \end{array} \left. \vphantom{\begin{array}{l} 57^{\circ} 12' \\ 56^{\circ} 52' \\ 123^{\circ} 32' \\ 123^{\circ} 36' \end{array}} \right\} \begin{array}{l} 57^{\circ} 2' \\ 123^{\circ} 34' \end{array} \left. \vphantom{\begin{array}{l} 57^{\circ} 2' \\ 123^{\circ} 34' \end{array}} \right\} \begin{array}{l} 66^{\circ} 32' \\ \hline 66^{\circ} 30' \\ 33^{\circ} 15' \end{array}$$

8166
6332

.430

18th Nov.

VII. Propionic anhydride.

$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 57^{\circ} 28' \\ 57^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 57^{\circ} 36' \\ \end{array} \right\} \quad 64^{\circ} 24'
 \end{array}$$

$$\left. \begin{array}{l} 122^{\circ} 0' \\ 122^{\circ} 0' \end{array} \right\} \left. \begin{array}{l} 122^{\circ} 0' \\ \end{array} \right\}$$

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 57^{\circ} 40' \\ 57^{\circ} 24' \end{array} \right\} \left. \begin{array}{l} 57^{\circ} 32' \\ \end{array} \right\} \quad 64^{\circ} 48' \\
 \left. \begin{array}{l} 121^{\circ} 40' \\ 123^{\circ} 0' \end{array} \right\} \left. \begin{array}{l} 122^{\circ} 20' \\ \end{array} \right\}
 \end{array}$$

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 58^{\circ} 4' \\ 57^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 57^{\circ} 54' \\ \end{array} \right\} \quad 64^{\circ} 40' \\
 \left. \begin{array}{l} 122^{\circ} 28' \\ 122^{\circ} 40' \end{array} \right\} \left. \begin{array}{l} 122^{\circ} 34' \\ \end{array} \right\}
 \end{array}$$

$$\begin{array}{r}
 64^{\circ} 37' \\
 \hline
 32^{\circ} 19'
 \end{array}$$

400

8011

6022

29
10^h m.

VIII (1) Ethyl Ether. Omitted.

VIII (2) Benzene.

See H 103-104

| | | | |
|-----|------------|------------|---------|
| (1) | 55° 32' } | 55° 56' } | 68° 16' |
| | 56° 20' } | | |
| | 123° 40' } | 124° 12' } | |
| | 124° 44' } | | |

| | | | |
|-----|-----------|------------|--------|
| (2) | 55° 0' } | 55° 24' } | 69° 8' |
| | 55° 48' } | | |
| | 124° 4' } | 124° 32' } | |
| | 125° 0' } | | |

| | | | |
|-----|------------|------------|---------|
| (3) | 55° 4' } | 55° 12' } | 69° 10' |
| | 55° 20' } | | |
| | 123° 52' } | 124° 22' } | |
| | 124° 52' } | | |

| | | | |
|-----|------------|------------|---------|
| (4) | 54° 36' } | 55° 4' } | 69° 46' |
| | 55° 32' } | | |
| | 124° 20' } | 124° 50' } | |
| | 125° 20' } | | |

8379
6758

| |
|---------|
| 69° 46' |
| 69° 5' |
| 39° 33' |

474

See Vfr 104 - 155

~~(1) 53° 16'~~

$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 53^{\circ} 16' \\ 53^{\circ} 12' \end{array} \right\} 53^{\circ} 14' \\
 \left. \begin{array}{l} 125^{\circ} 24' \\ 126^{\circ} 44' \end{array} \right\} 125^{\circ} 54' \end{array} \left. \vphantom{\begin{array}{l} 53^{\circ} 16' \\ 53^{\circ} 12' \\ 125^{\circ} 24' \\ 126^{\circ} 44' \end{array}} \right\} 72^{\circ} 40'$$

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 53^{\circ} 40' \\ 52^{\circ} 48' \end{array} \right\} 53^{\circ} 14' \\
 \left. \begin{array}{l} 125^{\circ} 44' \\ 125^{\circ} 24' \end{array} \right\} 125^{\circ} 34' \end{array} \left. \vphantom{\begin{array}{l} 53^{\circ} 40' \\ 52^{\circ} 48' \\ 125^{\circ} 44' \\ 125^{\circ} 24' \end{array}} \right\} 72^{\circ} 20'$$

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 52^{\circ} 44' \\ 53^{\circ} 24' \end{array} \right\} 53^{\circ} 4' \\
 \left. \begin{array}{l} 126^{\circ} 0' \\ 125^{\circ} 20' \end{array} \right\} 125^{\circ} 40' \end{array} \left. \vphantom{\begin{array}{l} 52^{\circ} 44' \\ 53^{\circ} 24' \\ 126^{\circ} 0' \\ 125^{\circ} 20' \end{array}} \right\} \begin{array}{l} 72^{\circ} 36' \\ \hline 72^{\circ} 32' \\ 36^{\circ} 16' \end{array}$$

8655
7310~~538~~

$$\begin{array}{l}
 \text{7th ind.} \\
 (1) \quad 53^{\circ} 8'
 \end{array}$$

4 Ethyl Benzene.
 the liquid has been distilled in the
 wrong bulb.
 See H 106-107

(1) $\left. \begin{array}{l} 53^{\circ} 20' \\ 54^{\circ} 36' \end{array} \right\} 53^{\circ} 58'$
 $\left. \begin{array}{l} 125^{\circ} 24' \\ 126^{\circ} 0' \end{array} \right\} 125^{\circ} 52'$

$71^{\circ} 54'$

(2) $\left. \begin{array}{l} 54^{\circ} 36' \\ 53^{\circ} 48' \end{array} \right\} 54^{\circ} 12'$
 $\left. \begin{array}{l} 125^{\circ} 16' \\ 125^{\circ} 0' \end{array} \right\} 125^{\circ} 8'$

$70^{\circ} 56'$

56

11th nov.

(3) $\left. \begin{array}{l} 54^{\circ} 4' \\ 54^{\circ} 36' \end{array} \right\} 54^{\circ} 20'$
 $\left. \begin{array}{l} 125^{\circ} 24' \\ 125^{\circ} 44' \end{array} \right\} 125^{\circ} 34'$

$71^{\circ} 14'$

(4) $\left. \begin{array}{l} 53^{\circ} 36' \\ 54^{\circ} 8' \end{array} \right\} 53^{\circ} 52'$
 $\left. \begin{array}{l} 125^{\circ} 0' \\ 124^{\circ} 28' \end{array} \right\} 124^{\circ} 44'$

$70^{\circ} 52'$

$71^{\circ} 14'$

$35^{\circ} 37'$

$\cdot 513$
 $=$

8552
 7104

11 nov

VIII 5 meta Xylene

$$\begin{array}{l}
 \textcircled{1} \quad \left. \begin{array}{l} 51^{\circ} 48' \\ 53^{\circ} 4' \\ 127^{\circ} 20' \\ 127^{\circ} 40' \end{array} \right\} \left. \begin{array}{l} 52^{\circ} 26' \\ 127^{\circ} 30' \end{array} \right\} 75^{\circ} 4'
 \end{array}$$

$$\begin{array}{l}
 \textcircled{2} \quad \left. \begin{array}{l} 52^{\circ} 48' \\ 52^{\circ} 48' \\ 127^{\circ} 0' \\ 127^{\circ} 16' \end{array} \right\} \left. \begin{array}{l} 52^{\circ} 48' \\ 127^{\circ} 8' \end{array} \right\} 74^{\circ} 20'
 \end{array}$$

$$\begin{array}{l}
 \textcircled{3} \quad \left. \begin{array}{l} 53^{\circ} 16' \\ 52^{\circ} 48' \\ 126^{\circ} 48' \\ 127^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 53^{\circ} 2' \\ 127^{\circ} 16' \end{array} \right\} 74^{\circ} 14' \quad 76
 \end{array}$$

$$\begin{array}{l}
 \textcircled{4} \quad \left. \begin{array}{l} 52^{\circ} 52' \\ 52^{\circ} 44' \\ \del{52^{\circ} 44'} \\ 127^{\circ} 28' \\ 127^{\circ} 24' \end{array} \right\} \left. \begin{array}{l} 52^{\circ} 48' \\ 127^{\circ} 26' \end{array} \right\} 74^{\circ} 38'
 \end{array}$$

8797
7594

$$\begin{array}{r}
 74^{\circ} 19' \\
 \hline
 37^{\circ} 10'
 \end{array}$$

575

478
11 min

IX methyl alcohol.

Scattering extremely feeble in north - quite reliable

$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 71^{\circ} 36' \\ 72^{\circ} 48' \end{array} \right\} \left. \begin{array}{l} 72^{\circ} 12' \\ 106^{\circ} 16' \\ 106^{\circ} 22' \end{array} \right\} 34^{\circ} 10'
 \end{array}$$

See p 88

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 72^{\circ} 12' \\ 72^{\circ} 24' \end{array} \right\} \left. \begin{array}{l} 72^{\circ} 18' \\ 106^{\circ} 8' \\ 106^{\circ} 40' \end{array} \right\} 34^{\circ} 6'
 \end{array}$$

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 73^{\circ} 0' \\ 72^{\circ} 48' \\ 107^{\circ} 52' \\ 108^{\circ} 8' \end{array} \right\} \left. \begin{array}{l} 72^{\circ} 54' \\ 108^{\circ} 0' \end{array} \right\} 35^{\circ} 6' \text{ rejected.}
 \end{array}$$

$$\begin{array}{l}
 (4) \quad \left. \begin{array}{l} 72^{\circ} 24' \\ 73^{\circ} 0' \end{array} \right\} \left. \begin{array}{l} 72^{\circ} 42' \\ 106^{\circ} 20' \\ 107^{\circ} 0' \end{array} \right\} \begin{array}{l} 33^{\circ} 58' \\ \hline 34^{\circ} 5' \\ 17^{\circ} 2' \end{array}
 \end{array}$$

109.4

4862
9724

See p 89

~~4532~~
29⁰⁵ Nov 23

$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 73^{\circ} 20' \\ 73^{\circ} 32' \end{array} \right\} 73^{\circ} 26' \\
 \left. \begin{array}{l} 104^{\circ} 52' \\ 105^{\circ} 32' \end{array} \right\} 105^{\circ} 12'
 \end{array} \left. \vphantom{\begin{array}{l} 73^{\circ} 20' \\ 73^{\circ} 32' \\ 104^{\circ} 52' \\ 105^{\circ} 32' \end{array}} \right\} 31^{\circ} 46'$$

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 73^{\circ} 28' \\ 73^{\circ} 12' \end{array} \right\} 73^{\circ} 20' \\
 \left. \begin{array}{l} 105^{\circ} 16' \\ 105^{\circ} 4' \\ 104^{\circ} 56' \end{array} \right\} 105^{\circ} 0'
 \end{array} \left. \vphantom{\begin{array}{l} 73^{\circ} 28' \\ 73^{\circ} 12' \\ 105^{\circ} 16' \\ 105^{\circ} 4' \\ 104^{\circ} 56' \end{array}} \right\} 31^{\circ} 40'$$

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 73^{\circ} 36' \\ 73^{\circ} 36' \end{array} \right\} 73^{\circ} 36' \\
 \left. \begin{array}{l} 105^{\circ} 8' \\ 105^{\circ} 12' \end{array} \right\} 105^{\circ} 10'
 \end{array} \left. \vphantom{\begin{array}{l} 73^{\circ} 36' \\ 73^{\circ} 36' \\ 105^{\circ} 8' \\ 105^{\circ} 12' \end{array}} \right\} 31^{\circ} 34'$$

$$\begin{array}{l}
 (4) \quad \left. \begin{array}{l} 73^{\circ} 44' \\ 73^{\circ} 44' \end{array} \right\} 73^{\circ} 44' \\
 \left. \begin{array}{l} 105^{\circ} 28' \\ 105^{\circ} 48' \end{array} \right\} 105^{\circ} 38'
 \end{array} \left. \vphantom{\begin{array}{l} 73^{\circ} 44' \\ 73^{\circ} 44' \\ 105^{\circ} 28' \\ 105^{\circ} 48' \end{array}} \right\} 31^{\circ} 54'$$

$$\begin{array}{l}
 (5) \quad \left. \begin{array}{l} 73^{\circ} 12' \\ 73^{\circ} 40' \end{array} \right\} 73^{\circ} 26' \\
 \left. \begin{array}{l} 105^{\circ} 12' \\ 105^{\circ} 0' \end{array} \right\} 105^{\circ} 6'
 \end{array} \left. \vphantom{\begin{array}{l} 73^{\circ} 12' \\ 73^{\circ} 40' \\ 105^{\circ} 12' \\ 105^{\circ} 0' \end{array}} \right\} \begin{array}{l} 31^{\circ} 40' \\ \hline 31^{\circ} 43' \end{array}$$

$$\theta = 15^{\circ} 51' \quad .081$$

4532
9564

28th Nov.

IX 4 Iso propyl alcohol (Kahl) 4.6
very few particles.

See p 91

$$\begin{array}{l}
 \textcircled{1} \\
 \left. \begin{array}{l} 73^{\circ} 32' \\ 73^{\circ} 36' \\ 104^{\circ} 36' \\ 104^{\circ} 24' \end{array} \right\} \left. \begin{array}{l} 73^{\circ} 34' \\ 104^{\circ} 30' \end{array} \right\} 30^{\circ} 56'
 \end{array}$$

$$\begin{array}{l}
 \textcircled{2} \\
 \left. \begin{array}{l} 73^{\circ} 44' \\ 73^{\circ} 32' \\ 104^{\circ} 36' \\ 105^{\circ} 4' \end{array} \right\} \left. \begin{array}{l} 73^{\circ} 38' \\ 104^{\circ} 50' \end{array} \right\} 31^{\circ} 12'
 \end{array}$$

mean $\theta = 15.31$

$$\begin{array}{l}
 \textcircled{3} \\
 \left. \begin{array}{l} 73^{\circ} 28' \\ 72^{\circ} 48' \\ 104^{\circ} 0' \\ 104^{\circ} 20' \end{array} \right\} \left. \begin{array}{l} 73^{\circ} 8' \\ 104^{\circ} 10' \end{array} \right\} 31^{\circ} 2'
 \end{array}$$

| | |
|------|------|
| 4433 | 1077 |
| 8866 | = |
| | = |

$$\begin{array}{l}
 \textcircled{4} \\
 \left. \begin{array}{l} 72^{\circ} 52' \\ 73^{\circ} 24' \\ 104^{\circ} 0' \\ 104^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 73^{\circ} 8' \\ 104^{\circ} 18' \end{array} \right\} 31^{\circ} 10'
 \end{array}$$

$$\begin{array}{l}
 \textcircled{5} \\
 \left. \begin{array}{l} 73^{\circ} 24' \\ 73^{\circ} 40' \\ 104^{\circ} 12' \\ 104^{\circ} 8' \end{array} \right\} \left. \begin{array}{l} 73^{\circ} 32' \\ 104^{\circ} 10' \end{array} \right\} 30^{\circ} 38' \text{ rejected.}
 \end{array}$$

$$\begin{array}{l}
 \textcircled{6} \\
 \left. \begin{array}{l} 73^{\circ} 36' \\ 74^{\circ} 0' \\ 104^{\circ} 40' \\ 104^{\circ} 28' \end{array} \right\} \left. \begin{array}{l} 73^{\circ} 48' \\ 104^{\circ} 34' \end{array} \right\} 30^{\circ} 46'
 \end{array}$$

~~73 48~~
~~104 34~~

47

25th Nov1x 8. Butyl alcohol (Kekelbaum)two or three stay pencils & any in
pans - otherwise free from dust

see pp 86, 87

(1) ~~70 18'~~
~~69 44'~~

$$\left. \begin{array}{l} 69^{\circ} 20' \\ 69^{\circ} 44' \end{array} \right\} 69^{\circ} 32' \left. \vphantom{\begin{array}{l} 69^{\circ} 20' \\ 69^{\circ} 44' \end{array}} \right\} 38^{\circ} 6'$$

$$\left. \begin{array}{l} 107^{\circ} 40' \\ 107^{\circ} 36' \end{array} \right\} 107^{\circ} 38'$$

afternoon

(2) ~~70 18'~~
~~70 40'~~

$$\left. \begin{array}{l} 70^{\circ} 36' \\ 70^{\circ} 20' \end{array} \right\} 70^{\circ} 28' \left. \vphantom{\begin{array}{l} 70^{\circ} 36' \\ 70^{\circ} 20' \end{array}} \right\} 37^{\circ} 58'$$

$$\left. \begin{array}{l} 108^{\circ} 12' \\ 108^{\circ} 40' \end{array} \right\} 108^{\circ} 26'$$

(3) ~~70 20'~~ } 70 30' } 37 40'

$$\left. \begin{array}{l} 70^{\circ} 40' \\ 108^{\circ} 20' \\ 108^{\circ} 0' \end{array} \right\} \left. \begin{array}{l} 108^{\circ} 10' \end{array} \right\}$$
mean $\theta = 18^{\circ} 56'$ 5353
.0706.118

(4) ~~70 44'~~ } 70 32' } 37 44'

$$\left. \begin{array}{l} 70^{\circ} 20' \\ 107^{\circ} 52' \\ 108^{\circ} 40' \end{array} \right\} \left. \begin{array}{l} 108^{\circ} 26' \end{array} \right\}$$

(5) ~~70 0'~~ } 70 18' } 37 54'

$$\left. \begin{array}{l} 70^{\circ} 36' \\ 108^{\circ} 12' \\ 108^{\circ} 12' \end{array} \right\} \left. \begin{array}{l} 108^{\circ} 12' \end{array} \right\}$$

(6)

~~IX~~ IX to Iso Butyl alcohol

48

2nd Dec 23

a few fine stray fathoms of dirt

see p 92

- (1) $\begin{array}{r} 67^{\circ} 12' \\ 67^{\circ} 4' \end{array} \quad \begin{array}{r} 110^{\circ} 20' \\ 110^{\circ} 4' \end{array} \quad 43^{\circ} 4'$
- (2) $\begin{array}{r} 67^{\circ} 4' \\ 67^{\circ} 4' \end{array} \quad \begin{array}{r} 110^{\circ} 16' \\ 110^{\circ} 32' \end{array} \quad 43^{\circ} 20'$
- (3) $\begin{array}{r} 67^{\circ} 36' \\ 66^{\circ} 36' \end{array} \quad \begin{array}{r} 110^{\circ} 56' \\ 110^{\circ} 32' \end{array} \quad 43^{\circ} 38'$
- (4) $\begin{array}{r} 67^{\circ} 0' \\ 66^{\circ} 56' \end{array} \quad \begin{array}{r} 110^{\circ} 12' \\ 110^{\circ} 32' \end{array} \quad 43^{\circ} 24'$
- (5) $\begin{array}{r} 67^{\circ} 28' \\ 66^{\circ} 28' \end{array} \quad \begin{array}{r} 110^{\circ} 0' \\ 110^{\circ} 24' \end{array} \quad 43^{\circ} 14'$
- (6) $\begin{array}{r} 67^{\circ} 8' \\ 67^{\circ} 28' \end{array} \quad \begin{array}{r} 110^{\circ} 40' \\ 110^{\circ} 0' \end{array} \quad 42^{\circ} 56'$
- (7) $\begin{array}{r} 67^{\circ} 32' \\ 67^{\circ} 8' \end{array} \quad \begin{array}{r} 110^{\circ} 12' \\ 111^{\circ} 12' \end{array} \quad 43^{\circ} 22'$

480

25.15
25.705.

IX 7 Trimeter Cardinal (Kahlbaum)

26°C.

no particles
scattered light faint, intense
two ratio of components small

see p 93.

$$\begin{array}{l} (1) \quad \left. \begin{array}{l} 75^{\circ} 20' \\ 75^{\circ} 8' \end{array} \right\} \left. \begin{array}{l} 75^{\circ} 14' \\ 102^{\circ} 16' \end{array} \right\} 27^{\circ} 2' \\ \left. \begin{array}{l} 102^{\circ} 8' \\ 102^{\circ} 24' \end{array} \right\} \end{array}$$

$$\begin{array}{l} (2) \quad \left. \begin{array}{l} 75^{\circ} 20' \\ 75^{\circ} 40' \end{array} \right\} \left. \begin{array}{l} 75^{\circ} 30' \\ 102^{\circ} 56' \end{array} \right\} 27^{\circ} 26' \\ \left. \begin{array}{l} 102^{\circ} 40' \\ 103^{\circ} 12' \end{array} \right\} \end{array}$$

mean $\theta = 13^{\circ} 39'$

$$\begin{array}{l} (3) \quad \left. \begin{array}{l} 75^{\circ} 12' \\ 75^{\circ} 0' \end{array} \right\} \left. \begin{array}{l} 75^{\circ} 6' \\ 102^{\circ} 40' \end{array} \right\} 27^{\circ} 34' \\ \left. \begin{array}{l} 102^{\circ} 44' \\ 102^{\circ} 36' \end{array} \right\} \end{array}$$

.3854

.7708

.059

$$\begin{array}{l} (4) \quad \left. \begin{array}{l} 75^{\circ} 16' \\ 75^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 75^{\circ} 26' \\ 102^{\circ} 40' \end{array} \right\} 27^{\circ} 14' \\ \left. \begin{array}{l} 102^{\circ} 48' \\ 102^{\circ} 32' \end{array} \right\} \end{array}$$

$$\begin{array}{l} (5) \quad \left. \begin{array}{l} 75^{\circ} 28' \\ 75^{\circ} 46' \end{array} \right\} \left. \begin{array}{l} 75^{\circ} 34' \\ 102^{\circ} 42' \end{array} \right\} \underline{27^{\circ} 12'} \\ \left. \begin{array}{l} 103^{\circ} 4' \\ 102^{\circ} 20' \end{array} \right\} \end{array}$$

no parties.

24th Nov

27°C

- (1) $\left. \begin{array}{l} 69^{\circ} 40' \\ 69^{\circ} 36' \end{array} \right\} 69^{\circ} 38' \left. \begin{array}{l} \\ \\ \end{array} \right\} 37^{\circ} 48'$
 $\left. \begin{array}{l} 107^{\circ} 20' \\ 107^{\circ} 32' \end{array} \right\} 107^{\circ} 26'$
- (2) $\left. \begin{array}{l} 69^{\circ} 20' \\ 68^{\circ} 44' \end{array} \right\} 69^{\circ} 2' \left. \begin{array}{l} \\ \\ \end{array} \right\} 38^{\circ} 14'$ *nylud*
 $\left. \begin{array}{l} 107^{\circ} 12' \\ 107^{\circ} 20' \end{array} \right\} 107^{\circ} 16'$
- (3) $\left. \begin{array}{l} 70^{\circ} 0' \\ 70^{\circ} 20' \end{array} \right\} 70^{\circ} 10' \left. \begin{array}{l} \\ \\ \end{array} \right\} 37^{\circ} 44'$
 $\left. \begin{array}{l} 108^{\circ} 16' \\ 107^{\circ} 32' \end{array} \right\} 107^{\circ} 54'$

(4) $\left. \begin{array}{l} 69^{\circ} 24' \\ 70^{\circ} 20' \end{array} \right\}$

- (4) $\left. \begin{array}{l} 69^{\circ} 44' \\ 70^{\circ} 12' \end{array} \right\} 69^{\circ} 58' \left. \begin{array}{l} \\ \\ \end{array} \right\} 37^{\circ} 6'$
 $\left. \begin{array}{l} 107^{\circ} 0' \\ 107^{\circ} 4' \end{array} \right\} 107^{\circ} 4'$

- (8) $\left. \begin{array}{l} 69^{\circ} 48' \\ 70^{\circ} 20' \end{array} \right\} 70^{\circ} 4'$
 $\left. \begin{array}{l} 106^{\circ} 40' \\ 107^{\circ} 16' \end{array} \right\} 106^{\circ} 56'$

36 52'

- (5) $\left. \begin{array}{l} 69^{\circ} 48' \\ 69^{\circ} 44' \end{array} \right\} 69^{\circ} 46' \left. \begin{array}{l} \\ \\ \end{array} \right\} 37^{\circ} 0'$
 $\left. \begin{array}{l} 106^{\circ} 52' \\ 106^{\circ} 40' \end{array} \right\} 106^{\circ} 46'$

mean $\theta = 18^{\circ} 30'$

5245

112

~~5245~~

.0490

25th Nov

25°C

- do, $\left. \begin{array}{l} 70^{\circ} 28' \\ 70^{\circ} 20' \end{array} \right\} 70^{\circ} 24' \left. \begin{array}{l} \\ \\ \end{array} \right\} 36^{\circ} 50'$
 $\left. \begin{array}{l} 107^{\circ} 8' \\ 107^{\circ} 20' \end{array} \right\} 107^{\circ} 14'$

- (1) $\left. \begin{array}{l} 70^{\circ} 20' \\ 69^{\circ} 52' \end{array} \right\} 70^{\circ} 6' \left. \begin{array}{l} \\ \\ \end{array} \right\} 37^{\circ} 9'$
 $\left. \begin{array}{l} 107^{\circ} 20' \\ 107^{\circ} 12' \end{array} \right\} 107^{\circ} 16'$

See pp 81-83

~~Benzyl alcohol~~

Benzyl alcohol. (P. muckherjee)

Indice.

few stray parts of dust

see H 77-78

$$\begin{array}{r}
 1) \quad 46^{\circ} 24' \quad 124^{\circ} 24' \\
 \underline{47^{\circ} 52'} \quad 124^{\circ} 40'
 \end{array}$$

$$\begin{array}{r}
 4 \text{ see } \\
 2) \quad 47^{\circ} 8' \quad 124^{\circ} 32' \quad 77^{\circ} 24'
 \end{array}$$

$$\begin{array}{r}
 47^{\circ} 36' \quad 125^{\circ} 56' \\
 \underline{47^{\circ} 48'} \quad 125^{\circ} 40'
 \end{array}$$

$$\begin{array}{r}
 3) \quad 47^{\circ} 42' \quad 125^{\circ} 48' \quad 78^{\circ} 6' \\
 \underline{47^{\circ} 12'}
 \end{array}$$

47^{\circ} 28' left out.

$$\underline{47^{\circ} 20'}$$

or ③ Readjusted in whole app. & worked into alcoholmeter & liquid (after 3 refills.)

~~47^{\circ} 12'~~

$$\begin{array}{r}
 46^{\circ} 36' \quad 127^{\circ} 32' \\
 \underline{47^{\circ} 4'} \quad 127^{\circ} 20' \quad 80^{\circ} 36'
 \end{array}$$

$$\begin{array}{r}
 4) \quad 46^{\circ} 50' \quad 127^{\circ} 26' \quad 80^{\circ} 36' \\
 \underline{47^{\circ} 0'} \quad 128^{\circ} 4'
 \end{array}$$

$$\begin{array}{r}
 47^{\circ} 0' \quad 126^{\circ} 40' \quad 80^{\circ} 22' \\
 \underline{47^{\circ} 0'} \quad 127^{\circ} 22'
 \end{array}$$

$$\begin{array}{r}
 5) \quad 46^{\circ} 52' \quad 127^{\circ} 12'
 \end{array}$$

$$\begin{array}{r}
 47^{\circ} 12' \quad 127^{\circ} 20' \quad 80^{\circ} 14' \\
 \underline{47^{\circ} 2'} \quad 127^{\circ} 16'
 \end{array}$$

$$\begin{array}{r}
 6) \quad 47^{\circ} 4' \quad 127^{\circ} 20'
 \end{array}$$

$$\begin{array}{r}
 47^{\circ} 8' \quad 127^{\circ} 4' \quad 80^{\circ} 6' \\
 \underline{47^{\circ} 6'} \quad 127^{\circ} 12'
 \end{array}$$

light out

$$\begin{array}{r}
 7) \quad 47^{\circ} 22' \quad 46^{\circ} 44' \quad 127^{\circ} 0' \\
 \underline{46^{\circ} 40'} \quad 47^{\circ} 0' \quad 127^{\circ} 42'
 \end{array}$$

$$\begin{array}{r}
 46^{\circ} 52' \quad 127^{\circ} 6' \quad 80^{\circ} 14'
 \end{array}$$

$$\begin{array}{r}
 8) \quad 47^{\circ} 48' \quad 46^{\circ} 52' \quad 126^{\circ} 40' \\
 \underline{47^{\circ} 48'} \quad 46^{\circ} 56' \quad 127^{\circ} 20' \\
 46^{\circ} 54' \quad 127^{\circ} 0' \quad 80^{\circ} 6'
 \end{array}$$

71.1'

$$\begin{array}{r}
 9) \quad 47^{\circ} 36' \quad 126^{\circ} 48' \\
 \underline{47^{\circ} 4'} \quad 127^{\circ} 4' \quad 79^{\circ} 36' \\
 47^{\circ} 20' \quad 126^{\circ} 56'
 \end{array}$$

reptd

$$\begin{array}{r}
 46^{\circ} 40' \quad 127^{\circ} 12' \\
 47^{\circ} 20' \quad 127^{\circ} 24' \\
 \underline{47^{\circ} 0'} \quad 127^{\circ} 18' \quad 80^{\circ} 18'
 \end{array}$$

9259
8578

11ⁿ ans

~~X 2 Benzyl chloride~~ Allyl alcohol
contains very few particles which can
be detected with difficulty.

- (1) 58° 48' } 59° 20' }
59° 52' }
120° 36' } 120° 48' }
121° 0' }

61° 28'

See p 83-84
See p 97-98

- (2) 58° 40' } 58° 58' }
59° 16' }
120° 12' } 120° 32' }
121° 0' }

61° 34'

116

- (3) 58° 16' } 58° 30' }
58° 44' }
120° 0' } 120° 36' }
121° 12' }

61° 54'

61° 39'

30° 49'

77° 56'
55° 12'

.36
356

(4) 58° 24' }
58° 24' }

X 2 Benzyl chloride

12ⁿ ans

- (1) 50° 48' } 50° 48' }
50° 48' }
128° 28' } 128° 18' }
128° 8' }

77° 30'

See p 109.

- (2) 51° 32' } 50° 56' }
50° 20' }
127° 28' } 127° 48' }
128° 8' }

76° 52'

- (3) 50° 52' } 50° 54' }
50° 56' }
128° 12' } 127° 54' }
127° 36' }

77° 0'

.64
636

- (4) 50° 52' } 50° 52' }
50° 52' }
128° 16' } 128° 0' }
127° 44' }

77° 8'

77° 8'

38° 34'

9016
8032

X 1. Benzal chloride

See p 108

~~12th Nov 23~~
12th Nov 23

$$\begin{array}{l} (1) \quad \left. \begin{array}{l} 52^{\circ} 48' \\ 53^{\circ} 28' \end{array} \right\} 53^{\circ} 8' \left. \vphantom{\begin{array}{l} 52^{\circ} 48' \\ 53^{\circ} 28' \end{array}} \right\} 75^{\circ} 36' \\ \left. \begin{array}{l} 128^{\circ} 28' \\ 129^{\circ} 0' \end{array} \right\} 128^{\circ} 44' \end{array}$$

$$(2) \quad \left. \begin{array}{l} 52^{\circ} 32' \\ 52^{\circ} 20' \end{array} \right\} 52^{\circ} 26' \left. \vphantom{\begin{array}{l} 52^{\circ} 32' \\ 52^{\circ} 20' \end{array}} \right\} 77^{\circ} 4' \\ \left. \begin{array}{l} 129^{\circ} 32' \\ 129^{\circ} 28' \end{array} \right\} 129^{\circ} 30' \end{array} \quad \text{rejected.}$$

$$(3) \quad \left. \begin{array}{l} 52^{\circ} 44' \\ 53^{\circ} 16' \end{array} \right\} 53^{\circ} 0' \left. \vphantom{\begin{array}{l} 52^{\circ} 44' \\ 53^{\circ} 16' \end{array}} \right\} 75^{\circ} 30' \\ \left. \begin{array}{l} 128^{\circ} 20' \\ 128^{\circ} 46' \end{array} \right\} 128^{\circ} 30' \end{array}$$

8886
7772

$$(4) \quad \left. \begin{array}{l} 53^{\circ} 12' \\ 53^{\circ} 28' \end{array} \right\} 53^{\circ} 20' \left. \vphantom{\begin{array}{l} 53^{\circ} 12' \\ 53^{\circ} 28' \end{array}} \right\} 75^{\circ} 10' \\ \left. \begin{array}{l} 128^{\circ} 0' \\ 129^{\circ} 0' \end{array} \right\} 128^{\circ} 36' \end{array}$$

112
160
= 599

$$(5) \quad \left. \begin{array}{l} 52^{\circ} 44' \\ 53^{\circ} 28' \end{array} \right\} 53^{\circ} 6' \left. \vphantom{\begin{array}{l} 52^{\circ} 44' \\ 53^{\circ} 28' \end{array}} \right\} 75^{\circ} 36' \\ \left. \begin{array}{l} 128^{\circ} 44' \\ 128^{\circ} 40' \end{array} \right\} 128^{\circ} 42' \end{array} \quad \begin{array}{l} 75^{\circ} 28' \\ 37^{\circ} 44' \end{array}$$

X 2 Benzyl chloride

See previous page

$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 50^{\circ} 56' \\ 50^{\circ} 52' \\ 127^{\circ} 48' \\ 128^{\circ} 12' \end{array} \right\} \left. \begin{array}{l} 50^{\circ} 54' \\ 128^{\circ} 0' \end{array} \right\} 77^{\circ} 6'
 \end{array}$$

See p. 110-11

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 50^{\circ} 52' \\ 50^{\circ} 36' \\ 127^{\circ} 28' \\ 127^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 50^{\circ} 44' \\ 127^{\circ} 32' \end{array} \right\} 76^{\circ} 48'
 \end{array}$$

9019

8038

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 50^{\circ} 52' \\ 50^{\circ} 52' \\ 127^{\circ} 52' \\ 128^{\circ} 28' \end{array} \right\} \left. \begin{array}{l} 50^{\circ} 52' \\ 128^{\circ} 10' \end{array} \right\} 77^{\circ} 18'
 \end{array}$$

$$\begin{array}{l}
 (4) \quad \left. \begin{array}{l} 51^{\circ} 24' \\ 51^{\circ} 32' \\ \del{51^{\circ} 20'} \\ 129^{\circ} 20' \\ 128^{\circ} 28' \end{array} \right\} \left. \begin{array}{l} 51^{\circ} 28' \\ 128^{\circ} 54' \end{array} \right\} 77^{\circ} 26' \\
 \hline
 77^{\circ} 10' \\
 38^{\circ} 35'
 \end{array}$$

.64

.636

50 12 mms

X 4

Brom-Benzene

contains very few dust particles.

$$\begin{array}{l}
 (1) \quad \left. \begin{array}{l} 51^{\circ} 44' \\ 51^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 51^{\circ} 44' \\ 51^{\circ} 44' \end{array} \right\} \\
 \left. \begin{array}{l} 129^{\circ} 24' \\ 129^{\circ} 12' \end{array} \right\} \left. \begin{array}{l} 129^{\circ} 18' \\ 129^{\circ} 18' \end{array} \right\} \\
 \end{array}$$

77 34'

$$\begin{array}{l}
 (2) \quad \left. \begin{array}{l} 50^{\circ} 36' \\ 51^{\circ} 16' \end{array} \right\} \left. \begin{array}{l} 50^{\circ} 56' \\ 50^{\circ} 56' \end{array} \right\} \\
 \left. \begin{array}{l} 128^{\circ} 44' \\ 128^{\circ} 48' \end{array} \right\} \left. \begin{array}{l} 128^{\circ} 46' \\ 128^{\circ} 46' \end{array} \right\} \\
 \end{array}$$

77 50'

$$\begin{array}{l}
 (3) \quad \left. \begin{array}{l} 50^{\circ} 48' \\ 50^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 50^{\circ} 42' \\ 50^{\circ} 42' \end{array} \right\} \\
 \left. \begin{array}{l} 128^{\circ} 24' \\ 129^{\circ} 16' \end{array} \right\} \left. \begin{array}{l} 128^{\circ} 50' \\ 128^{\circ} 50' \end{array} \right\} \\
 \end{array}$$

78 8'

264

9073

8146

$$\begin{array}{l}
 (4) \quad \left. \begin{array}{l} 50^{\circ} 40' \\ 51^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 51^{\circ} 8' \\ 51^{\circ} 8' \end{array} \right\} \\
 \left. \begin{array}{l} 128^{\circ} 0' \\ 129^{\circ} 16' \end{array} \right\} \left. \begin{array}{l} 128^{\circ} 38' \\ 128^{\circ} 38' \end{array} \right\} \\
 \end{array}$$

77 30'

6852

$$\begin{array}{l}
 (5) \quad \left. \begin{array}{l} 50^{\circ} 24' \\ 50^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 50^{\circ} 30' \\ 50^{\circ} 30' \end{array} \right\} \\
 \left. \begin{array}{l} 129^{\circ} 8' \\ 128^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 128^{\circ} 52' \\ 128^{\circ} 52' \end{array} \right\} \\
 \end{array}$$

78 22'

77 53'

38 56'

12th nov

X 5 Nitro Benzene.

56

an yellowish liquid - scattered light
slightly greenish as we had expect.

$$\begin{array}{l} \textcircled{1} \quad 47^{\circ} 40' \} 47^{\circ} 54' \\ \quad 48^{\circ} 8' \} \\ \quad 132^{\circ} 44' \} 132^{\circ} 58' \\ \quad 132^{\circ} 12' \} \end{array} \quad 84^{\circ} 4'$$

$$\begin{array}{l} \textcircled{2} \quad 48^{\circ} 4' \} 47^{\circ} 42' \\ \quad 47^{\circ} 20' \} \\ \quad 132^{\circ} 24' \} 132^{\circ} 26' \\ \quad 132^{\circ} 28' \} \end{array} \quad 84^{\circ} 44'$$

126

$$\begin{array}{l} \textcircled{3} \quad 47^{\circ} 16' \} 47^{\circ} 54' \\ \quad 48^{\circ} 32' \} \\ \quad 132^{\circ} 0' \} 132^{\circ} 16' \\ \quad 132^{\circ} 32' \} \end{array} \quad 84^{\circ} 22'$$

9585

9170

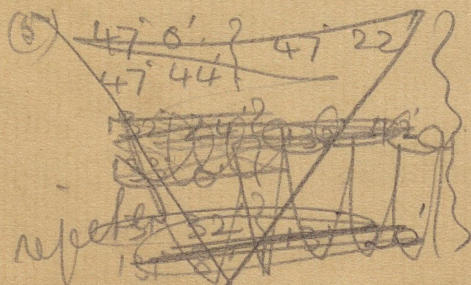
.83

$$\begin{array}{l} \textcircled{4} \quad \del{48^{\circ} 4'} \\ \quad 47^{\circ} 40' \} 47^{\circ} 28' \\ \quad 47^{\circ} 16' \} \\ \quad 132^{\circ} 36' \} 132^{\circ} 24' \\ \quad 132^{\circ} 12' \} \end{array} \quad 84^{\circ} 56'$$

84° 32

42° 16'

1826



$$\begin{array}{l} \textcircled{5} \quad 47^{\circ} 40' \\ \quad 47^{\circ} 44' \end{array}$$

for aniline sep 80

14 mm. / X 60 - Nitro - ~~toluene~~ Toluene ✓

(1) $\left. \begin{array}{l} 47^{\circ} 16' \\ 48^{\circ} 8' \end{array} \right\} \left. \begin{array}{l} 47^{\circ} 42' \\ 132^{\circ} 16' \\ 131^{\circ} 36' \end{array} \right\} 84^{\circ} 14'$

yellowish green
liquid - ∴ scattered
light greenish -
Contains some
dust particles.

(2) $\left. \begin{array}{l} 47^{\circ} 0' \\ 47^{\circ} 20' \end{array} \right\} \left. \begin{array}{l} 47^{\circ} 10' \\ 132^{\circ} 8' \\ 131^{\circ} 4' \end{array} \right\} 84^{\circ} 26'$

(3) $\left. \begin{array}{l} 46^{\circ} 44' \\ 47^{\circ} 40' \end{array} \right\} \left. \begin{array}{l} 47^{\circ} 12' \\ 131^{\circ} 24' \\ 132^{\circ} 20' \end{array} \right\} 84^{\circ} 36'$ 76

9578
9156

mean. $84^{\circ} 25'$

$\theta = 42^{\circ} 13'$

.823

(Kahlban) X 7 m. Nitro Toluene ^{light green} yellow liquid. - mag^s yellow ⁵⁸

(1) ~~45° 20'~~ } 46° 36' } 46° 8' } 85° 50'
~~45° 44'~~ } 45° 40' }
 131° 44' } 131° 58' }
 132° 12' }

(2) ~~45° 48'~~
 46° 4'
 132° 0'

81.
 21 Nov. 23

temp of water 25°

(1) 46° 8' } 46° 22' } 86° 32'
 46° 36' }
 132° 24' } 132° 54' }
 133° 24' }

(2) 45° 24' } 45° 50' } 86° 44' mean $\theta = 48° 16'$
 46° 16' }
 133° 8' } 132° 34' }
 132° 0' }

9737 .886
 9474

(3) 45° 44' } 46° 16' } 86° 28'
 46° 28' }
 132° 8' } 132° 34' }
 133° 0' }

(4) 46° 8' } 45° 54' } 86° 26'
 45° 40' }
 132° 12' } 132° 20' }
 132° 28' }

(5) 45° 40' } 46° 54' } 86° 30'
 46° 8' }
 132° 44' } 132° 24' }

XI (1) Methyl Formate (Kahlbaum)
one or two sharp peaks.

27⁵ mms.

- (1) $\left. \begin{array}{l} 61^{\circ} 28' \\ 62^{\circ} 20' \end{array} \right\} 61^{\circ} 54' \left. \vphantom{\begin{array}{l} 61^{\circ} 28' \\ 62^{\circ} 20' \end{array}} \right\} 55^{\circ} 54'$
 $\left. \begin{array}{l} 117^{\circ} 28' \\ 118^{\circ} 8' \end{array} \right\} 117^{\circ} 48' \left. \vphantom{\begin{array}{l} 117^{\circ} 28' \\ 118^{\circ} 8' \end{array}} \right\}$
- (2) $\left. \begin{array}{l} 61^{\circ} 32' \\ 61^{\circ} 32' \end{array} \right\} 61^{\circ} 32' \left. \vphantom{\begin{array}{l} 61^{\circ} 32' \\ 61^{\circ} 32' \end{array}} \right\} 55^{\circ} 54'$
 $\left. \begin{array}{l} 116^{\circ} 44' \\ 118^{\circ} 8' \end{array} \right\} 117^{\circ} 26' \left. \vphantom{\begin{array}{l} 116^{\circ} 44' \\ 118^{\circ} 8' \end{array}} \right\}$
- (3) $\left. \begin{array}{l} 61^{\circ} 48' \\ 61^{\circ} 28' \end{array} \right\} 61^{\circ} 38' \left. \vphantom{\begin{array}{l} 61^{\circ} 48' \\ 61^{\circ} 28' \end{array}} \right\} 55^{\circ} 48'$
 $\left. \begin{array}{l} 117^{\circ} 20' \\ 117^{\circ} 32' \end{array} \right\} 117^{\circ} 26' \left. \vphantom{\begin{array}{l} 117^{\circ} 20' \\ 117^{\circ} 32' \end{array}} \right\}$
- (4) $\left. \begin{array}{l} 61^{\circ} 32' \\ 61^{\circ} 28' \end{array} \right\} 61^{\circ} 30' \left. \vphantom{\begin{array}{l} 61^{\circ} 32' \\ 61^{\circ} 28' \end{array}} \right\} 55^{\circ} 44'$
 $\left. \begin{array}{l} 116^{\circ} 48' \\ 117^{\circ} 44' \end{array} \right\} 117^{\circ} 16' \left. \vphantom{\begin{array}{l} 116^{\circ} 48' \\ 117^{\circ} 44' \end{array}} \right\}$
- (5) $\left. \begin{array}{l} 61^{\circ} 36' \\ 61^{\circ} 52' \end{array} \right\} 61^{\circ} 44' \left. \vphantom{\begin{array}{l} 61^{\circ} 36' \\ 61^{\circ} 52' \end{array}} \right\} 55^{\circ} 50'$
 $\left. \begin{array}{l} 117^{\circ} 40' \\ 117^{\circ} 28' \end{array} \right\} 117^{\circ} 34' \left. \vphantom{\begin{array}{l} 117^{\circ} 40' \\ 117^{\circ} 28' \end{array}} \right\}$

mean $\theta = 27^{\circ} 55'$

$\frac{7241}{4482} = 2.81$

confirmed by
repeating see p 73.

XI 2 Ethyl formate (Kahlbaum) 6
 no parts of dist.

22^w Nov. 23

See p 112 - 113

(1) $\left. \begin{array}{l} 62^{\circ} 44' \\ 63^{\circ} 20' \\ 115^{\circ} 16' \\ 115^{\circ} 40' \end{array} \right\} \left. \begin{array}{l} 63^{\circ} 2' \\ 115^{\circ} 28' \end{array} \right\} 52^{\circ} 26'$

(2) $\left. \begin{array}{l} 62^{\circ} 48' \\ 62^{\circ} 48' \\ 115^{\circ} 36' \\ 115^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 62^{\circ} 48' \\ 115^{\circ} 40' \end{array} \right\} 52^{\circ} 52'$

(3) $\left. \begin{array}{l} 63^{\circ} 0' \\ 63^{\circ} 24' \\ 115^{\circ} 56' \\ 116^{\circ} 8' \end{array} \right\} \left. \begin{array}{l} 63^{\circ} 12' \\ 116^{\circ} 2' \end{array} \right\} 52^{\circ} 50'$

(4) $\left. \begin{array}{l} 63^{\circ} 8' \\ 63^{\circ} 24' \\ 115^{\circ} 36' \\ 115^{\circ} 52' \end{array} \right\} \left. \begin{array}{l} 63^{\circ} 16' \\ 115^{\circ} 44' \end{array} \right\} 52^{\circ} 28'$

(5) $\left. \begin{array}{l} 63^{\circ} 4' \\ 63^{\circ} 12' \\ \text{scribble} \\ 115^{\circ} 28' \\ 115^{\circ} 48' \end{array} \right\} \left. \begin{array}{l} 63^{\circ} 8' \\ 115^{\circ} 38' \end{array} \right\} 52^{\circ} 30'$

mean $\theta = 26^{\circ} 19'$
 $\log 42 \cdot 245$
 388.4

Confirmed by replot
 sep 73

27
~~(1) $\left. \begin{array}{l} 61^{\circ} 28' \\ 62^{\circ} 20' \\ 117^{\circ} 44' \\ 117^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 61^{\circ} 54' \\ 117^{\circ} 24' \end{array} \right\} 55^{\circ} 30'$~~
 (2) $\left. \begin{array}{l} 61^{\circ} 52' \\ 62^{\circ} 16' \\ 115^{\circ} 36' \\ 116^{\circ} 48' \end{array} \right\} \left. \begin{array}{l} 62^{\circ} 4' \\ 116^{\circ} 12' \end{array} \right\} 54^{\circ} 8'$

20 Nov 23

XI 3. Prasiophyl formata (Kalkbain) one or two stray plants which occasionally cross the field.

| | | | | |
|----------|---|----------|---|---------|
| 63° 4' | } | 63° 36' | } | 51° 50' |
| 64° 8' | | | | |
| 115° 32' | } | 115° 26' | } | |
| 115° 20' | | | | |

leaf p 114-117

| | | | | |
|-------------|---|----------|---|---------|
| (2) 63° 44' | } | 63° 42' | } | 51° 42' |
| 63° 40' | | | | |
| 115° 28' | } | 115° 24' | } | |
| 115° 20' | | | | |

| | | | | | |
|---------------------|---|---------------------|---|--------------------|-----------------------|
| (3) 63° 48' | } | 63° 42' | } | 51° 42' | leaf 68-80 |
| 63° 36' | | | | | |
| 115° 32' | } | 115° 26' | } | 51° 26' | leaf 68-80 |
| 115° 20' | | | | | |

| | | | | |
|-------------|---|----------|---|--------|
| (3) 63° 20' | } | 63° 30' | } | 52° 0' |
| 63° 40' | | | | |
| 115° 8' | } | 115° 30' | } | |
| 115° 52' | | | | |

mean θ : 25° 55'

6866
3732 · 236

| | | | | |
|-------------|---|----------|---|--------|
| (4) 63° 20' | } | 63° 22' | } | 52° 2' |
| 63° 24' | | | | |
| 114° 40' | } | 115° 24' | } | |
| 116° 8' | | | | |

| | | | | |
|-------------|---|---------|---|---------|
| (5) 63° 28' | } | 63° 40' | } | 51° 26' |
| 63° 52' | | | | |
| 115° 12' | } | 115° 6' | } | |
| 115° 0' | | | | |

rejected

| | | | | |
|-------------|---|---------|---|---------|
| (5) 63° 24' | } | 63° 24' | } | 51° 36' |
| 63° 24' | | | | |
| 115° 20' | } | 115° 0' | } | |
| 114° 40' | | | | |

XII methyl acetate

22nd Nov 23

XII 2 ethyl acetate (Keklbauer)

no dust particles.

25°

$$\begin{array}{l} \textcircled{1} \quad \left. \begin{array}{l} 63^{\circ} 28' \\ 63^{\circ} 52' \end{array} \right\} \left. \begin{array}{l} 63^{\circ} 40' \\ 115^{\circ} 6' \end{array} \right\} 57^{\circ} 26' \\ \left. \begin{array}{l} 115^{\circ} 20' \\ 114^{\circ} 52' \end{array} \right\} \end{array}$$

$$\begin{array}{l} \textcircled{2} \quad \left. \begin{array}{l} 64^{\circ} 8' \\ 63^{\circ} 28' \end{array} \right\} \left. \begin{array}{l} 63^{\circ} 48' \\ 115^{\circ} 0' \end{array} \right\} 57^{\circ} 12' \\ \left. \begin{array}{l} 114^{\circ} 40' \\ 115^{\circ} 20' \end{array} \right\} \end{array}$$

mean $\theta = 25^{\circ} 46'$

$$\begin{array}{l} \textcircled{3} \quad \left. \begin{array}{l} 64^{\circ} 20' \\ 63^{\circ} 0' \end{array} \right\} \left. \begin{array}{l} 63^{\circ} 40' \\ 115^{\circ} 22' \end{array} \right\} 57^{\circ} 42' \\ \left. \begin{array}{l} 115^{\circ} 36' \\ 115^{\circ} 8' \end{array} \right\} \end{array}$$

-6837

-233

-3674

$$\begin{array}{l} \textcircled{4} \quad \left. \begin{array}{l} 64^{\circ} 4' \\ 63^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 63^{\circ} 50' \\ 115^{\circ} 26' \end{array} \right\} 57^{\circ} 36' \\ \left. \begin{array}{l} 115^{\circ} 32' \\ 115^{\circ} 20' \end{array} \right\} \end{array}$$

$$\begin{array}{l} \textcircled{5} \quad \left. \begin{array}{l} 63^{\circ} 36' \\ 63^{\circ} 48' \end{array} \right\} \left. \begin{array}{l} 63^{\circ} 42' \\ 115^{\circ} 24' \end{array} \right\} 57^{\circ} 42' \\ \left. \begin{array}{l} 115^{\circ} 12' \\ 115^{\circ} 36' \end{array} \right\} \end{array}$$

22nd Nov.

XII 3. Propyl acetate (Kohlbaum) ⁶⁴⁴

no dust particles - 25th

| | | | |
|-----|---|------------------------|----------|
| (1) | 63° 44' } 64° 8' } 113° 40' } 114° 28' } | 63° 56' } 114° 4' } | } 50° 8' |
|-----|---|------------------------|----------|

| | | | |
|-----|--|-------------------------|-----------|
| (2) | 64° 24' } 64° 0' } 114° 8' } 113° 44' } | 64° 12' } 113° 56' } | } 49° 44' |
|-----|--|-------------------------|-----------|

no

| | | | |
|-----|--|-------------------------|----------|
| (3) | 64° 20' } 64° 36' } 114° 28' } 114° 28' } | 64° 28' } 114° 28' } | } 50° 0' |
|-----|--|-------------------------|----------|

| | | |
|-----|------------------------|----------------|
| (4) | 64° 36' } 64° 24' } | light went off |
|-----|------------------------|----------------|

23rd Nov

| | | | |
|-----|--|-------------------------|-----------|
| (4) | 64° 4' } 64° 40' } 115° 4' } 114° 32' } | 64° 22' } 114° 48' } | } 50° 26' |
|-----|--|-------------------------|-----------|

24th E

rejected.

| | | | |
|-----|--|-------------------------|-----------|
| (5) | 65° 20' } 64° 32' } 114° 12' } 114° 28' } | 64° 56' } 114° 20' } | } 49° 24' |
|-----|--|-------------------------|-----------|

mean $\theta = 24^{\circ} 58'$

| | | | |
|-----|--|-------------------------|-----------|
| (6) | 65° 8' } 64° 48' } 114° 8' } 115° 16' } | 64° 58' } 114° 42' } | } 49° 44' |
|-----|--|-------------------------|-----------|

.217

T. 6680

T. 3360

| | | | |
|-----|--|-------------------------|----------|
| (7) | 64° 12' } 65° 0' } 64° 4' } 64° 40' } 114° 40' } 114° 44' } | 64° 36' } 114° 42' } | } 50° 6' |
|-----|--|-------------------------|----------|

Better red-ht & repeat

65

XII

4

acetaldehyde

28th Nov

XIII 1. Dimethyl Ketone (acetone) 66
(Kahlbaum)

(1) ~~63° 44'~~ ~~63° 46'~~ no parties.

57 46
28

63° 20' }
63° 40' } 63° 30' }
115° 12' } 51° 56'
115° 40' } 115° 26' }

(2) 63° 20' }
64° 12' } 63° 46' }
114° 40' } 51° 42'
116° 16' } 115° 28' }

mean θ = 25° 53'

6860 236.
3720

(3) 63° 28' }
63° 48' } 63° 38' }
115° 24' } 51° 40'
115° 12' } 115° 18' }

(4) 63° 40' }
63° 44' } 63° 42' }
~~63° 46'~~ } 51° 52'
~~115° 28'~~ }
115° 28' } 115° 34'
115° 40' }

(5) 63° 44' }
63° 28' } 63° 36' }
114° 52' } 51° 38'
115° 36' } 115° 14' }

23rd mar.

24th

no peaks - scattered light very intense

peak before 8th 9.30

- (1) $\left. \begin{array}{l} 69^{\circ} 52' \\ 69^{\circ} 28' \\ 108^{\circ} 48' \\ 109^{\circ} 32' \end{array} \right\} \left. \begin{array}{l} 69^{\circ} 40' \\ 109^{\circ} 10' \end{array} \right\} 39^{\circ} 30'$
- (2) $\left. \begin{array}{l} 69^{\circ} 28' \\ 70^{\circ} 4' \\ 109^{\circ} 32' \\ 109^{\circ} 16' \end{array} \right\} \left. \begin{array}{l} 69^{\circ} 46' \\ 109^{\circ} 24' \end{array} \right\} 39^{\circ} 38'$
- (3) $\left. \begin{array}{l} 70^{\circ} 20' \\ 69^{\circ} 16' \\ 109^{\circ} 40' \\ 109^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 69^{\circ} 48' \\ 109^{\circ} 42' \end{array} \right\} 39^{\circ} 54'$
- (4) ~~70 20~~
 $\left. \begin{array}{l} 69^{\circ} 36' \\ 69^{\circ} 48' \\ 108^{\circ} 40' \\ 109^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 69^{\circ} 42' \\ 109^{\circ} 8' \end{array} \right\} 39^{\circ} 26'$

rejected

2nd set (25)

10.30

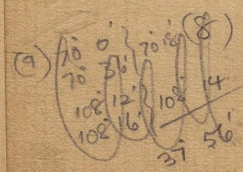
- (5) ~~70 20~~
 $\left. \begin{array}{l} 70^{\circ} 40' \\ 69^{\circ} 40' \\ 108^{\circ} 24' \\ 108^{\circ} 20' \end{array} \right\} \left. \begin{array}{l} 70^{\circ} 10' \\ 108^{\circ} 22' \end{array} \right\} 38^{\circ} 12'$

after 12.26

- (6) $\left. \begin{array}{l} 70^{\circ} 20' \\ 70^{\circ} 0' \\ 108^{\circ} 0' \\ 108^{\circ} 32' \end{array} \right\} \left. \begin{array}{l} 70^{\circ} 10' \\ 108^{\circ} 16' \end{array} \right\} 38^{\circ} 6'$
- (7) $\left. \begin{array}{l} 70^{\circ} 20' \\ 69^{\circ} 44' \\ 108^{\circ} 32' \\ 108^{\circ} 12' \end{array} \right\} \left. \begin{array}{l} 70^{\circ} 2' \\ 108^{\circ} 22' \end{array} \right\} 38^{\circ} 20'$

mean $\theta = 19^{\circ} 8'$

120



- (8) $\left. \begin{array}{l} 70^{\circ} 8' \\ 70^{\circ} 36' \\ 108^{\circ} 48' \\ 108^{\circ} 48' \end{array} \right\} \left. \begin{array}{l} 70^{\circ} 22' \\ 108^{\circ} 48' \end{array} \right\} 38^{\circ} 26'$

38 14'

see p. 73.

23ⁿ novXIII 3Diethyl Ketone (Kahlbaum)
(26°) no particles.

$$\begin{array}{l} \textcircled{1} \left. \begin{array}{l} 58^{\circ} 8' \\ 58^{\circ} 44' \end{array} \right\} 58^{\circ} 26' \\ \left. \begin{array}{l} 119^{\circ} 48' \\ 120^{\circ} 20' \end{array} \right\} 120^{\circ} 4' \end{array} \quad \left. \right\} 61^{\circ} 38'$$

$$\begin{array}{l} \textcircled{2} \left. \begin{array}{l} 58^{\circ} 24' \\ 58^{\circ} 48' \end{array} \right\} 58^{\circ} 36' \\ \left. \begin{array}{l} 120^{\circ} 28' \\ 120^{\circ} 16' \end{array} \right\} 120^{\circ} 22' \end{array} \quad \left. \right\} 61^{\circ} 46'$$

mean $\theta = 30^{\circ} 45'$

-354

$$\begin{array}{l} \textcircled{3} \left. \begin{array}{l} 58^{\circ} 24' \\ 58^{\circ} 48' \end{array} \right\} 58^{\circ} 36' \\ \left. \begin{array}{l} 120^{\circ} 32' \\ 119^{\circ} 48' \end{array} \right\} 120^{\circ} 10' \end{array} \quad \left. \right\} 61^{\circ} 34'$$

$$\begin{array}{l} \textcircled{4} \left. \begin{array}{l} 58^{\circ} 48' \\ 58^{\circ} 44' \end{array} \right\} 58^{\circ} 46' \\ \left. \begin{array}{l} 119^{\circ} 36' \\ 120^{\circ} 36' \end{array} \right\} 120^{\circ} 6' \end{array} \quad \left. \right\} 61^{\circ} 20'$$

$$\begin{array}{l} \textcircled{5} \left. \begin{array}{l} 58^{\circ} 40' \\ 59^{\circ} 0' \end{array} \right\} 58^{\circ} 50' \\ \left. \begin{array}{l} 119^{\circ} 44' \\ 120^{\circ} 20' \end{array} \right\} 120^{\circ} 2' \end{array} \quad \left. \right\} \begin{array}{l} 61^{\circ} 12' \\ \hline 61^{\circ} 30' \end{array}$$

69
26th Nov 23

XIII 4. methyl propyl ketone (Kohl)

no peaks.
226 216
23° 53'

$$\begin{array}{l} 1) \quad \left. \begin{array}{l} 64^{\circ} 44' \\ 64^{\circ} 48' \\ 112^{\circ} 44' \\ 112^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 64^{\circ} 46' \\ 112^{\circ} 44' \end{array} \right\} 47^{\circ} 58' \end{array}$$

$$\begin{array}{l} 2) \quad \left. \begin{array}{l} 64^{\circ} 48' \\ 65^{\circ} 0' \\ 111^{\circ} 48' \\ 112^{\circ} 12' \end{array} \right\} \left. \begin{array}{l} 64^{\circ} 54' \\ 112^{\circ} 0' \end{array} \right\} 47^{\circ} 6' \text{ rejected} \end{array}$$

mean $\theta = 23^{\circ} 53'$

6462
2924

196

$$\begin{array}{l} 3) \quad \left. \begin{array}{l} 65^{\circ} 4' \\ 64^{\circ} 36' \\ 112^{\circ} 44' \\ 112^{\circ} 32' \end{array} \right\} \left. \begin{array}{l} 64^{\circ} 50' \\ 112^{\circ} 38' \end{array} \right\} 47^{\circ} 48' \end{array}$$

$$\begin{array}{l} 4) \quad \left. \begin{array}{l} 64^{\circ} 52' \\ 64^{\circ} 40' \\ 112^{\circ} 20' \\ 112^{\circ} 20' \end{array} \right\} \left. \begin{array}{l} 64^{\circ} 46' \\ 112^{\circ} 20' \end{array} \right\} 47^{\circ} 34' \end{array}$$

$$\begin{array}{l} 5) \quad \left. \begin{array}{l} 64^{\circ} 48' \\ 64^{\circ} 44' \\ 112^{\circ} 24' \\ 112^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 64^{\circ} 46' \\ 112^{\circ} 34' \end{array} \right\} 47^{\circ} 48' \end{array}$$

$$\begin{array}{l} 6) \quad \left. \begin{array}{l} 64^{\circ} 44' \\ 64^{\circ} 56' \\ 112^{\circ} 20' \\ 112^{\circ} 36' \end{array} \right\} \left. \begin{array}{l} 64^{\circ} 50' \\ 112^{\circ} 28' \end{array} \right\} 47^{\circ} 38' \end{array}$$

24th Nov, 23

26.8.

Xylol. (artno)

merc

70

no poles.

See p 94-95

$$\begin{array}{l} \textcircled{1} \quad \left. \begin{array}{l} 55^{\circ} 40' \\ 56^{\circ} 20' \end{array} \right\} \left. \begin{array}{l} 56^{\circ} 0' \\ 123^{\circ} 24' \end{array} \right\} 67^{\circ} 24' \\ \left. \begin{array}{l} 123^{\circ} 20' \\ 123^{\circ} 28' \end{array} \right\} \end{array}$$

$$\begin{array}{l} \textcircled{2} \quad \left. \begin{array}{l} 55^{\circ} 16' \\ 55^{\circ} 16' \end{array} \right\} \left. \begin{array}{l} 55^{\circ} 16' \\ 122^{\circ} 24' \end{array} \right\} 67^{\circ} 22' \\ \left. \begin{array}{l} 122^{\circ} 52' \\ 122^{\circ} 38' \end{array} \right\} \end{array}$$

$$\textcircled{3} \quad \left. \begin{array}{l} 55^{\circ} 44' \\ 56^{\circ} 4' \end{array} \right\} \text{left off}$$

~~3)~~

$$\left. \begin{array}{l} \left. \begin{array}{l} 55^{\circ} 36' \\ 56^{\circ} 12' \end{array} \right\} \left. \begin{array}{l} 55^{\circ} 54' \\ 122^{\circ} 28' \end{array} \right\} 66^{\circ} 34' \\ \left. \begin{array}{l} 122^{\circ} 44' \\ 122^{\circ} 12' \end{array} \right\} \end{array} \right\} \text{rejected}$$

$$\begin{array}{l} \textcircled{4} \quad \left. \begin{array}{l} 55^{\circ} 40' \\ 55^{\circ} 44' \end{array} \right\} \left. \begin{array}{l} 55^{\circ} 42' \\ 122^{\circ} 16' \end{array} \right\} 66^{\circ} 44' \\ \left. \begin{array}{l} 122^{\circ} 36' \\ 122^{\circ} 26' \end{array} \right\} \end{array}$$

$$\begin{array}{l} \textcircled{5} \quad \left. \begin{array}{l} 55^{\circ} 8' \\ 55^{\circ} 28' \end{array} \right\} \left. \begin{array}{l} 55^{\circ} 18' \\ 122^{\circ} 44' \end{array} \right\} 67^{\circ} 26' \\ \left. \begin{array}{l} 122^{\circ} 48' \\ 122^{\circ} 40' \end{array} \right\} \end{array}$$

mean $\theta = 33^{\circ} 43'$

8244
6488
445

$$\begin{array}{l} \textcircled{6} \quad \left. \begin{array}{l} 55^{\circ} 4' \\ 55^{\circ} 28' \end{array} \right\} \left. \begin{array}{l} 55^{\circ} 16' \\ 122^{\circ} 44' \end{array} \right\} 67^{\circ} 26' \\ \left. \begin{array}{l} 122^{\circ} 44' \\ 122^{\circ} 40' \end{array} \right\} \left. \begin{array}{l} 122^{\circ} 42' \end{array} \right\} \end{array}$$

$$\begin{array}{l} \textcircled{7} \quad \left. \begin{array}{l} 55^{\circ} 48' \\ 55^{\circ} 32' \end{array} \right\} \left. \begin{array}{l} 55^{\circ} 40' \\ 123^{\circ} 28' \end{array} \right\} 67^{\circ} 36' \\ \left. \begin{array}{l} 123^{\circ} 28' \\ 123^{\circ} 4' \end{array} \right\} \left. \begin{array}{l} 123^{\circ} 16' \end{array} \right\} \end{array}$$

Xylol (meta) rock.
no dust-paths.

Dec. 23.

See pp. 95-96.

- | | | | |
|----|---|--|--------------------|
| 1. | $\begin{array}{r} 51^{\circ} 36' \\ 52^{\circ} 32' \\ \hline 52^{\circ} 4' \end{array}$ | $\begin{array}{r} 125^{\circ} 32' \\ 126^{\circ} 16' \\ \hline 125^{\circ} 54' \end{array}$ | 73° 50' |
| 2. | $\begin{array}{r} 51^{\circ} 32' \\ 51^{\circ} 36' \\ \hline 51^{\circ} 34' \end{array}$ | $\begin{array}{r} 125^{\circ} 40' \\ 126^{\circ} 20' \\ \hline 126^{\circ} 0' \end{array}$ | 74° 26' |
| 3. | $\begin{array}{r} 51^{\circ} 36' \\ 52^{\circ} 32' \\ \hline 52^{\circ} 4' \end{array}$ | $\begin{array}{r} 125^{\circ} 24' \\ 125^{\circ} 36' \\ \hline 125^{\circ} 30' \end{array}$ | 73° 26' - rejected |
| 4. | $\begin{array}{r} 51^{\circ} 44' \\ 51^{\circ} 44' \\ \hline 51^{\circ} 44' \end{array}$ | $\begin{array}{r} 125^{\circ} 12' \\ 126^{\circ} 8' \\ \hline 125^{\circ} 40' \end{array}$ | 73° 56' |
| 5. | $\begin{array}{r} 51^{\circ} 40' \\ 51^{\circ} 36' \\ \hline 51^{\circ} 38' \end{array}$ | $\begin{array}{r} 126^{\circ} 12' \\ 125^{\circ} 52' \\ \hline 126^{\circ} 2' \end{array}$ | 74° 24' |
| 6. | $\begin{array}{r} 51^{\circ} 44' \\ 51^{\circ} 0' \\ \hline 51^{\circ} 22' \end{array}$ | $\begin{array}{r} 125^{\circ} 40' \\ 126^{\circ} 4' \\ \hline 125^{\circ} 52' \end{array}$ | 74° 30' |
| 7. | $\begin{array}{r} \cancel{51^{\circ} 36'} \\ 51^{\circ} 16' \\ 52^{\circ} 16' \\ \hline 51^{\circ} 46' \end{array}$ | $\begin{array}{r} \cancel{125^{\circ} 32'} \\ 126^{\circ} 0' \\ 126^{\circ} 20' \\ \hline 126^{\circ} 10' \end{array}$ | 74° 24' |
| 8. | $\begin{array}{r} 51^{\circ} 32' \\ 51^{\circ} 20' \\ \hline 51^{\circ} 26' \end{array}$ | $\begin{array}{r} 126^{\circ} 4' \\ 125^{\circ} 48' \\ \hline 125^{\circ} 56' \end{array}$ | 74° 30' |

Xylol (Pure) merk.

24th Nov.

used the smaller diaphragm (no particles)
20 parts by vol. 27°C

(1) $\left. \begin{array}{l} 50^{\circ} 20' \\ 49^{\circ} 40' \end{array} \right\} 50^{\circ} 0' \left. \begin{array}{l} \\ \\ \end{array} \right\} 78^{\circ} 50'$
 $\left. \begin{array}{l} 128^{\circ} 16' \\ 128^{\circ} 24' \end{array} \right\} 128^{\circ} 50'$

Depth 96-97

(2) $\left. \begin{array}{l} 49^{\circ} 48' \\ 49^{\circ} 44' \end{array} \right\} 49^{\circ} 46' \left. \begin{array}{l} \\ \\ \end{array} \right\} 78^{\circ} 50'$
 $\left. \begin{array}{l} 128^{\circ} 36' \\ 128^{\circ} 36' \end{array} \right\} 128^{\circ} 36'$

mean $\theta = 39^{\circ} 19'$

(3) $\left. \begin{array}{l} 49^{\circ} 36' \\ 49^{\circ} 44' \end{array} \right\} 49^{\circ} 40' \left. \begin{array}{l} \\ \\ \end{array} \right\} 78^{\circ} 24'$
 $\left. \begin{array}{l} 128^{\circ} 8' \\ 128^{\circ} 0' \end{array} \right\} 128^{\circ} 4'$

.671

(4) $\left. \begin{array}{l} 49^{\circ} 40' \\ 49^{\circ} 44' \end{array} \right\} 49^{\circ} 42' \left. \begin{array}{l} \\ \\ \end{array} \right\} 78^{\circ} 34'$
 $\left. \begin{array}{l} 128^{\circ} 8' \\ 128^{\circ} 24' \end{array} \right\} 128^{\circ} 16'$

(5) $\left. \begin{array}{l} 49^{\circ} 44' \\ 49^{\circ} 36' \end{array} \right\} 49^{\circ} 40' \left. \begin{array}{l} \\ \\ \end{array} \right\} 78^{\circ} 30'$
 $\left. \begin{array}{l} 128^{\circ} 0' \\ 128^{\circ} 20' \end{array} \right\} 128^{\circ} 10'$

 $78^{\circ} 38'$

methyl ethyl ketone (cont'd from p67)24^{wt} nov70° 48'
70° 40'

70° 44'

~~60° 48'~~
~~60° 32'~~

108° 48'

109° 8'

108° 58'

38° 14' Confirming the latter set

27^{wt} nov

62° 4'

62° 32'

114° 44'

115° 20'

62° 18'

115° 2'

52° 44'

62° 8'

63° 0'

115° 20'

115° 0'

62° 34'

115° 10'

52° 36'

methyl formate repeated27^{wt} nov11) 61° 24'
61° 48'

61° 36'

55° 28'

117° 24'

116° 44'

117° 4'

12) 61° 36'
61° 16'

61° 26'

55° 44'

117° 20'

117° 0'

117° 10'

7th DecCarbon disulphide

74

Orange filter in the
plane of incident light

$$(1) \begin{array}{r} 48' 16' \\ 48' 28' \\ \hline 48' 22' \end{array} \quad \begin{array}{r} 129' 8' \\ 129' 12' \\ \hline 129' 10' \end{array} \quad 80' 48'$$

$$(2) \begin{array}{r} 48' 16' \\ 48' 4' \\ \hline 48' 10' \end{array} \quad \begin{array}{r} 129' 16' \\ 129' 16' \\ \hline 129' 16' \end{array} \quad 81' 6'$$

~~(3) 48' 8'~~afternoon

orange filter

$$\begin{array}{r} 47' 52' \\ 48' 28' \\ \hline 48' 10' \end{array} \quad \begin{array}{r} 129' 8' \\ 129' 28' \\ \hline 129' 18' \end{array} \quad 81' 8'$$

Blue

$$\begin{array}{r} 48' 36' \\ 68' 32' \\ \hline 48' 34' \end{array} \quad \begin{array}{r} 129' 44' \\ 130' 40' \\ \hline 130' 12' \end{array} \quad \begin{array}{r} \text{mean } 81' 1' \\ 81' 38' \end{array}$$

$$(1) \begin{array}{r} 48' 16' \\ 49' 28' \\ \hline 48' 52' \end{array} \quad \begin{array}{r} 128' 44' \\ 130' 20' \\ \hline 129' 32' \end{array} \quad 80' 40'$$

$$\begin{array}{r} 48' 36' \\ 48' 44' \\ \hline 48' 40' \end{array} \quad \begin{array}{r} 129' 48' \\ 129' 44' \\ \hline 129' 46' \end{array} \quad 81' 6'$$

White

mean 81' 8'

$$\begin{array}{r} 47' 24' \\ 49' 4' \\ \hline 48' 14' \end{array} \quad \begin{array}{r} 129' 32' \\ 130' 16' \\ \hline 129' 54' \end{array} \quad 81' 40'$$

$$\begin{array}{r} 47' 48' \\ 48' 36' \\ 48' 12' \\ \hline 48' 32' \end{array} \quad \begin{array}{r} 129' 0' \\ 129' 36' \\ 129' 18' \\ \hline 129' 28' \end{array} \quad 81' 6'$$

$$\begin{array}{r} 40' \\ 48' 36' \\ \hline 48' 36' \end{array} \quad \begin{array}{r} 130' 20' \\ 129' 54' \\ \hline 129' 54' \end{array} \quad \begin{array}{r} 81' 18' \\ 81' 21' \end{array}$$

Acetic acid

8th Dec, 23

white

orange

blue

inc l. $\frac{54' 10' \quad 124' 44'}{54' 42' \quad 124' 28'}$ $\frac{54' 32' \quad 124' 20'}{54' 44' \quad 124' 8'}$ 69' 36'

white light $\frac{54' 52' \quad 122' 56'}{55' 16' \quad 123' 32'}$ $\frac{55' 4' \quad 123' 14'}{55' 8' \quad 123' 0'}$ $\frac{55' 32' \quad 123' 4'}{55' 20' \quad 123' 20'}$ 68' 10'

9th Dec.

white light

(1) $\frac{54' 52' \quad 122' 56'}{55' 16' \quad 123' 32'}$ 68' 10'

(2) $\frac{55' 8' \quad 123' 36'}{55' 32' \quad 123' 4'}$ 68' 0'

$\frac{55' 20' \quad 123' 20'}$

orange filter in 40° position

inc light $\frac{55' 36' \quad 122' 44'}{55' 36' \quad 123' 48'}$ 68' 40'

white light

$\frac{54' 48' \quad 123' 0'}{55' 32' \quad 122' 48'}$ 67' 44'

$\frac{55' 10' \quad 122' 54'}$

blue filter

inc l. $\frac{54' 24' \quad 123' 28'}{55' 40' \quad 123' 40'}$ 68' 32'

$\frac{55' 2' \quad 123' 34'}$

Blue filter (contd.) in 40° position

white light $\frac{55' 12' \quad 122' 40'}{56' 0' \quad 123' 48'}$ 69' 36'

$\frac{55' 36' \quad 123' 14'}$

afternoon white light

$\frac{55' 48' \quad 123' 0'}{55' 48' \quad 123' 0'}$

$\frac{55' 36' \quad 122' 44'}{54' 12' \quad 123' 8'}$ 69' 2'

$\frac{55' 54' \quad 122' 56'}$

$\frac{56' 20' \quad 122' 52'}$

$\frac{54' 16' \quad 123' 28'}$ 69' 22'

$\frac{53' 48' \quad 123' 10'}$

orange filter

inc l. $\frac{53' 48' \quad 123' 0'}{54' 8' \quad 123' 8'}$ 69' 10'

$\frac{55' 58' \quad 123' 8'}$

$\frac{54' 4' \quad 123' 0'}$

$\frac{54' 48' \quad 123' 16'}$ 68' 42'

$\frac{54' 26' \quad 123' 8'}$

orange filter, in mic
part of scattered light.

$$\begin{array}{r} 53' 28' \\ 53' 36' \\ \hline 53' 32' \end{array} \quad \begin{array}{r} 122' 48' \\ 123' 40' \\ \hline 123' 14' \end{array} \quad 69' 42'$$

$$\begin{array}{r} 53' 24' \\ 53' 24' \\ \hline 53' 24' \end{array} \quad \begin{array}{r} 122' 24' \\ 122' 32' \\ \hline 122' 28' \end{array} \quad 69' 4'$$

Blue filter, in part of
mic light

$$\begin{array}{r} 52' 28' \\ 54' 8' \\ \hline 53' 18' \end{array} \quad \begin{array}{r} 122' 48' \\ 123' 16' \\ \hline 123' 2' \end{array} \quad 69' 44'$$

$$\begin{array}{r} 52' 32' \\ 53' 44' \\ \hline 53' 8' \end{array} \quad \begin{array}{r} 123' 16' \\ 123' 8' \\ \hline 123' 12' \end{array} \quad 70' 4'$$

Scattered light

$$\begin{array}{r} 53' 32' \\ 53' 4' \\ \hline 53' 18' \end{array} \quad \begin{array}{r} 123' 36' \\ 122' 16' \\ \hline 122' 26' \end{array} \quad 69' 8'$$

$$\begin{array}{r} 52' 32' \\ 53' 40' \\ \hline 53' 40' \end{array} \quad \begin{array}{r} 123' 16' \\ 123' 12' \\ \hline 123' 12' \end{array}$$

10 sec.

$$\begin{array}{r} 52' 52' \\ 52' 24' \\ \hline 52' 38' \end{array} \quad \begin{array}{r} 122' 24' \\ 124' 40' \\ \hline 123' 32' \end{array} \quad 70' 54'$$

White light

$$\begin{array}{r} 53' 12' \\ 53' 32' \\ \hline 53' 22' \end{array} \quad \begin{array}{r} 124' 20' \\ 123' 20' \\ \hline 123' 50' \end{array} \quad 70' 28'$$

10^h 30^m12-30White light

| | | |
|----------------|-----------------|---------|
| 46° 0' | 125° 24' | |
| <u>47° 16'</u> | <u>124° 36'</u> | 78° 22' |
| 46° 38' | 125° 2' | |
| <u>47° 28'</u> | <u>124° 4'</u> | |
| 46° 28' | 125° 12' | 77° 40' |
| <u>46° 58'</u> | <u>124° 38'</u> | |
| <u>47° 8'</u> | <u>124° 56'</u> | |
| 47° 16' | 124° 36' | 77° 34' |
| <u>47° 12'</u> | <u>124° 46'</u> | |

Blue filter in path of

| | | |
|--------------------|---------------------|---------|
| 47° 24' | 125° 8' | |
| <u>46° 52'</u> | <u>125° 36'</u> | 78° 14' |
| <u>47° 8'</u> | <u>125° 22'</u> | |
| 46° 4' | 124° 48' | |
| <u>47° 48'</u> | <u>124° 52'</u> | 77° 54' |
| <u>46° 56'</u> | <u>124° 50'</u> | |

Blue filter in the path of 77° 57'(1) Inc. light

| | | |
|--------------------|---------------------|----------------|
| 46° 12' | 126° 4' | |
| <u>46° 36'</u> | <u>127° 8'</u> | 80° 12' |
| <u>46° 24'</u> | <u>126° 36'</u> | |
| 45° 16' | 126° 0' | } Rejected = |
| <u>45° 48'</u> | <u>127° 8'</u> | |
| <u>45° 32'</u> | <u>126° 34'</u> | 81° 2' |
| 45° 8' | 125° 0' | |
| <u>47° 36'</u> | <u>126° 36'</u> | 78° 26' |
| <u>47° 22'</u> | <u>125° 48'</u> | |
| 45° 8' | 125° 36' | 82 |
| <u>47° 40'</u> | <u>126° 26'</u> | 78° 34' |
| <u>47° 24'</u> | <u>125° 58'</u> | |
| 45° 12' | 125° 16' | |
| <u>47° 36'</u> | <u>126° 16'</u> | 78° 22' |
| <u>47° 24'</u> | <u>125° 46'</u> | |
| | | <u>78° 27'</u> |

Benzyl alcohol11^h 30^mBlue filter in path of observed light

| | | |
|----------------|-----------------|---------|
| (1) 46° 0' | 125° 16' | |
| <u>46° 56'</u> | <u>124° 48'</u> | 78° 34' |
| <u>46° 28'</u> | <u>125° 2'</u> | |
| (2) 46° 40' | 125° 12' | |
| <u>47° 0'</u> | <u>125° 16'</u> | 78° 24' |
| <u>46° 50'</u> | <u>125° 14'</u> | |
| (3) 46° 20' | 124° 36' | |
| <u>47° 26'</u> | <u>124° 32'</u> | 77° 52' |
| <u>46° 42'</u> | <u>124° 34'</u> | |

afternoon

Orange filter in path ofInc. light

| | | |
|----------------|-----------------|---------|
| (1) 48° 4' | 123° 56' | |
| <u>47° 44'</u> | <u>124° 20'</u> | 76° 14' |
| <u>47° 54'</u> | <u>124° 8'</u> | |
| (2) 47° 36' | 124° 4' | |
| <u>47° 40'</u> | <u>123° 44'</u> | 76° 16' |
| <u>47° 38'</u> | <u>123° 54'</u> | |
| (3) 47° 28' | 123° 40' | |
| <u>47° 36'</u> | <u>124° 24'</u> | 76° 30' |
| <u>47° 32'</u> | <u>124° 2'</u> | |

Scattered light

| | | |
|----------------|-----------------|---------|
| (1) 47° 44' | 125° 8' | |
| <u>48° 16'</u> | <u>124° 40'</u> | 76° 54' |
| <u>48° 0'</u> | <u>124° 54'</u> | |
| (2) 47° 48' | 124° 20' | |
| <u>47° 44'</u> | <u>125° 8'</u> | 76° 58' |
| <u>47° 46'</u> | <u>124° 44'</u> | |
| (3) 47° 40' | 125° 12' | |
| <u>48° 4'</u> | <u>124° 44'</u> | 77° 16' |
| <u>47° 52'</u> | <u>124° 58'</u> | |

white light again

- (1) $\begin{array}{r} 46' 52'' \\ 47' 48'' \\ \hline 47' 20'' \end{array}$ $\begin{array}{r} 124' 36'' \\ 124' 8'' \\ \hline 124' 22'' \end{array}$ 77' 2'
- (2) $\begin{array}{r} 47' 52'' \\ 47' 48'' \\ \hline 47' 50'' \end{array}$ $\begin{array}{r} 124' 44'' \\ 125' 8'' \\ \hline 124' 56'' \end{array}$ 77' 6'
- (3) $\begin{array}{r} 47' 32'' \\ 47' 16'' \\ \hline 47' 24'' \end{array}$ $\begin{array}{r} 124' 40'' \\ 125' 16'' \\ \hline 124' 58'' \end{array}$ 77' 34'

12th Dec. 23.

Propionic acid

white light

- (1) ~~54' 44''~~ $\begin{array}{r} 54' 44'' \\ 54' 40'' \\ \hline 54' 42'' \end{array}$ $\begin{array}{r} 122' 8'' \\ 121' 52'' \\ \hline 122' 0'' \end{array}$ 67' 18'
- (2) ~~54' 52''~~ $\begin{array}{r} 54' 52'' \\ 55' 12'' \\ \hline 55' 2'' \end{array}$ $\begin{array}{r} 122' 20'' \\ 122' 12'' \\ \hline 122' 16'' \end{array}$ 67' 14'
- (3) $\begin{array}{r} 55' 28'' \\ 55' 40'' \\ \hline 55' 34'' \end{array}$ $\begin{array}{r} 122' 28'' \\ 122' 20'' \\ \hline 122' 24'' \end{array}$ 66' 50'
- (4) $\begin{array}{r} 55' 20'' \\ 55' 16'' \\ \hline 55' 18'' \end{array}$ $\begin{array}{r} 122' 0'' \\ 121' 56'' \\ \hline 121' 58'' \end{array}$ 66' 40'
- (5) $\begin{array}{r} 54' 52'' \\ 55' 4'' \\ \hline 54' 58'' \end{array}$ $\begin{array}{r} 122' 16'' \\ 122' 12'' \\ \hline 122' 14'' \end{array}$ 67' 16'

orange filter in the path of white light

- (1) $\begin{array}{r} 56' 12'' \\ 56' 48'' \\ \hline 56' 30'' \end{array}$ $\begin{array}{r} 121' 20'' \\ 122' 28'' \\ \hline 121' 54'' \end{array}$ 65' 24'

- (2) $\begin{array}{r} 55' 32'' \\ 57' 12'' \\ \hline 56' 22'' \end{array}$ $\begin{array}{r} 121' 40'' \\ 121' 44'' \\ \hline 121' 42'' \end{array}$ 65' 20'
 - (3) $\begin{array}{r} 55' 44'' \\ 57' 8'' \\ \hline 56' 26'' \end{array}$ $\begin{array}{r} 121' 8'' \\ 123' 8'' \\ \hline 122' 8'' \end{array}$ 65' 42'
- orange filter in the path of observed light
- (1) $\begin{array}{r} 55' 52'' \\ 55' 52'' \\ \hline 55' 52'' \end{array}$ $\begin{array}{r} 121' 28'' \\ 122' 20'' \\ \hline 121' 54'' \end{array}$ 66' 2'
 - (2) $\begin{array}{r} 55' 24'' \\ 56' 8'' \\ \hline 55' 46'' \end{array}$ $\begin{array}{r} 122' 12'' \\ 122' 40'' \\ \hline 122' 26'' \end{array}$ 66' 40'
 - (3) $\begin{array}{r} 55' 26'' \\ 56' 28'' \\ \hline 56' 2'' \end{array}$ $\begin{array}{r} 121' 48'' \\ 122' 32'' \\ \hline 122' 10'' \end{array}$ 66' 8'
 - (4) $\begin{array}{r} 55' 48'' \\ 55' 48'' \\ \hline 55' 48'' \end{array}$ $\begin{array}{r} 122' 12'' \\ 122' 16'' \\ \hline 122' 14'' \end{array}$ 66' 26'

Blue filter in pair of
line. light.

| | | | |
|-----|------------------|-------------------|--------------------|
| (1) | $53^{\circ} 40'$ | $122^{\circ} 0'$ | } $68^{\circ} 18'$ |
| | $55^{\circ} 8'$ | $125^{\circ} 24'$ | |
| | $54^{\circ} 24'$ | $122^{\circ} 42'$ | |
| (2) | $54^{\circ} 24'$ | $121^{\circ} 48'$ | } $68^{\circ} 46'$ |
| | $54^{\circ} 52'$ | $125^{\circ} 0'$ | |
| | $54^{\circ} 38'$ | $123^{\circ} 24'$ | |
| (3) | $55^{\circ} 20'$ | $121^{\circ} 44'$ | } $66^{\circ} 36'$ |
| | $55^{\circ} 24'$ | $122^{\circ} 12'$ | |
| | $55^{\circ} 22'$ | $121^{\circ} 58'$ | |

| | | | |
|-----|--|-------------------|--------------------|
| (1) | $52^{\circ} 48'$ | $124^{\circ} 36'$ | } $70^{\circ} 28'$ |
| | $54^{\circ} 0'$ | $123^{\circ} 8'$ | |
| | $53^{\circ} 24'$ | $123^{\circ} 52'$ | |
| (2) | $53^{\circ} 20'$ | $123^{\circ} 48'$ | } $70^{\circ} 14'$ |
| | $54^{\circ} 0'$ | $124^{\circ} 0'$ | |
| | $53^{\circ} 40'$ | $123^{\circ} 54'$ | |
| (3) | $53^{\circ} 0'$ | $123^{\circ} 16'$ | } $69^{\circ} 44'$ |
| | $54^{\circ} 52'$ | $124^{\circ} 4'$ | |
| | $53^{\circ} 56'$ | $123^{\circ} 40'$ | |
| (4) | $53^{\circ} 12'$ | $123^{\circ} 20'$ | } $70^{\circ} 2'$ |
| | $54^{\circ} 48'$ | $124^{\circ} 44'$ | |
| | $54^{\circ} 0'$ | $124^{\circ} 2'$ | |

Blue filter - in pair
of scattered light.

| | | | |
|-----|--|---|--------------------|
| (1) | $53^{\circ} 16'$ | $123^{\circ} 32'$ | } $70^{\circ} 8'$ |
| | $53^{\circ} 36'$ | $123^{\circ} 36'$ | |
| | $53^{\circ} 26'$ | $123^{\circ} 34'$ | |
| (2) | $53^{\circ} 18'$ | $123^{\circ} 36'$ | } $70^{\circ} 16'$ |
| | $53^{\circ} 32'$ | $124^{\circ} 24'$ | |
| | $53^{\circ} 52'$ | $123^{\circ} 32'$ | |
| | $53^{\circ} 42'$ | $123^{\circ} 58'$ | |
| (3) | $53^{\circ} 24'$ | | |
| | $53^{\circ} 8'$ | | |
| | 54° | | |

$$(3) \begin{array}{r} 53^{\circ} 24' \\ 54^{\circ} 36' \\ \hline 54^{\circ} 0' \end{array} \begin{array}{r} 124^{\circ} 40' \\ 125^{\circ} 4' \\ \hline 124^{\circ} 52' \end{array} \quad 70^{\circ} 52'$$

$$(4) \begin{array}{r} 53^{\circ} 48' \\ 54^{\circ} 12' \\ \hline 54^{\circ} 0' \end{array} \begin{array}{r} 123^{\circ} 16' \\ 123^{\circ} 40' \\ \hline 123^{\circ} 28' \end{array} \quad 69^{\circ} 28'$$

15th Dec.

aniline

80

white light

contains a no. of particles

$$\begin{array}{r}
 (1) \quad 48^{\circ} 8' \\
 \underline{47^{\circ} 56'} \\
 48^{\circ} 2'
 \end{array}
 \quad
 \begin{array}{r}
 127^{\circ} 52' \\
 \underline{127^{\circ} 52'} \\
 127^{\circ} 52'
 \end{array}
 \quad
 79^{\circ} 50'$$

$$\begin{array}{r}
 (2) \\
 47^{\circ} 40' \\
 \underline{48^{\circ} 20'} \\
 48^{\circ} 0'
 \end{array}
 \quad
 \begin{array}{r}
 128^{\circ} 16' \\
 \underline{127^{\circ} 0'} \\
 127^{\circ} 38'
 \end{array}
 \quad
 79^{\circ} 38'$$

~~$$\begin{array}{r}
 (3) \quad 48^{\circ} 20' \\
 \underline{47^{\circ} 40'} \\
 48^{\circ} 10'
 \end{array}
 \quad
 \begin{array}{r}
 128^{\circ} 44' \\
 \underline{128^{\circ} 44'} \\
 128^{\circ} 46'
 \end{array}
 \quad
 80^{\circ} 26'$$~~

$$\begin{array}{r}
 (3) \quad 48^{\circ} 12' \\
 \underline{48^{\circ} 20'} \\
 48^{\circ} 16'
 \end{array}
 \quad
 \begin{array}{r}
 128^{\circ} 28' \\
 \underline{128^{\circ} 40'} \\
 128^{\circ} 34'
 \end{array}
 \quad
 80^{\circ} 18'$$

$$\begin{array}{r}
 (4) \quad 48^{\circ} 52' \\
 \underline{48^{\circ} 44'} \\
 48^{\circ} 48'
 \end{array}
 \quad
 \begin{array}{r}
 128^{\circ} 4' \\
 \underline{128^{\circ} 32'} \\
 128^{\circ} 18'
 \end{array}
 \quad
 79^{\circ} 30'$$

$$\begin{array}{r}
 (5) \quad 48^{\circ} 28' \\
 \underline{48^{\circ} 24'} \\
 48^{\circ} 26'
 \end{array}
 \quad
 \begin{array}{r}
 128^{\circ} 32' \\
 \underline{128^{\circ} 44'} \\
 128^{\circ} 38'
 \end{array}
 \quad
 80^{\circ} 12'$$

15th Dec contd

amyllic alcohol inactive

Blue filter in pair
of scattered light

$$\begin{array}{r} 68^{\circ} 24' \\ \hline \end{array}$$

white light

$$\begin{array}{r} 68^{\circ} 52' \\ 69^{\circ} 36' \\ \hline 69^{\circ} 14' \end{array} \quad \begin{array}{r} 108^{\circ} 20' \\ 108^{\circ} 16' \\ \hline 108^{\circ} 18' \end{array} \quad 39^{\circ} 4'$$

16th Dec. white light contd

$$\begin{array}{r} 69^{\circ} 48' \\ 70^{\circ} 0' \\ \hline 69^{\circ} 54' \end{array} \quad \begin{array}{r} 108^{\circ} 8' \\ 107^{\circ} 52' \\ \hline 108^{\circ} 0' \end{array} \quad 38^{\circ} 6'$$

$$\begin{array}{r} 69^{\circ} 52' \\ 69^{\circ} 52' \\ \hline 69^{\circ} 52' \end{array} \quad \begin{array}{r} 108^{\circ} 16' \\ 107^{\circ} 48' \\ \hline 108^{\circ} 2' \end{array} \quad 38^{\circ} 10'$$

$$\begin{array}{r} 69^{\circ} 36' \\ 70^{\circ} 28' \\ \hline 70^{\circ} 2' \end{array} \quad \begin{array}{r} 108^{\circ} 0' \\ 107^{\circ} 48' \\ \hline 107^{\circ} 54' \end{array} \quad 37^{\circ} 52'$$

$$\begin{array}{r} 69^{\circ} 40' \\ 69^{\circ} 52' \\ \hline 69^{\circ} 46' \end{array} \quad \begin{array}{r} 107^{\circ} 40' \\ 107^{\circ} 44' \\ \hline 107^{\circ} 42' \end{array} \quad 37^{\circ} 56'$$

$$\begin{array}{r} 69^{\circ} 48' \\ 69^{\circ} 52' \\ \hline 69^{\circ} 50' \end{array} \quad \begin{array}{r} 108^{\circ} 20' \\ 107^{\circ} 52' \\ \hline 108^{\circ} 6' \end{array} \quad 38^{\circ} 16'$$

orange filter in the pairs
of incident beam. Rejected.

$$\begin{array}{r} 72^{\circ} 10' \\ 73^{\circ} 40' \\ \hline 72^{\circ} 58' \end{array} \quad \begin{array}{r} 106^{\circ} 56' \\ 106^{\circ} 48' \\ \hline 106^{\circ} 52' \end{array} \quad 33^{\circ} 54'$$

$$\begin{array}{r} 72^{\circ} 32' \\ 73^{\circ} 20' \\ \hline 72^{\circ} 56' \end{array} \quad \begin{array}{r} 105^{\circ} 20' \\ 106^{\circ} 8' \\ \hline 105^{\circ} 44' \end{array} \quad 32^{\circ} 48'$$

$$\begin{array}{r} 72^{\circ} 24' \\ 72^{\circ} 36' \\ \hline 72^{\circ} 30' \end{array} \quad \begin{array}{r} 105^{\circ} 20' \\ 104^{\circ} 48' \\ \hline 105^{\circ} 4' \end{array} \quad 32^{\circ} 34'$$

$$\begin{array}{r} 72^{\circ} 48' \\ 72^{\circ} 52' \\ \hline 72^{\circ} 50' \end{array} \quad \begin{array}{r} 105^{\circ} 0' \\ 106^{\circ} 0' \\ \hline 105^{\circ} 30' \end{array} \quad 32^{\circ} 40'$$

orange filter in one pair
of scattered light

$$\begin{array}{r} 69^{\circ} 40' \\ 70^{\circ} 4' \\ \hline 69^{\circ} 52' \end{array} \quad \begin{array}{r} 107^{\circ} 36' \\ 108^{\circ} 20' \\ \hline 107^{\circ} 58' \end{array} \quad 38^{\circ} 6'$$

$$\begin{array}{r} 69^{\circ} 36' \\ 70^{\circ} 8' \\ \hline 69^{\circ} 52' \end{array} \quad \begin{array}{r} 107^{\circ} 40' \\ 108^{\circ} 4' \\ \hline 107^{\circ} 52' \end{array} \quad 38^{\circ} 0'$$

$$\begin{array}{r} 69^{\circ} 32' \\ 69^{\circ} 24' \\ \hline 69^{\circ} 28' \end{array} \quad \begin{array}{r} 107^{\circ} 48' \\ 107^{\circ} 36' \\ \hline 107^{\circ} 42' \end{array} \quad 38^{\circ} 14'$$

17th Dec orange filter again in
pair of incident light

$$\begin{array}{r} 73^{\circ} 4' \\ 72^{\circ} 32' \\ \hline \end{array} \quad \begin{array}{r} 106^{\circ} 48' \\ \hline \end{array}$$

$$\begin{array}{r} 70^{\circ} 52' \\ 71^{\circ} 36' \\ \hline 71^{\circ} 14' \end{array} \quad \begin{array}{r} 106^{\circ} 48' \\ 107^{\circ} 0' \\ \hline 106^{\circ} 54' \end{array} \quad 35^{\circ} 40'$$

$$\begin{array}{r} 71^{\circ} 36' \\ 70^{\circ} 52' \\ \hline 71^{\circ} 14' \end{array} \quad \begin{array}{r} 106^{\circ} 0' \\ 105^{\circ} 0' \\ \hline 105^{\circ} 30' \end{array} \quad 34^{\circ} 16'$$

$$\begin{array}{r} 72^{\circ} 16' \\ 73^{\circ} 52' \\ \hline 72^{\circ} 54' \end{array} \quad \begin{array}{r} 105^{\circ} 44' \\ 106^{\circ} 24' \\ \hline 106^{\circ} 4' \end{array} \quad 35^{\circ} 10'$$

72' 4" 105' 52"
 71' 0" 106' 44"
 71' 32" 106' 18" 34' 46"
 71' 0" 107' 40"
 72' 20" 106' 40"
 71' 40" 107' 10" 35' 30"

18th Dec.

70' 20" 106' 44"
 71' 52" 105' 20"
 71' 6" 106' 2" 34' 56"
 70' 48" 105' 48"
 70' 44" 106' 32"
 70' 46" 106' 10" 35' 24"
 71' 16" 105' 48"
 71' 48" 105' 40"
 71' 32" 105' 46" 34' 14"

Orange in part of scattered

68' 40" 107' 32"
 69' 40" 109' 0"
 69' 10" 108' 16" 39' 40"
 68' 16" 107' 36"
 68' 20" 109' 0"
 68' 18" 108' 18" 40' 0"

Reddish

68' 36" 107' 40"
 68' 16" 108' 48"
 68' 26" 108' 14" 39' 48"
 68' 8" 107' 36"
 69' 8" 108' 24"
 68' 38" 108' 0" 39' 22"

White light again

70' 4" 107' 36"
 69' 48" 108' 8"
 69' 56" 107' 52" 37' 56"

~~60' 12"~~

70' 12" 108' 36"
 70' 8" 108' 8"
 70' 10" 108' 22" 38' 12"

~~70' 12"~~
19th Dec white light

~~68' 32"~~
 68' 32" 106' 44"
 68' 20" 107' 16"
 68' 26" 107' 0" 38' 34"

Blue filter in part of wafer cut light

59' 8" 115' 28"
 58' 36" 115' 12"
 58' 52" 115' 20" 56' 28"
 59' 4" 109' 36"
 60' 12" 116' 10"
 59' 38" 115' 23" 55' 45"

separately

57' 56"
 61' 0"

~~60' 12"~~
~~61' 28"~~
~~114' 24"~~

~~60' 12"~~
 60' 8" 113' 40"
 61' 0" 115' 0"
 60' 34" 114' 20" 53' 46"

60' 40" 113' 12"
 59' 40" 114' 20"
 60' 10" 113' 46" 53' 36"

61' 24"
 60' 12"
 60' 48"

6³⁰ Dec.

Blue filter in pair of
inverted light

| | |
|----------------|----------------|
| 60' 28' | 116' 16' |
| 60' 16' | 115' 44' |
| <u>60' 22'</u> | <u>116' 0'</u> |
| | 55' 38' |

| |
|----------------|
| 60' 24' |
| <u>60' 56'</u> |

2) ⁸¹ Dec. Blue filter in pair
of inverted light

| | |
|--------------------|----------------|
| 57' 36' | 114' 40' |
| <u>58' 24'</u> | <u>115' 4'</u> |
| 58' 0' | 114' 52' |
| | 56' 52' |

| | |
|----------------|----------------|
| 58' 20' | 115' 24' |
| <u>57' 20'</u> | <u>115' 8'</u> |
| 57' 50' | 115' 16' |
| | 57' 26' |

Blue filter in pair
of lettered light

(1)

| | |
|----------------|----------------|
| 69' 40' | 107' 8' |
| <u>68' 44'</u> | <u>106' 8'</u> |
| 69' 12' | 106' 38' |
| | 37' 26' |

(2)

| | |
|----------------|-----------------|
| 68' 20' | 105' 48' |
| <u>69' 32'</u> | <u>106' 36'</u> |
| 68' 56' | 106' 12' |
| | 37' 16' |

(3) ~~60'~~

29th Dec. 23

Methyl alcohol (Kahl)

no dust paths

824

white light

$$(1) \begin{array}{r} 57' 20'' \\ 58' 16'' \\ \hline 57' 48'' \end{array} \quad \begin{array}{r} 113' 52'' \\ 114' 12'' \\ \hline 114' 2'' \end{array} \quad 56' 14''$$

$$(2) \begin{array}{r} 57' 44'' \\ 57' 52'' \\ \hline \end{array} \quad \text{light readjusted}$$

$$(2) \begin{array}{r} 57' 12'' \\ 57' 24'' \\ \hline 57' 18'' \end{array} \quad \begin{array}{r} 114' 12'' \\ 114' 12'' \\ \hline 114' 12'' \end{array} \quad 56' 54''$$

$$(3) \begin{array}{r} 57' 32'' \\ 57' 44'' \\ \hline 57' 38'' \end{array} \quad \begin{array}{r} 114' 0'' \\ 114' 32'' \\ \hline 114' 16'' \end{array} \quad 56' 38''$$

$$(4) \begin{array}{r} \del{57' 20''} \\ 57' 8'' \\ 58' 20'' \\ \hline 57' 44'' \end{array} \quad \begin{array}{r} 113' 44'' \\ 114' 24'' \\ \hline 114' 4'' \end{array} \quad 56' 20''$$

$$(5) \begin{array}{r} 57' 52'' \\ 57' 28'' \\ \hline 57' 40'' \end{array} \quad \begin{array}{r} 114' 8'' \\ 113' 52'' \\ \hline 114' 0'' \end{array} \quad 56' 20''$$

orange filter in the path of
incident light

$$(1) \begin{array}{r} 57' 20'' \\ 58' 36'' \\ \hline 57' 58'' \end{array} \quad \begin{array}{r} 114' 20'' \\ 114' 0'' \\ \hline 114' 10'' \end{array} \quad 56' 12''$$

$$(2) \begin{array}{r} 58' 24'' \\ 57' 48'' \\ \hline 58' 6'' \end{array} \quad \begin{array}{r} 114' 8'' \\ 114' 36'' \\ \hline 114' 22'' \end{array} \quad 56' 16''$$

$$(3) \begin{array}{r} 57' 12'' \\ 59' 4'' \\ \hline 58' 8'' \end{array} \quad \begin{array}{r} 113' 40'' \\ 113' 56'' \\ \hline 113' 48'' \end{array} \quad 55' 40''$$

$$(1) \begin{array}{r} 58' 32'' \\ 57' 16'' \\ \hline 57' 54'' \end{array} \quad \begin{array}{r} 114' 28'' \\ 113' 32'' \\ \hline 114' 0'' \end{array} \quad 56' 6''$$

30th Dec.orange filter in path of
scattered light

$$(1) \begin{array}{r} 58' 44'' \\ 58' 36'' \\ \hline 58' 40'' \end{array} \quad \begin{array}{r} 114' 56'' \\ 116' 56'' \\ \hline 115' 56'' \end{array} \quad 57' 16''$$

$$(2) \begin{array}{r} 58' 16'' \\ 58' 20'' \\ \hline 58' 18'' \end{array} \quad \begin{array}{r} 114' 40'' \\ 116' 42'' \\ \hline 115' 26'' \end{array} \quad 57' 8''$$

$$(3) \begin{array}{r} 58' 28'' \\ 57' 52'' \\ \hline \end{array}$$

$$(3) \begin{array}{r} 57' 40'' \\ 58' 8'' \\ \hline 57' 54'' \end{array} \quad \begin{array}{r} 114' 20'' \\ 114' 20'' \\ \hline 114' 20'' \end{array} \quad 56' 26''$$

orange filter in incident
light again

$$(5) \begin{array}{r} \del{57' 20''} \\ \del{57' 20''} \\ \del{57' 20''} \\ \hline \end{array} \quad \begin{array}{r} \del{114' 20''} \\ \del{114' 20''} \\ \del{114' 20''} \\ \hline \end{array} \quad \del{56' 20''}$$

$$\begin{array}{r} 57' 24'' \\ 57' 20'' \\ \hline 57' 22'' \end{array} \quad \begin{array}{r} 114' 48'' \\ 114' 24'' \\ \hline 114' 36'' \end{array} \quad 57' 14''$$

$$(6) \begin{array}{r} 58' 0'' \\ 58' 32'' \\ \hline 58' 16'' \end{array} \quad \begin{array}{r} 115' 36'' \\ 115' 44'' \\ \hline 115' 40'' \end{array} \quad 57' 24''$$

in scattered light again

$$(4) \begin{array}{r} 58' 24'' \\ 58' 20'' \\ \hline 58' 22'' \end{array} \quad \begin{array}{r} 114' 32'' \\ 115' 8'' \\ \hline 114' 50'' \end{array} \quad 56' 28''$$

(5) $\begin{array}{r} 58' 52'' \\ 58' 24'' \end{array} \begin{array}{r} 114' 40'' \\ 115' 4'' \end{array}$
 $\frac{58' 38''}{114' 52''} \quad 56' 14''$

afternoon

(6) $\begin{array}{r} 56' 24'' \\ 56' 32'' \end{array} \begin{array}{r} 113' 46'' \\ 113' 44'' \end{array}$
 $\frac{56' 28''}{113' 46''} \quad 57' 18''$

Blue filter in the path of incident light.

(1) $\begin{array}{r} 54' 8'' \\ 54' 52'' \end{array} \begin{array}{r} 115' 52'' \\ 115' 20'' \end{array}$
 $\frac{54' 30''}{115' 36''} \quad 61' 6''$

(2) $\begin{array}{r} 54' 26'' \\ 55' 20'' \end{array} \begin{array}{r} 116' 20'' \\ 116' 36'' \end{array}$
 $\frac{54' 50''}{116' 28''} \quad 61' 38''$

(3) $\begin{array}{r} 54' 24'' \\ 55' 20'' \end{array} \begin{array}{r} 115' 0'' \\ 116' 16'' \end{array}$
 $\frac{54' 52''}{115' 38''} \quad 60' 46''$

As filter in scattered light.

(1) $\begin{array}{r} 54' 4'' \\ 56' 40'' \end{array} \begin{array}{r} 116' 0'' \\ 117' 8'' \end{array}$
 $\frac{56' 52''}{116' 34''} \quad 59' 48''$

3rd Dec 21

(4) $\begin{array}{r} 55' 20'' \\ 54' 16'' \end{array} \begin{array}{r} 117' 16'' \\ 116' 32'' \end{array}$
 $\frac{54' 48''}{116' 54''} \quad 62' 6''$

(2) $\begin{array}{r} 54' 12'' \\ 55' 8'' \end{array} \begin{array}{r} 116' 0'' \\ 116' 32'' \end{array}$
 $\frac{54' 40''}{116' 16''} \quad 61' 36''$

(3) $\begin{array}{r} 54' 24'' \\ 53' 36'' \end{array} \begin{array}{r} 117' 0'' \\ 117' 40'' \end{array}$
 $\frac{54' 0''}{117' 20''} \quad 63' 20''$

Blue filter again in path of incident light

~~54' 4''~~ $\begin{array}{r} 54' 4'' \\ 53' 52'' \end{array} \begin{array}{r} 115' 52'' \\ 114' 48'' \end{array}$
 $\frac{53' 58''}{115' 20''} \quad 61' 22''$

(5) $\begin{array}{r} 54' 36'' \\ 53' 52'' \end{array} \begin{array}{r} 115' 24'' \\ 114' 52'' \end{array}$
 $\frac{54' 14''}{115' 8''} \quad 60' 54''$

(6) $\begin{array}{r} 54' 12'' \\ 53' 56'' \end{array} \begin{array}{r} 117' 48'' \\ 117' 40'' \end{array}$
 $\frac{54' 4''}{117' 44''} \quad 63' 40''$

(7) $\begin{array}{r} 53' 40'' \\ 54' 4'' \end{array} \begin{array}{r} 115' 40'' \\ 116' 0'' \end{array}$
 $\frac{53' 52''}{115' 50''} \quad 61' 58''$
 afternoon
 Blue filter in path of scattered light again

(4) $\begin{array}{r} 53' 20'' \\ 53' 36'' \end{array} \begin{array}{r} 117' 4'' \\ 117' 20'' \end{array}$
 $\frac{53' 28''}{117' 12''} \quad 63' 44''$

(5) $\begin{array}{r} 54' 8'' \\ 53' 24'' \end{array} \begin{array}{r} 116' 36'' \\ 117' 0'' \end{array}$
 $\frac{53' 46''}{116' 48''} \quad 63' 2''$

(6) $\begin{array}{r} 54' 12'' \\ 53' 56'' \end{array} \begin{array}{r} 116' 36'' \\ 115' 20'' \end{array}$
 $\frac{54' 24''}{115' 58''} \quad 62' 10''$

1st Jan 24

Powdyl alcohol. (Kahl)

White light

$$\begin{array}{r} (1) \begin{array}{r} 68^{\circ} 28' \\ 68^{\circ} 4' \\ \hline 68^{\circ} 16' \end{array} \quad \begin{array}{r} 104^{\circ} 24' \\ 106^{\circ} 4' \\ \hline 105^{\circ} 14' \end{array} \quad 36^{\circ} 58' \end{array}$$

$$(2) \begin{array}{r} 67^{\circ} 44' \\ 68^{\circ} 28' \\ \hline 68^{\circ} 6' \end{array} \quad \begin{array}{r} 105^{\circ} 4' \\ 105^{\circ} 12' \\ \hline 105^{\circ} 8' \end{array} \quad 37^{\circ} 2'$$

(3) reset afternoon

$$\begin{array}{r} 69^{\circ} 4' \\ 69^{\circ} 32' \\ \hline 69^{\circ} 18' \end{array} \quad \begin{array}{r} 105^{\circ} 36' \\ 105^{\circ} 56' \\ \hline 105^{\circ} 46' \end{array} \quad 36^{\circ} 28'$$

Blue filter in path of incident light

$$(1) \begin{array}{r} 65^{\circ} 52' \\ 65^{\circ} 28' \\ \hline 65^{\circ} 40' \end{array} \quad \begin{array}{r} 107^{\circ} 32' \\ 107^{\circ} 8' \\ \hline 107^{\circ} 20' \end{array} \quad 41^{\circ} 40'$$

$$(2) \begin{array}{r} 65^{\circ} 8' \\ 65^{\circ} 12' \\ \hline 65^{\circ} 10' \end{array} \quad \begin{array}{r} 108^{\circ} 8' \\ 109^{\circ} 0' \\ \hline 108^{\circ} 34' \end{array} \quad 43^{\circ} 24'$$

$$(3) \begin{array}{r} 66^{\circ} 20' \\ 65^{\circ} 32' \\ \hline 65^{\circ} 56' \end{array} \quad \begin{array}{r} 107^{\circ} 16' \\ 108^{\circ} 40' \\ \hline 107^{\circ} 58' \end{array} \quad 42^{\circ} 2'$$

$$(4) \begin{array}{r} 66^{\circ} 44' \\ 65^{\circ} 28' \\ \hline 66^{\circ} 2' \end{array} \quad \begin{array}{r} 107^{\circ} 32' \\ 108^{\circ} 20' \\ \hline 107^{\circ} 56' \end{array} \quad 41^{\circ} 54'$$

Blue filter in no path of scattered light.

$$(1) \begin{array}{r} 67^{\circ} 48' \\ 68^{\circ} 28' \\ \hline 68^{\circ} 8' \end{array} \quad \begin{array}{r} 104^{\circ} 44' \\ 104^{\circ} 36' \\ \hline 104^{\circ} 40' \end{array} \quad 36^{\circ} 32'$$

$$(2) \begin{array}{r} 67^{\circ} 52' \\ 68^{\circ} 20' \\ \hline 68^{\circ} 6' \end{array} \quad \begin{array}{r} 103^{\circ} 52' \\ 104^{\circ} 52' \\ \hline 104^{\circ} 22' \end{array} \quad 36^{\circ} 16'$$

3rd Jan 24
White light again

$$(4) \begin{array}{r} 66^{\circ} 12' \\ 67^{\circ} 44' \\ \hline 66^{\circ} 58' \end{array} \quad \begin{array}{r} 103^{\circ} 48' \\ 105^{\circ} 16' \\ \hline 104^{\circ} 32' \end{array} \quad 37^{\circ} 34'$$

(5) ~~67~~ afternoon

$$\begin{array}{r} 68^{\circ} 0' \\ 67^{\circ} 36' \\ \hline 67^{\circ} 48' \end{array} \quad \begin{array}{r} 106^{\circ} 20' \\ 107^{\circ} 4' \\ \hline 106^{\circ} 42' \end{array} \quad 38^{\circ} 54'$$

4th Jan 24

$$(6) \begin{array}{r} 67^{\circ} 16' \\ 67^{\circ} 52' \\ \hline 67^{\circ} 34' \end{array} \quad \begin{array}{r} 105^{\circ} 16' \\ 105^{\circ} 0' \\ \hline 105^{\circ} 8' \end{array} \quad 37^{\circ} 34'$$

Rearranged

$$(7) \begin{array}{r} 68^{\circ} 0' \\ 68^{\circ} 28' \\ \hline 68^{\circ} 14' \end{array} \quad \begin{array}{r} 105^{\circ} 24' \\ 106^{\circ} 8' \\ \hline 105^{\circ} 46' \end{array} \quad 37^{\circ} 32'$$

orange filter in the path of incident light

$$(1) \begin{array}{r} 70^{\circ} 36' \\ 70^{\circ} 20' \\ \hline 70^{\circ} 28' \end{array} \quad \begin{array}{r} 104^{\circ} 8' \\ 104^{\circ} 36' \\ \hline 104^{\circ} 22' \end{array} \quad 33^{\circ} 54'$$

afternoon rearranged

$$(2) \begin{array}{r} 70^{\circ} 56' \\ 69^{\circ} 52' \\ \hline 70^{\circ} 24' \end{array} \quad \begin{array}{r} 103^{\circ} 28' \\ 104^{\circ} 36' \\ \hline 104^{\circ} 2' \end{array} \quad 33^{\circ} 28'$$

$$(3) \begin{array}{r} 69^{\circ} 24' \\ 69^{\circ} 0' \\ \hline 69^{\circ} 12' \end{array} \quad \begin{array}{r} 103^{\circ} 12' \\ 104^{\circ} 0' \\ \hline 103^{\circ} 36' \end{array} \quad 34^{\circ} 24'$$

Bethyl alcohol contd

orange filter in part
of scattered light.

$$(1) \begin{array}{r} 68' 20' \\ 68' 28' \\ \hline 68' 24' \end{array} \begin{array}{r} 105' 0' \\ 105' 12' \\ \hline 105' 6' \end{array} 26' 42'$$

$$(2) \begin{array}{r} 68' 28' \\ 68' 28' \\ \hline 68' 28' \end{array} \begin{array}{r} 105' 28' \\ 105' 4' \\ \hline 105' 16' \end{array} 36' 48'$$

$$(3) \begin{array}{r} 68' 20' \\ 68' 52' \\ \hline 68' 36' \end{array}$$

6th Jan 24 Orange Scattered.

$$(3) \begin{array}{r} 67' 32' \\ 68' 20' \\ \hline 67' 56' \end{array} \begin{array}{r} 105' 20' \\ 104' 32' \\ \hline 104' 56' \end{array} 37' 0'$$

$$(4) \begin{array}{r} 68' 48' \\ 69' 12' \\ \hline 69' 0' \end{array} \begin{array}{r} 105' 28' \\ 105' 28' \\ \hline 105' 28' \end{array} 36' 28'$$

Blue filter in part
of scatt. light up

$$(3) \begin{array}{r} 67' 44' \\ 67' 0' \\ \hline 67' 22' \end{array} \begin{array}{r} 104' 24' \\ 104' 44' \\ \hline 104' 34' \end{array} 37' 12'$$

~~$$(4) \begin{array}{r} 67' 12' \\ 68' 20' \\ \hline 67' 56' \end{array} \begin{array}{r} 109' 52' \\ 109' 52' \\ \hline 109' 52' \end{array}$$~~

~~$$\begin{array}{r} 68' 20' \\ 69' 20' \\ \hline 68' 20' \end{array} \begin{array}{r} 107' 52' \\ 107' 52' \\ \hline 107' 52' \end{array}$$~~

27th Jan 24

methyl alcohol no. parts of
dist. - trees
no. blue.

Blue water.

| | | |
|-----------------|---------|----------|
| | 69' 28' | 108' 44' |
| | 68' 12' | 106' 40' |
| | 68' 32' | 107' 32' |
| 26 | 68' 44' | 108' 48' |
| 24 ⁸ | 68' 40' | 107' 24' |
| | <hr/> | <hr/> |
| | 68' 43' | 107' 50' |

2θ = 39' 7"

Blue in scattered light

| | | |
|-----|---------|----------|
| | 73' 16' | 103' 48' |
| | 73' 28' | 103' 16' |
| | 72' 36' | 104' 4' |
| | 73' 36' | 103' 48' |
| 74 | 73' 20' | 103' 40' |
| 216 | <hr/> | <hr/> |
| | 73' 15' | 103' 43' |

2θ = 30' 28"

28th Jan 24

White light

| | | |
|-----------------|---------|----------|
| | 72' 32' | 104' 40' |
| 73 | 73' 32' | 104' 20' |
| | 72' 16' | 104' 16' |
| | 72' 40' | 105' 0' |
| 24 | 73' 8' | 105' 16' |
| | <hr/> | <hr/> |
| 24 ⁶ | 72' 50' | 104' 42' |

2θ = 31' 52"

orange filter in pairs of light

| | | |
|-----|---------|----------|
| | 74' 40' | 102' 4' |
| | 74' 56' | 102' 16' |
| | 75' 16' | 102' 44' |
| | 74' 44' | 103' 0' |
| | 75' 20' | 102' 16' |
| 176 | <hr/> | <hr/> |
| | 74' 59' | 102' 28' |

2θ = 27' 29"

orange in scattered light

| | | |
|----|---------|----------|
| | 72' 32' | 104' 48' |
| | 72' 52' | 104' 44' |
| 32 | 73' 4' | 105' 20' |
| | 73' 24' | 103' 52' |
| | 73' 40' | 104' 44' |
| | <hr/> | <hr/> |
| | 73' 6' | 104' 42' |

2θ = 31' 36"

28th Jan contd.ethyl alcohol a few fine
small particles -
Bottle took quite
blue.Blue incident

| | |
|---------|----------|
| 70° 44' | 105° 56' |
| 70° 24' | 106° 0' |
| 69° 44' | 106° 32' |
| 70° 4' | 106° 44' |
| 71° 28' | 105° 56' |

144

 70° 29' 106° 18'
 2θ = 35° 49'

Blue plate in scattered light

| | |
|---------|----------|
| 73° 40' | 104° 24' |
| 74° 40' | 103° 36' |
| 74° 36' | 104° 16' |
| 75° 8' | 103° 4' |
| 75° 4' | 103° 40' |
| 74° 38' | 103° 48' |

29° 10'

White light

| | |
|-------------------|----------|
| 74° 4' | |
| 74° 4' | 103° 8' |
| 74° 0' | 102° 48' |
| 73° 36' | 102° 12' |
| 74° 4' | 103° 12' |
| 73° 56' | 103° 20' |
| 73° 56' | 103° 8' |

2θ = 29° 12'

Orange incident

| | |
|-------------------|---------------------|
| 75° 40' | 100° 52' |
| 75° 36' | 101° 36' |
| 77° 0' | 102° 00' |

29th Jan

| | |
|---------|----------|
| 75° 40' | 101° 28' |
| 75° 28' | 101° 0' |
| 75° 12' | 102° 12' |

156
 128

 75° 31' 101° 26'

2θ = 25° 55'

Orange Scattered

| | |
|---------|----------|
| 74° 8' | 103° 48' |
| 74° 0' | 103° 32' |
| 73° 48' | 104° 12' |
| 73° 36' | 104° 4' |
| 74° 24' | 104° 0' |
| 73° 59' | 103° 55' |

2θ = 29° 56'

Propyl alcohol

24 Feb 24

with no H₂O
graduated @ 6

| | | |
|--------|--------|------|
| 298.25 | 267.25 | 31.0 |
| 297.3 | 266.0 | 29.3 |
| 298.0 | 267.8 | 30.2 |
| 297.8 | 267.8 | 30.0 |

26 Feb

| | | |
|-------|-------|------|
| 299.2 | 265.3 | 33.9 |
| 299.3 | 265.9 | 33.4 |

Rearrayed

| | | |
|-------|------------------|------|
| 300.2 | 265.5 | 34.7 |
| 299.9 | 265.0 | 34.9 |
| 300.0 | 265.6 | 34.4 |
| | 265.6 | |

27 Feb

arrayed, 200 ml + 8 ml

white light

| | | |
|------------|-------|-----|
| 23 28 | 54 12 | |
| 23 56 | 54 48 | |
| 23 48 | 55 12 | |
| 23 56 | 54 12 | |
| 23 32 | 53 40 | 180 |
| 23 28 | 54 36 | |
| 23 44 | 54 20 | |
| 23 42 | 54 26 | 50 |
| 20 = 30 44 | | |

Blue window

| | | |
|-------|-------|----------|
| 20 26 | 57 40 | |
| 21 40 | 58 24 | 40 |
| 20 48 | 57 40 | |
| 21 12 | 57 12 | |
| 19 32 | 56 16 | |
| 20 48 | 57 8 | |
| 20 46 | 57 23 | 20.36.87 |

Blue Sealard

| | | |
|-------|-------|----|
| 22 52 | 53 20 | |
| 24 16 | 54 24 | |
| 23 12 | 54 40 | |
| 24 8 | 54 32 | |
| 24 48 | 53 24 | 12 |
| 24 48 | 53 28 | |
| 23 8 | 53 24 | |
| 23 53 | 53 53 | |

20 = 30 0'

array window

array Sealard

| | | | | |
|------------|-------|-------|-------|----|
| 53 44 | 23 48 | 57 4 | 20 56 | 40 |
| 53 16 | 23 52 | 56 24 | 20 36 | |
| 53 56 | 23 44 | 56 24 | 21 48 | |
| 53 36 | 23 40 | 58 52 | 21 44 | |
| 53 36 | 23 50 | 55 28 | 20 44 | |
| 53 38 | 23 47 | 56 44 | 22 36 | |
| 29 51 | | 56 19 | 21 24 | |
| 20 = 34 55 | | | | |

29th Jan 24Isopogon aleshol
a pebble or 2 occasionally
Xup no fieldWhite light

| | |
|---------|----------|
| 75° 0' | 104° 4' |
| 74° 44' | 104° 36' |
| 75° 25' | 104° 24' |
| 74° 8' | 104° 16' |
| 73° 56' | 103° 48' |
| <hr/> | |
| 74° 15' | 104° 14' |
| 29° 59' | |

Orange madat

| | |
|-------------|----------|
| 76° 8' | 101° 40' |
| 76° 0' | 101° 12' |
| 75° 52' | 101° 20' |
| 76° 4' | 101° 12' |
| 76° 32' | 100° 48' |
| <hr/> | |
| 76° 7' | 101° 14' |
| 20 = 25° 7' | |

Orange Scattered

| | |
|-------------|----------|
| 74° 4' | 103° 40' |
| 74° 36' | 103° 40' |
| 74° 24' | 103° 24' |
| 74° 44' | 103° 28' |
| 74° 20' | 103° 12' |
| <hr/> | |
| 74° 26' | 103° 29' |
| 20 = 29° 3' | |

Blue madat

| | |
|-------------------------|--------------|
| 71° 36' | 107° 40' |
| 70° 48' | 106° 52' |
| 70° 40' | 106° 40' |
| 70° 36' | 107° 44' |
| 71° 16' | 107° 20' |
| <hr/> | |
| 70° 59' | 107° 15' |
| <hr/> | |
| 30 th Jan 24 | 20 = 36° 16' |
| <u>Blue Scattered</u> | |

| | |
|--------------------|---------------------|
| 74° 20' | 103° 36' |
| 73° 20' | 103° 28' |
| 73° 12' | 103° 40' |
| 73° 28' | 104° 20' 224 |
| 74° 28' | 103° 40' |
| <hr/> | |
| 228 | 73° 46' 103° 45' |

29° 59'

309 Jan

Sec Butyl alcohol no dust particles

White light

| | |
|----------------|----------------|
| 69° 36' | 107° 28' |
| 69° 12' | 107° 8' |
| 70° 20' | 106° 44' |
| 70° 28' | 106° 40' 12 4 |
| 70° 12' | 107° 4' |
| <u>69° 58'</u> | <u>107° 1'</u> |

108
60

2θ = 37° 3'

Orange incident

| | |
|----------------|-----------------|
| 73° 40' | 103° 44' |
| 73° 48' | 103° 24' |
| 73° 40' | 104° 4' |
| 73° 28' | 104° 20' |
| 73° 24' | 103° 28' |
| <u>73° 36'</u> | <u>103° 48'</u> |

2θ = 30° 12'

Orange Scattered

| | |
|----------------|-----------------|
| 69° 16' | 107° 24' |
| 69° 48' | 107° 36' |
| 68° 52' | 107° 4' |
| 69° 40' | 107° 0' |
| 69° 25' | 107° 32' |
| <u>69° 28'</u> | <u>107° 19'</u> |

124

6

∴ 2θ = 37° 54'

Blue incident

| | |
|---------|----------|
| 66° 32' | 110° 44' |
| 66° 28' | 110° 36' |
| 66° 48' | 110° 40' |
| 66° 28' | 110° 20' |
| 67° 20' | 111° 12' |

21

6 66° 43' 110° 42'

2θ = 43° 59'

309 Jan

Blue Scattered

~~70° 16' 106° 0'~~
~~70° 16' 106° 22'~~

| | |
|---------------|-----------------|
| 72° 8' | 105° 32' |
| 72° 12' | 105° 40' |
| 72° 40' | 105° 0' |
| 71° 44' | 105° 36' |
| 72° 0' | 105° 36' |
| <u>72° 9'</u> | <u>105° 29'</u> |

104

2θ = 33° 20'

93
31 Jan 24

Tri methyl carbimol no dist
people

Blue incident

| | |
|---------|----------|
| 71° 44' | 105° 44' |
| 71° 8' | 105° 20' |
| 71° 36' | 105° 20' |
| 72° 16' | 105° 32' |
| 72° 8' | 105° 52' |
| <hr/> | |
| 71° 46' | 105° 34' |

20 = 33° 48'

Blue scattered

| | |
|---------|----------|
| 75° 48' | 102° 12' |
| 75° 28' | 102° 20' |
| 75° 52' | 102° 16' |
| 75° 36' | 102° 12' |
| 75° 40' | 102° 0' |
| <hr/> | |
| 75° 41' | 102° 12' |

20 = 26° 31'

Orange incident

| | |
|---------|----------|
| 76° 52' | 99° 44' |
| 77° 12' | 100° 16' |
| 77° 8' | 100° 4' |
| 77° 44' | 99° 32' |
| 76° 48' | 100° 4' |
| <hr/> | |
| 77° 9' | 99° 56' |

20 = 22° 47'

white light

~~74° 40' 102° 56'~~

18 Feb

| | |
|--------------------|---------------------|
| 74° 36' | 101° 8' |
| 74° 44' | 101° 12' |

18 Feb

Rearranged with white light

| | |
|---------|----------|
| 74° 0' | 102° 12' |
| 74° 32' | 102° 20' |
| 74° 48' | 102° 48' |
| 74° 28' | 102° 44' |
| 74° 44' | 102° 24' |
| <hr/> | |
| 74° 30' | 102° 30' |

20 = 28° 0'

Orange scattered

| | |
|---------|---------------------|
| 74° 48' | 102° 16' |
| 74° 40' | 102° 4' |
| 74° 52' | 101° 56' |
| 75° 40' | 102° 40' |
| 75° 40' | 102° 36' |
| 75° 40' | 102° 28' |

220 75° 8' 102° 17'

20 = 27° 9'

1st Feb.

ortho xylene

white light

| | |
|---------|--------------------|
| 56° 48' | 120° 44' |
| 56° 16' | 120° 56' |
| 56° 12' | 120° 40' |
| 56° 44' | 121° 4' |
| | 120° 0' |

2nd Feb

white wd

| | |
|---------|----------|
| 55° 32' | 121° 24' |
| 55° 28' | 121° 40' |
| 55° 12' | 121° 8' |
| 56° 40' | 120° 40' |
| 56° 40' | 121° 20' |
| 56° 10' | 121° 4' |

2θ = 64° 54'

orange filter in münderb

| | |
|---------|----------|
| 56° 28' | 120° 40' |
| 55° 24' | 120° 32' |
| 56° 48' | 120° 48' |
| 56° 32' | 121° 8' |
| 55° 44' | 120° 20' |
| 56° 11' | 120° 42' |

2θ = 64° 31'

orange in scattered light

| | |
|---------|---------------------|
| 57° 4' | 120° 20' |
| 57° 12' | 119° 40' |
| 57° 32' | 120° 40' |
| | 119° 28' |
| 56° 52' | 120° 36' |
| 56° 36' | 120° 0' |
| 57° 3' | 120° 15' |

2θ = 65° 12'

Blue münderb

| | |
|---------|----------|
| 54° 16' | 120° 52' |
| 54° 12' | 121° 32' |
| 55° 52' | 120° 0' |
| 56° 24' | 121° 48' |
| 54° 24' | 121° 36' |
| 55° 2' | 121° 10' |

2θ = 66° 8'

Blue scattered

| | |
|---------|----------|
| 56° 8' | 122° 12' |
| 56° 44' | 122° 16' |
| 55° 24' | 121° 0' |
| 56° 24' | 120° 44' |
| 54° 36' | 120° 32' |
| 55° 48' | |

2θ = 65° 15'

2θ = 65° 15'

ortho xylene contd

Repeated with
white light

| | |
|----------------|-----------------|
| 56' 24' | 126' 52' |
| 56' 32' | 126' 0' |
| <u>56' 48'</u> | <u>125' 20'</u> |
| 56' 35' | 125' 24' |
| 2θ = 63' 49' | |

meta xylene (marks)

white light

| | | |
|-------------------|-----------------|---------------------|
| 51' 20' | 124' 48' | 124' 48' |
| 50' 52' | 124' 24' | |
| readjusted light | | |
| 2 discharge prism | | |
| 50' 40' | 124' 52' | } 2θ = 73' 45' |
| 51' 4' | 124' 20' | |
| 51' 4' | 125' 20' | |
| <u>51' 0'</u> | <u>124' 45'</u> | |

Blue incident

| | | |
|-------------------|---------------------|----|
| 51' 8' | 124' 36' | |
| 48' 44' | 126' 8' | |
| 48' 48' | 126' 32' | |
| 49' 56' | 125' 20' | 80 |
| 48' 32' | 126' 24' | |
| 49' 24' | 126' 56' | |
| <u>49' 5'</u> | <u>126' 16'</u> | |
| 2θ = 77' 11' | | |

Blue scattered

| | | |
|------------------------|----------------|-----|
| adjusted light & prism | | |
| 50' 20' | 126' 44' | |
| 50' 8' | 126' 8' | |
| 51' 20' | 125' 48' | |
| 50' 52' | 127' 4' | 164 |
| <u>50' 20'</u> | <u>127' 0'</u> | |
| 50' 36' | 126' 33' | |
| 2θ = 75' 57' | | |

4th Pr. Orage incident
readjusted prism

| | | |
|----------------|----------------|-----|
| 52' 20' | 125' 48' | |
| 51' 48' | 125' 52' | |
| 51' 56' | 125' 24' | 144 |
| 52' 28' | 125' 12' | |
| <u>51' 40'</u> | <u>125' 8'</u> | |
| 52' 2 | 125' 29' | |
| 2θ = 73' 27' | | |

5th Feb. 23

meta-xylene (muck)

cont'd 96

orange sea lamp

rearranged aff. + readjusted prism

7724

51° 4' 126' 28'

8878

51° 4' 126' 40'

2θ = 75° 22'

7756

50° 48' 126' 48' 8

θ = 37° 41'

59.7%

51° 16' 125° 44'

~~repeated with white light~~

44

51° 32' 126° 48'

51° 8' 126° 30'

repeated with white light

50° 52' 126° 32'

2θ = 74° 52'

7655

51° 8' 126° 0'

~~7650~~

51° 44' 125° 52'

θ = 37° 26'

8940

51° 36' 126° 32'

7650

188

50° 48' 126° 4'

58.6

51° 14' 126° 6'

Para-xylene (muck)

no Aust. paddle
but one lot of lites on
the side of the bulb
so no. due to necessity
like deposit
inside.orange mercur

49° 4' 127° 48'

readjusted prism

144

49° 24' 127° 12'

9087

49° 56' 126° 52'

8178

49° 4' 128° 8'

76

49° 24' 127° 52'

49° 24' 127° 20'

49° 26' 127° 29'

49° 26' 127° 29'

orange sea lamp

49° 4' 128° 16'

49° 40' 127° 12'

48° 48' 127° 12'

264

49° 12' 128° 8'

49° 32' 128° 16'

49° 15' 127° 49'

49° 15' 127° 49'

49° 15' 127° 49'

2θ = 78° 34'

9127

8254

2θ = 78° 34'

θ = 39° 17'

r = 66.9%

θ = 39° 2'

2θ = 78° 3'

r = 65.77

97 Paraxylene (cont'd.)

Blue in a dust

| | | |
|----------------|----------------|-------------------|
| 48 24' 127 40' | 48 43' 127 16' | 20 = 78 33' |
| 48 20' 127 12' | | |
| 48 48' 127 24' | | |
| 49 0' 127 8' | | $\theta = 39 17'$ |
| 49 4' 126 56' | | $v = 66.7\%$ |

white light

| | |
|--------|---------|
| 49 36' | 127 16' |
| 49 8' | 127 44' |
| 49 28' | 127 52' |
| 49 40' | 127 16' |
| 49 28' | 127 32' |

Blue scattered

| | |
|----------------|------------------|
| 49 12' 127 36' | 20 = 78 55' |
| 48 12' 127 48' | $\theta = 39 2'$ |
| 48 36' 128 0' | $v = 65.7\%$ |
| 49 8' 127 44' | |
| 49 12' 127 48' | |
| 48 52' 127 47' | 67.8 |

20. 78 4'
 $\theta = 39 2'$
 $v = 65.7\%$

6th Feb, 24

noon 104m.

Allyl alcohol

no dust particles

white light

| | | |
|--------|---------|------------|
| 58 44' | 117 36' | 124 |
| 58 56' | 118 12' | |
| 59 32' | 117 40' | |
| 59 0' | 118 0' | |
| 58 52' | 118 36' | |
| 59 1' | 118 1' | 20 = 59 0' |

Orange scattered

| | | |
|--------|---------|-----|
| 59 40' | 117 44' | 120 |
| 60 36' | 117 28' | |
| 59 44' | 117 12' | |
| 60 32' | 116 32' | |
| 60 36' | 117 4' | |
| 60 14' | 117 12' | |

20 = 56 58'

orange filter in a dust

| | | | |
|--------|---------|------------|---------|
| 60 12' | 117 36' | 59 54' | 116 58' |
| 59 44' | 116 28' | 20 = 57 4' | |
| 59 56' | 117 20' | | |
| 59 44' | 117 12' | | |
| 59 56' | 116 16' | | |

White light cont'd

| | | |
|--------|--------------------|---------|
| 60 12' | 117 8' | |
| 60 44' | 117 48' | 117 48' |
| 60 44' | 117 12' | |

200
 60 56 117 8
 60 44 116 56

 60 40 117 14
 20 = 56 34

7th Feb. 24

Blue incident.

57 4 121 48
 57 4 119 48
 57 48 121 0
 57 20 120 48
 92. 57 0 120 12 244

 57 48 120 44
 56 28 120 44

 57 13 120 35

20 = 63 22

Blue scattered

57 02 119 36
 56 40 120 32
 56 32 120 40 196
 56 52 119 0
 57 8 ~~120 32~~ 120 56
 56 57 4 120 0
 57 48 ~~118 44~~ 119 32

 57 8 120 2

20 = 62 54

White light - gen

59 48 117 4 57 15
 59 52 117 20
 60 6 117 0
 59 53 117 8

Green incident

58 40 118 44
 59 12 118 52
 58 20 119 20
 58 4 119 20
 58 46 119 12
 58 48 119 16

 58 37 119 7

20 = 60 30

Green scattered

8th Feb. 24

~~58 4 118 48
 58 0 118 20
 59 4 118 12

 59 4 119 0
 59 0 "~~

mor

58 4 118 20
 58 0 118 12
 after 59 4 119 0
 59 0 119 0 rejected
 59 36 117 44
 59 8 117 12
 100 58 52 117 0 88
 60 0 117 20

 57 58 59 17 117 12

 117 0

 117 15

99 green incident again

Butyric acid

8th Feb (cont) Some stray peaks of dirt where
partly left -

orange incident

| | | | | |
|-----|--------------------|-------------------|--------------|-----|
| 147 | 57' 24' | 58' 0' | 119' 24' | |
| | 57' 40' | | 120' 20' | |
| | 56' 40' | | 119' 40' | |
| | 56' 48' | | 119' 24' | 204 |
| 176 | 57' 20' | | 119' 36' | |
| | <hr/> | | | |
| | 57' 11' | | 119' 41' | |
| | | | 2θ = 62' 30' | |

orange scattered.

| | | | | |
|--|---------|--|----------|--|
| | 56' 0' | | 120' 24' | |
| | 57' 36' | | 120' 20' | |

9th Feb
rearranged 2H. & adjusted
prism also.

| | | | | |
|-----|---------|--|-------------|-----|
| | 57' 28' | | 121' 28' | |
| | 57' 12' | | 121' 0' | |
| 116 | 57' 32' | | 121' 44' | 140 |
| | 57' 12' | | 121' 36' | |
| | 57' 32' | | 121' 32' | |
| | <hr/> | | | |
| | 57' 28' | | 121' 28' | |
| | | | 2θ = 64' 5" | |

redwood lign orange incident again

| | | | | |
|-----|--------------------|--|----------|--|
| | 58' 20' | | 121' 0' | |
| 584 | 57' 24' | | 120' 20' | |
| | 58' 0' | | 120' 48' | |
| | 58' 48' | | 120' 32' | |

| | | | | |
|-----|---------|--|--------------|-----|
| 147 | 59' 12' | | 119' 48' | 188 |
| | <hr/> | | | |
| | 58' 29' | | 120' 18' | |
| | | | 2θ = 61' 49' | |

Blue incident

| | | | | |
|--|---------|--|----------|-----|
| | 51' 36' | | 129' 44' | |
| | 50' 16' | | 129' 48' | |
| | 49' 28' | | 128' 24' | |
| | 50' 20' | | 128' 40' | 284 |

10th Feb

| | | | | |
|-----|---------|--|--------------|--|
| | 50' 36' | | 129' 48' | |
| 156 | 50' 0' | | 128' 56' | |
| | 50' 20' | | 129' 24' | |
| | <hr/> | | | |
| | 50' 22' | | 129' 15' | |
| | | | 2θ = 78' 53' | |

Blue scattered

| | | | | |
|---|---------|--|-------------|--|
| | 52' 44' | | 126' 20' | |
| | 53' 48' | | 126' 0' | |
| | 53' 12' | | 127' 0' | |
| | 53' 0' | | 126' 20' | |
| 6 | 53' 16' | | 125' 20' | |
| | <hr/> | | | |
| | 53' 12' | | 126' 12' | |
| | | | 2θ = 73' 0' | |

Butyrinic acid cont

Green incident

56° 40' 121° 56'

56° 0' 122° 44'

Repts { 55° 40'
55° 0'

57° 0'

57° 40'

57° 40'

57° 32'

11th Feb. 24

56° 0' 122° 20'

55° 24' 122° 32'

57° 12' 120° 36'

57° 0' 122° 40'

240 55° 52' 121° 40' 252

56° 44' 121° 44'

57° 8' 122° 40'

56° 29' 122° 2'

20 = 65° 33'

Green scattered.

56° 8' 123° 24'

55° 44' 123° 40'

256 56° 12' 122° 36' 52

55° 44' 123° 8'

55° 48' 123° 4'

55° 55' 123° 10'

20 = 67° 15'

¹¹⁰
white light

57° 8' 122° 4'

~~57° 40'~~ 121° 48'

57° 20' 122° 12'

57° 32' 121° 44'

84 57° 24' 121° 32' 240

57° 17' 121° 52'

20 = 64° 35'

Propionic acid no dust
pallets

white light ✓

| | |
|--------------|----------|
| 57' 8 | 121' 44' |
| 57' 8 | 121' 36' |
| 57' 4 | 121' 44' |
| 57' 4 | 121' 41' |
| 20 = 64' 37' | |

~~orange incident~~

57' 44'

12th Feb. 24 white light
and

| | | |
|-------------------|----------|---------------------|
| ✓ 56' 44' | 122' 16' | repeated |
| 57' 8' | 121' 44' | |
| 156 56' 44' | 122' 36' | |
| 56' 52' | 122' 12' | |
| 20 = 65' 20' | | |
| mean 20 = 64' 59' | | |

orange incident ✓

| | |
|------------------|----------|
| 57' 8' | 122' 20' |
| 57' 0' | 121' 20' |
| 56' 0' | 123' 36' |
| 268 56' 16' | 121' 56' |
| 56' 40' | 122' 40' |
| 6-8 57' 4' | 122' 8' |
| 57' 8' | 121' 48' |
| 56' 52' | 122' 36' |
| 56' 46' 122' 18' | |
| 65' 32' | |

orange section ✓

| | |
|--------------|----------|
| 55' 40' | 123' 12' |
| 55' 48' | 122' 48' |
| 55' 36' | 123' 20' |
| 56' 0' | 123' 24' |
| 56' 16' | 123' 16' |
| 55' 52' | 123' 12' |
| 20 = 67' 20' | |

Blue incident

| | |
|--------------|----------|
| 54' 52' | 124' 4' |
| 55' 36' | 124' 24' |
| 20 53' 24' | 126' 36' |
| 24 54' 48' | 125' 40' |
| 55' 40' | 124' 28' |
| 54' 52' | 125' 2' |
| 20 = 70' 10' | |

Blue section

| | |
|----------------------|----------|
| 54' 0' | 124' 40' |
| 16 th Feb | |
| 55' 4' | 123' 20' |
| 55' 12' | 124' 28' |
| 55' 56' | 124' 52' |
| 96 55' 44' | 123' 28' |
| 54' 40' | 124' 44' |
| 55' 19' | 124' 2' |
| 20 = 68' 43' | |

Propionic acid contd ¹⁰²

white light

| | |
|----------------|-----------------|
| 56' 40' | 122' 40' |
| 56' 4' | 121' 56' |
| 56' 40' | 122' 32' |
| 56' 56' | 122' 12' |
| 56' 44' | 122' 24' |
| <u>56' 37'</u> | <u>122' 21'</u> |

284

104

20 = 65' 44'

green maid

| | |
|----------------|-----------------|
| 57' 16' | 122' 40' |
| 56' 4' | 122' 52' |
| 56' 52' | 121' 48' |
| 56' 16' | 122' 48' 112 |
| 56' 24' | 121' 44' |
| <u>56' 34'</u> | <u>122' 22'</u> |

172

20 = 65' 48'

green scattered

| | |
|----------------|-----------------|
| 56' 48' | 122' 12' |
| 56' 0' | 122' 24' |
| 56' 12' | 122' 8' |
| 57' 8' | 122' 36' |
| 56' 56' | 121' 40' |
| <u>56' 37'</u> | <u>122' 12'</u> |

9

20 = 65' 35'

mean of all net readings for white light

orange maid

| | |
|--------------------|-----------------|
| 57' 48' | 122' 56' |
| 56' 56' | 122' 125 |
| 57' 24' | 122' 16' |
| 57' 36' | 122' 8' |
| 57' 36' | 121' 48' |
| 57' 8' | 122' 16' |
| <u>57' 30'</u> | <u>122' 16'</u> |

total mean ^{122' 13'} 20 = 64' 46'

orange scattered

| | |
|--------------------|--------------|
| 57' 40' | 122' 12' |
| 56' 40' | 121' 20' |
| 57' 48' | 121' 16' |
| 57' 36' | 122' 20' |
| 56' 50' | 121' 4' |
| 4 57' 40' | 121' 4' 72 |
| 57' 29' | 121' 58' |
| 57' 0' | 20 = 64' 29' |

white again

| | |
|---------|----------|
| 56' 48' | 122' 8' |
| 57' 12' | 122' 12' |
| 57' 8' | 122' 12' |
| 57' 8' | 121' 44' |

56' 53' 122' 7'

20 = 65' 14'

white light

| | | | |
|---|-------------------|----------|-----|
| | 55° 52' | 122° 56' | |
| 8 | 55° 48' | 122° 28' | |
| | 56° 32' | 123° 16' | 280 |
| | 56° 12' | 122° 48' | |
| | 55 44' | 123° 12' | |
| | <hr/> | | |
| | 56° 2' | 122° 56' | |
| | 2θ = | 66° 54' | |

orange incident

| | | | |
|-----|---------|----------|-----|
| | 56° 8' | 122° 44' | |
| | 56° 16' | 123° 24' | |
| 108 | 56° 12' | 123° 36' | |
| | 56° 44' | 123° 8' | 152 |
| | 56° 28' | 123° 40' | |
| | <hr/> | | |
| | 56° 22' | 123° 30' | |
| | 2θ = | 67° 8' | |

orange scattered

| | | | |
|--|---------|----------|-----|
| | 56° 26' | 122° 52' | |
| | 56° 12' | 123° 0' | |
| | 56° 20' | 122° 52' | 292 |

redwood light

| | | | |
|----|---------|----------|--|
| 68 | 56° 20' | 123° 36' | |
| | 55° 48' | 122° 32' | |
| | <hr/> | | |
| | 56° 14' | 122° 58' | |
| | 2θ = | 66° 44' | |

Blue incident

| | | | |
|--|---------|----------|--|
| | 54° 12' | 124° 44' | |
| | 54° 12' | 124° 44' | |
| | 54° 16' | 124° 52' | |

| | | | |
|---|---------|----------|-----|
| | 54° 20' | 125° 20' | |
| 8 | 54° 8' | 124° 48' | 268 |
| | <hr/> | | |
| | 54° 14' | 124° 54' | |

2θ = 70° 40'

Blue scattered

| | | | |
|--|---------|----------|--|
| | 53° 24' | 125° 8' | |
| | 53° 56' | 125° 24' | |

~~52° 44' 126° 16' rejected~~

| | | | |
|--|---------|---------|--|
| | 54° 12' | 125° 4' | |
|--|---------|---------|--|

| | | | |
|-----|---------|----------|-----|
| 285 | 53° 52' | 124° 44' | 288 |
|-----|---------|----------|-----|

| | | | |
|--|---------|----------|--|
| | 53° 24' | 124° 28' | |
|--|---------|----------|--|

| | | | |
|--|---------|----------|--|
| | 53° 46' | 124° 58' | |
|--|---------|----------|--|

2θ = 71° 12'

Green incidentBlue scattered contd

| | | | |
|-----|---------|----------|--|
| 256 | 54° 16' | 125° 20' | |
| | 53° 44' | 125° 0' | |

| | | | |
|-----|--------|---------|--|
| max | 54° 8' | 125° 0' | |
|-----|--------|---------|--|

| | | | |
|-------|---------|---------|-------------|
| white | 53° 52' | 125° 1' | 2θ = 71° 9' |
|-------|---------|---------|-------------|

Green incident

| | | | |
|---------|---------|----------|----------|
| 80 | 56° 4' | 124° 16' | 123° 40' |
| 55° 27' | 55° 52' | 123° 44' | |
| | 55° 24' | 123° 20' | |

Green scattered 2θ = 68° 13'

~~56° 40' 122° 44' rejected~~

Benzene (cont)

15th Feb 24

Green scattered

margin in white aff.

97° 4' 1044 ²⁰ 69° 12'

110 48'

56° 40' 125° 0'

57° 4' 125° 4'

57° 8' 125° 0'

57° 8' 125° 26'

57° 40' 124° 44'

57° 8' 125° 2'

20 = 67° 54'

Green incident

56° 44' 124° 32'

57° 12' 124° 28'

106 56° 40' 124° 46'

57° 16' 125° 0'

57° 24' 124° 48' 114

57° 3' 124° 37'

20 = 67° 34'

3-39
2-50
6-29

Toluene

104

White liquid

54° 48' 127° 24'

55° 8' 127° 16'

55° 12' 126° 52'

55° 20' 126° 48'

56 55° 16' 126° 32'

55° 8' 127° 16'

55° 4' 126° 36'

55° 8' 126° 58'

20 = 71° 50'

Blue incident

55° 52' 126° 48' repeat

53° 52' 127° 12'

53° 52' 127° 8'

53° 36' 128° 0'

53° 40' 129° 0' 566

54° 44' 127° 52'

58° 24' 128° 44'

53° 57' 127° 59'

20 = 74° 8'

Blue section

53° 36' 128° 48' 64

52° 36' 127° 36'

28 4 52° 0' 127° 40'

53° 44' 128° 16'

52° 48' 128° 44'

52° 57' 128° 13' 20 = 75'

105 Volume contd

Orange vic

55 4 126 44
 55 12 126 40
 54 48 126 40
~~55 4~~

16th Feb. 24

212

54 40 126 52
 54 46 126 36
 54 53 126 42

20 = 71 49

Orange section

54 44 126 16
 54 48 126 24
 276 53 16 126 20
 54 56 126 24
 54 52 126 40

4

54 55 126 25

20 = 71 30

Green meadow

54 48 127 44
 53 28 ~~54 48~~ 127 16
 55 0 127 16

120

116 54 4 127 20
 54 36 127 24

54 23 127 24

73 1

Green section

56 0 126 52
 55 28 126 20
 55 16 126 8
 55 48 126 20
 55 8 126 48

55 32 126 30

20 = 70 56

Blue vic. again

54 48 127 4
 53 52 127 32

24

53 40 128 28

52 40 127 12

17th Feb 53 40 127 48

53 44 128 36

53 16 128 48

53 29 128 4 20 = 74 35

Blue section mean 24.74 22

52 36 128 12

52 56 128 48

40

52 53 20 127 36

53 48 128 24

53 12 127 40

53 10 128 8

20 = 74 58

mean 20 = 75 7

28th Feb, 26

Ethyl Benzene

106

Blue incident

| | | |
|---------|--------|-----|
| 74° 24' | 3° 24' | 28° |
| 75° 16' | 3° 48' | |
| 75° 44' | 2° 16' | |
| 74° 56' | 2° 48' | |
| 74° 48' | 2° 24' | |
| <hr/> | | |
| 75° 2' | 2° 56' | |

20 = 72° 6'

Blue scattered

| | | |
|----------|--------|---|
| 77° 20' | 1° 12' | |
| 76° 56' | 1° 40' | 0 |
| 6 76° 8' | 2° 8' | |
| 75° 44' | 1° 16' | |
| 76° 8' | 0° 44' | |
| <hr/> | | |
| 76° 27' | 1° 24' | |

20 = 75° 3'

Orange incident

| | | |
|---------|--------|--|
| 75° 28' | 2° 0' | |
| 75° 16' | 1° 36' | |

Red light double in pro

| | | |
|---------|--------|---|
| 74° 40' | 2° 16' | |
| 74° 40' | 3° 8' | 6 |
| 74° 52' | 2° 16' | |
| <hr/> | | |
| 74° 59' | 2° 15' | |

20 = 72° 44'

Orange scattered

| | | |
|-----------|--------|---|
| 74° 40' | 2° 36' | |
| 74° 0' | 2° 32' | |
| 74° 40' | 2° 52' | 2 |
| 6 74° 20' | 2° 8' | |
| 74° 56' | 2° 24' | |
| <hr/> | | |
| 74° 31' | 2° 30' | |

20 = 72° 1'

White light

| | | |
|--------------------------|-------------------|--------------|
| 75° 8' | 2° 16' | 8 |
| 74° 20' | 2° 36' | |
| 74° 40' | 2° 36' | |
| 74° 43' | 2° 36' | |
| | 2° 29' | 20 = 72° 14' |
| 29 th Feb | red light from | |
| 76° 20' | 3° 48' | |
| 14 th 75° 32' | 4° 4' | 8° |
| 75° 36' | 3° 28' | |
| <hr/> | | |
| 75° 49' | 3° 47' | 20 = 72° 2' |

mean 20 = 72° 8'

Green incident

| | | |
|-------------------------|--------|---|
| 75° 44' | 3° 28' | |
| 76° 8' | 2° 36' | 2 |
| 14 th 75° 0' | 3° 36' | |
| 75° 24' | 3° 16' | |
| 75° 12' | 3° 36' | |
| <hr/> | | |
| 75° 30' | 3° 18' | |

20 = 72° 12'

107

Ethyl Benzene contd

Green Scattered

75° 40' 2° 40'
 75° 44' 2° 40'
 75° 44' 2° 8' 196
 248 75° 24' 2° 44'
 76° 36' 3° 4'

75° 50' 2° 39'

2θ = 73° 11'

Blue Scattered again

74° 48' 5° 0'
 74° 56' 3° 8' 116
 75° 16' 4° 44'
 75° 16' 3° 36'
 75° 16' 4° 24'
 74° 48' 5° 4'

75° 3' 4° 19'

2θ = 70° 44'

Blue made again

75° 8' 4° 48'
 74° 40' 4° 36'
 0 75° 24' 4° 12' 0
 75° 4' 5° 16'
 75° 24' 3° 48'

75° 8' 4° 32'

70° 36'

White light - again

74° 16' 4° 12'
 74° 4' 3° 32'

Reddish brown

74° 6' 3° 24'
 + 74° 36' 2° 56' 5
 74° 8' 3° 24'

74° 13' 3° 30'

2θ = 70° 43'

Orange made again

74° 36' 3° 36'

74° 40' 3° 12'

74° 40' 3° 0'

74° 44' 1 mesh reddish brown ds

73° 20' 4° 32'

73° 20' 4° 28'

Reddish

72° 44' 4° 20'

white

collected

72° 14' × 3

72° 2' × 3

72° 8' 86° 4'

8624
7248

8th march.

Benzal chloride

108

white light

| | |
|----------------|---------------|
| 100 48' | 27 48' |
| 101 20' | 27 20' |
| 100 40' | 28 28' |
| 268 101 12' | 28 28' |
| 100 28' | 27 20' |
| <u>100 54'</u> | <u>27 53'</u> |
| 20 = | 73 1' |

orange incident

| | |
|--------------------|-------------------|
| 101 12' | 28 40' |
| 99 24' | 28 44' |
| 99 24' | 28 4' |
| 99 40' | 28 12' |
| 100 16' | 28 0' |
| 99 36' | 28 20' |
| <u>101 12'</u> | <u>28 40'</u> |
| 99 24' | 28 44' |
| 100 40' | 28 12' |
| 99 36' | 28 0' |
| 100 16' | 28 20' |
| 99 36' | 27 48' |
| 99 40' | 28 56' |
| 101 16' | 27 56' |
| 99 28' | 28 44' |
| <u>100 8'</u> | <u>28 22'</u> |

20 = 71 46'

orange scattered

| | |
|----------------|---------------|
| 101 16' | 27 48' |
| 100 20' | 27 52' |
| 268 101 12' | 27 52' |
| 100 56' | 27 52' |
| 100 44' | 27 48' |
| <u>100 54'</u> | <u>27 50'</u> |
| 20 = | 73 4' |

Blue incident

| | |
|----------------|---------------|
| 104 36' | 25 20' |
| 103 36' | 24 12' |
| 104 4' | 24 48' |
| 105 32' | 23 16' |
| 105 4' | 23 56' |
| <u>104 34'</u> | <u>24 18'</u> |

20 = 80 16'

Blue scattered

| | |
|---------------|---------------|
| 100 24' | 28 0' |
| 99 48' | 28 16' |
| 99 40' | 27 44' |
| 99 16' | 28 0' |
| 144 100 12' | 27 28' |
| 100 4' | 27 52' |
| <u>99 54'</u> | <u>27 53'</u> |

20 = 72 1'

orange incid. contd

| | |
|--------------------|--------|
| 100 0' | 28 32' |
| 101 12' | |

159
2nd march

Benzyl chloride (NO dust part 6)

white light

| | | | |
|-----|----------------|---------------|---|
| | 101 12' | 27 20' | |
| | 101 40' | 26 32' | |
| | 102 16' | 27 32' | 0 |
| 192 | 101 20' | 26 36' | |
| | 101 44' | 26 40' | |
| | <u>101 38'</u> | <u>26 56'</u> | |

2θ = 74 42'

orange incident

| | | | |
|--|---------------|---------------|---|
| | 101 8' | 27 24' | |
| | 101 4' | 27 36' | |
| | 100 40' | 27 28' | 8 |
| | 101 12' | 27 40' | |
| | 101 20' | 27 40' | |
| | <u>101 5'</u> | <u>27 34'</u> | |

2θ = 73 31'

orange scattered

| | | | |
|-----|----------------|---------------|---|
| | 102 8' | 26 36' | |
| | 102 36' | 26 36' | |
| | 103 0' | 26 44' | |
| 172 | 102 24' | 26 16' | 2 |
| | 102 44' | 26 20' | |
| | <u>102 34'</u> | <u>26 30'</u> | |

2θ = 76 4'

Blue incident

| | | | |
|---|----------------|---------------|-----|
| | 105 8' | 24 8' | |
| | 104 36' | 23 24' | |
| | 104 32' | 23 36' | |
| 8 | 104 48' | 23 24' | 188 |
| | 104 46' | 23 36' | |
| | <u>104 44'</u> | <u>23 38'</u> | |

2θ = 81 8'

Blue scattered

| | | | |
|--|---------|--------|--|
| | 100 40' | 28 12' | |
| | 100 48' | 27 20' | |
| | 100 36' | 28 24' | |

3rd march

| | | | |
|--------|---------|--------|--|
| | 100 44' | 28 8' | |
| repech | 99 16' | 27 32' | |
| | 99 16' | 28 16' | |

| | | | |
|-----|----------------|---------------|---|
| 218 | 100 44' | 28 40' | 8 |
| | 100 8' | 28 0' | |
| | 100 52' | 29 12' | |
| | <u>100 46'</u> | <u>28 22'</u> | |
| | 2θ = 72 24' | | |

chloro Benzene no dist. ¹¹⁰ parts

3rd mar 24

Blue scattered

| | |
|------------|-------|
| 101 20 | 28 36 |
| 101 16 | 28 52 |
| 99 44 | 28 44 |
| 136 101 44 | 28 44 |
| 100 32 | 28 44 |
| 100 51 | 28 44 |

20 = 72 7'

Blue incident

| | |
|----------|-------|
| 102 8 | 27 52 |
| 4 101 12 | 27 24 |
| 100 32 | 27 52 |
| 101 12 | 27 16 |
| 101 11 | 27 36 |

white light 20 = 73 35'

| | |
|------------|-------|
| 102 32 | 26 28 |
| 102 0 | 27 20 |
| 101 44 | 26 20 |
| 101 28 | 26 44 |
| 224 100 40 | 27 16 |
| 101 20 | 27 0 |
| 101 37 | 26 51 |

20 = 74 46'

orange incident

| | |
|------------|-------|
| 102 0 | 26 48 |
| 284 101 40 | 26 20 |
| 101 48 | 26 32 |
| 102 12 | 26 24 |
| 102 4 | 26 12 |

mean 101 57' 26 27'

20 = 75 30'

orange scattered

| | |
|------------|-------|
| 102 0 | 27 24 |
| 101 48 | 27 8 |
| 101 20 | 27 8 |
| 192 101 28 | 26 20 |
| 101 36 | 26 56 |
| 101 38 | 26 59 |

74 39'

Blue scattered again

| | |
|------------|-------|
| 101 36 | 27 28 |
| 100 12 | 27 52 |
| 220 101 20 | 28 16 |
| 99 24 | 28 16 |
| 101 12 | 27 48 |
| 100 48 | 27 8 |
| 6 101 28 | 27 8 |

101 6' 27 37'

20 = 73 29'

Blue incident

| | |
|------------|-------|
| 102 32 | 26 36 |
| 100 40 | 26 40 |
| 101 4 | 27 56 |
| 110 100 12 | 27 12 |
| 101 20 | 26 16 |

101 10' 26 56'

20 = 74 14'

white 37' 22"
or mc. 37' 11"
or bc. 37' 22"

green mc. 38' 5"
38' 0"
Bl in. 36' 54"

36' 54" rd. sc.
36' 27'

green in. about

Orange scattered

102 20' 25' 52'
102 24' 26' 44'
101 20' 26' 0'
8 102 44' 25' 36'

102 12' 26' 3'
20 = 76' 9'

101 28' 26' 48'
102 12' 26' 48'
101 44' 26' 28' 212
212 101 48' 27' 24'
101 20' 27' 4'

101 42' 26' 54'

Green scattered

102 32' 26' 12'
102 20' 26' 36'
101 36' 26' 20'
102 20' 25' 40'
102 12' 26' 16'

102 12' 26' 13'
20 = 75' 59'

20 = 74' 48'
or. mixed green

101 0' 27' 44'
101 24' 27' 8' 40
100 48' 26' 48'

101 4' 27' 13'
20 = 73' 51'

white light green

Blue mixed

102 4' 26' 12'
101 48' 26' 40'
102 8' 25' 48' 4
208 101 36' 26' 40'
102 12' 26' 44'

101 58' 26' 25'

100 40' 27' 44'
102 24' 27' 32' 100
101 36' 27' 44'
101 8'
101 4'

101 22' 27' 40'

20 = 73' 42'

Blue scattered

5' mc
orange mc. again

100 44' 28' 20'
~~99' 26' 24'~~ 28' 20'
102 20' 28' 24' 20 = 72' 48'
100 20' 28' 16'

100 40' 27' 0'
101 20' 28' 0' 128
96 100 24' 27' 32'
101 12' 27' 36'

100 54' 27' 32'
20 = 73' 22'

white
101 4' 28' 4'
176 101 16' 27' 28'
100 36' 27' 28'

100 20' 27' 40' 20 = 73' 19'

6th march 24

atryl formate no dist. 112

white light

| | | |
|--------------------------|---------|---------|
| 85' 52' | 35' 44' | |
| 85' 20' | 35' 0' | |
| 15 th 85' 48' | 35' 12' | 92 |
| 85' 36' | 35' 36' | |
| 85' 34' | 35' 8' | |
| | 35' 44' | 35' 23' |
| | 20 | 50' 16' |

take
 2 main 86' 44' 36' 0'
 84' 40' 38' 36'

13th march

white light

| | | |
|------------------------|--------------------|-----|
| 85' 20' | 36' 16' | |
| 85' 28' | 36' 36' | |
| 14 th march | 36' 0' | |
| Readjust | | |
| 85' 40' | 36' 12' | |
| 85' 32' | 35' 36' | 188 |
| 86' 4' | 35' 44' | |
| 85' 40' | 35' 36' | |
| 85' 44' | 35' 47' | |

20 = 49' 57'

mean 20 = 50' 7'

Blue incident

| | | |
|---------|---------|-----|
| 85' 24' | 35' 56' | |
| 85' 40' | 36' 28' | 332 |
| 85' 44' | 36' 40' | 212 |
| 85' 8' | 36' 44' | |
| 85' 20' | 34' 44' | |
| 85' 27' | 36' 6' | |
| 20 = | 49' 21' | |

Blue scattered

| | | | |
|------------------------|---------|---------|-----|
| 15 th march | 83' 36' | 36' 36' | |
| | 84' 20' | 37' 52' | |
| | 84' 40' | 38' 4' | |
| 21 ⁶ | 83' 8' | 37' 48' | 340 |
| | 83' 0' | 38' 8' | |
| | 83' 52' | 38' 32' | |
| | 83' 39' | 37' 57' | |

20 = 45' 42'

Blue incident again

| | | | |
|---|---------|---------|---|
| | 85' 24' | 35' 20' | |
| | 84' 24' | 34' 8' | 0 |
| | 86' 20' | 34' 40' | |
| 6 | 85' 20' | 35' 16' | |
| | 85' 48' | 36' 16' | |
| | 85' 27' | 35' 8' | |

20 = 50' 19'

16th march

orange incident

| | | | |
|-----|---------|---------|-----|
| | 84' 44' | 35' 24' | |
| 140 | 85' 48' | 35' 44' | 280 |
| | 85' 36' | 36' 16' | |
| | 85' 20' | 36' 28' | |
| | 85' 52' | 35' 48' | |
| | 85' 28' | 35' 56' | |

49' 32'

orange scattered

| | | | |
|--|---------|---------|--|
| | 86' 8' | 35' 40' | |
| | 85' 24' | 36' 20' | |
| | 87' 12' | 36' 48' | |

113

| | |
|---------|---------|
| 85° 44' | 35° 8' |
| 86° 40' | 36° 44' |
| 85° 28' | 36° 28' |
| <hr/> | <hr/> |
| 86° 7' | 36° 14' |

20 = 49° 53'

Blue wind again

| | |
|---------|---------|
| 85° 16' | 36° 40' |
| 85° 0' | 37° 32' |
| 85° 20' | 37° 12' |
| 83° 40' | 37° 20' |
| 83° 20' | 37° 48' |
| 83° 0' | 36° 0' |
| <hr/> | <hr/> |
| 84° 16' | 37° 5' |

20 = 47° 11'

Blue Scatter

84° 40' 37° 20'

84° 40'

17 m. 24

White light

| | |
|---------|---------|
| 86° 8' | 35° 32' |
| 86° 16' | 35° 20' |
| 86° 16' | 35° 48' |
| 86° 12' | 35° 12' |
| 86° 16' | 35° 12' |
| <hr/> | <hr/> |
| 86° 14' | 35° 25' |

20 = 50° 49'

Blue wind

| | |
|---------|---------|
| 85° 8' | 36° 28' |
| 84° 40' | 37° 12' |
| 85° 32' | 35° 28' |

8

| | |
|---------|---------|
| 84° 24' | 36° 40' |
| 85° 48' | 36° 20' |
| <hr/> | <hr/> |
| 85° 6' | 36° 26' |

20 = 48° 40'

Blue scatter

| | |
|---------|---------|
| 84° 40' | 36° 8' |
| 84° 24' | 36° 44' |
| 86° 20' | 36° 28' |
| 86° 32' | 35° 8' |
| 85° 20' | 36° 20' |
| <hr/> | <hr/> |
| 85° 27' | 35° 58' |

Cmpd 20 = 49° 29'

| | |
|---------|---------|
| 85° 12' | 36° 0' |
| 84° 44' | 36° 16' |
| 85° 44' | 36° 8' |
| <hr/> | <hr/> |
| 85° 13' | 36° 8' |

Orange wind 20 = 49° 5'

White 0. 25° 12'

Ora mt. 24° 46'

Sc. 24° 57'

Blue mt. 24° 24'

Sc. 23° 52'

Blue acid

weaker image quite green

| | | |
|--------|-----------------|----------------|
| | 125' 52' | 38' 16' |
| 92 | 125' 40' | 38' 20' |
| | 126' 0' | 38' 8' |
| | <u>125' 31'</u> | <u>38' 15'</u> |
| 43 38' | Blue scattered | 29' = 16' |

| | | |
|-----|-----------------|----------------|
| | 112' 24' | 50' 44' |
| 112 | 112' 44' | 51' 40' |
| | 112' 44' | 51' 32' |
| | <u>112' 37'</u> | <u>51' 39'</u> |

35 29'

20 = 60' 58'

18^w

orange scattered

| | | |
|--|-----------------|----------------|
| stronger image slightly darker in shade. | 115' 12' | 50' 4' |
| Pastels visible better in the strip | 114' 44' | 49' 32' |
| weaker. | 113' 52' | 49' 12' |
| | 113' 36' | 49' 20' |
| | 114' 16' | 50' 28' |
| | <u>114' 20'</u> | <u>49' 43'</u> |

32 19'

20 = 64' 37'

orange wash

| | | |
|-----|----------------|-----------------|
| 168 | 62' 52' | 100' 52' |
| | 62' 48' | 100' 52' |
| | 63' 8' | 100' 48' |
| | <u>62' 56'</u> | <u>100' 51'</u> |

18 58'

20 = 37' 55'

Green acid

weaker image slightly yellowish in colour as if fed into in strength. So they don't interfere.

| | | |
|---|-----------------|----------------|
| | 109' 16' | 53' 20' |
| | 109' 52' | 53' 40' |
| 2 | 109' 44' | 53' 32' |
| | <u>109' 37'</u> | <u>53' 31'</u> |

28' 4' 20' = 56' 7'

Green scattered

| | | |
|--|-----------------|----------------|
| | 116' 24' | 48' 8' |
| | 116' 0' | 48' 8' |
| | 116' 28' | 48' 32' |
| | <u>116' 17'</u> | <u>48' 16'</u> |

34' 1' 20' = 68' 1'

White light

weaker image quite green so that very diff. to cf with two intermixes.

| | | |
|-----|-----------------|----------------|
| | 114' 44' | 48' 20' |
| | 115' 16' | 48' 8' |
| | 116' 16' | 47' 44' |
| 196 | 116' 20' | 48' 4' |
| | 115' 40' | 48' 36' |
| | <u>115' 39'</u> | <u>48' 10'</u> |

33 45' 20' = 67' 29'

115 Red mud
very rough broken fields
61' 40" 98' 28"

nd - Red scatted
reliable 57' 0" 113' 32"
52' 4" 110' 28"

19th work Ready shed

Blue mc.

| | |
|---------|-------------|
| 37' 4" | 126' 36" |
| 37' 20" | 127' 12" |
| 37' 4" | 125' 44" 92 |
| <hr/> | |
| 37' 9" | 126' 31" |

20 = 89' 22"

Blue scatt

47' 44" 113' 44"

Red scatted

| | | |
|-------|---------|----------|
| | 55' 0" | 113' 20" |
| | 49' 36" | 113' 8" |
| 13 4 | 49' 48" | 113' 4" |
| <hr/> | | 113' 11" |
| | 49' 45" | |

31' 43" 20 = 63' 26"
Red mud

| | |
|----|-----|
| 65 | 101 |
| 66 | 100 |
| 66 | |

Red mud
Extremal feeble mayer -
used full apart of lens.

| | | |
|-------|---------|----------|
| | 64' 28" | 101' 28" |
| 27 | 64' 36" | 100' 8" |
| | 62' 48" | 99' 24" |
| <hr/> | | 100' 20" |
| | 63' 57" | |

nd
approximate 20 = 36' 23"

18' 12"

Propyl formate

116

49^w mch

white lign

55' 44" 105' 44"

55' 56" 105' 44"

56' 40" 105' 52"

56' 12" 105' 24"

56' 40" 105' 0"

56' 14" 105' 33"

20 = 49' 19"

Blue wood

55' 20" 106' 24"

white wood

56' 40" 106' 8" 49' 28" 136

57' 4" 106' 12" 49' 8"

20^w mch

~~105' 16"~~

56' 40" 105' 44" 49' 4"

56' 28" 105' 40" 49' 12"

56' 24" 105' 32" 49' 8"

men θ = 24' 38"

Blue wood

20 = 49' 12"

58' 40" 103' 20"

56' 40" 103' 8"

56' 20" 103' 24" 396

58' 4" 103' 40"

56' 16" 104' 4"

57' 24" 105' 0"

57' 14" 103' 51"

20 = 46' 37"

Blue Scattered

58' 4" 102' 44"

56' 44" 103' 20"

4 172 58' 48" 102' 48" 136

57' 40" 104' 44"

57' 36" 103' 40"

57' 46" 103' 27"

20 = 45' 41"

orange scattered

56' 52" 106' 12"

56' 44" 106' 8"

56' 40" 105' 48"

56' 45" 106' 3"

20 = 49' 18"

10 orange wood

57' 0" 105' 12"

54' 48" 105' 48"

54' 48" 106' 4" 12

56' 12" 105' 0"

57' 12" 103' 48"

56' 28" 104' 20"

148

56' 5" 105' 2"

20 = 48' 57"

56' 44" 106' 16"

144

Prosper tomatoes cups

117

22nd March

Or. mixed

56' 32' ~~57' 28'~~ 105' 36'
 55' 36' 105' 12'
 56' 12' 105' 4'
 55' 40' 105' 40' 4
 29 2 55' 52' 105' 12'
 53' 58' 105' 21'

new
8 24' 35'

2θ = 49' 23'

Or. Scatter

55' 20' 105' 20'
 56' 36' 105' 24'
 52 56' 12' 105' 12' 148
 56' 24' 105' 44'
 56' 20' 105' 48'

24' 40'

56' 10' 105' 30'
 2θ = 49' 20'

Blue mixed

57' 40' 103' 16'
 58' 24' 104' 12' 232
 248 57' 48' 103' 44'
 56' 52' 103' 52'
 58' 24' 103' 48'

23' 18'

57' 50' 103' 46'
 2θ = 45' 56'
 Blue Scatter

58' 0' 103' 4'
 58' 8' 104' 24'
 58' 32' 103' 20'
 57' 36' 102' 36'
 57' 24' 104' 12'

new

25 57' 56' 103' 31'

186 2θ = 45' 35'

22' 49' Green mixed

58' 20' 104' 24' 23
 58' 8' 105' 32'

268

56' 48' 102' 32' 124
 57' 48' 103' 0' 304

57' 44' 103' 12'
 57' 40' 104' 24'
 57' 45' 103' 51'

~~22' 49'~~ 2θ = 46' 6'

56' Green Scatter

56' 12' 104' 28'
 57' 24' 105' 8' 2
 56' 52' 106' 24'
 56' 16' 105' 32'
 56' 16' 105' 20'

56' 36' 105' 22'
 24' 18' 2θ = 48' 46'

Green mixed again

144
48

57' 24' 103' 4'
 57' 36' 103' 20' 20
 58' 24' 103' 36'
 56' 40' 103' 20' 176
 57' 36' 104' 36'

232

57' 32' 103' 35'
 2θ = 46' 3'

Wats (Bull of Pyrenees glass 118)

24^{hr} prep'd by D. Ramona liem
White Lym

| | |
|---------|---------|
| 64' 20' | 98' 8' |
| 63' 56' | 99' 12' |
| 64' 28' | 99' 8' |
| 64' 48' | 99' 44' |
| 64' 0' | 99' 48' |
| <hr/> | <hr/> |
| 64' 18' | 99' 12' |

20 = 34' 54'

Blue mid

| | |
|--------------------|----------|
| 60' 44' | 102' 26' |
| 61' 44' | 101' 48' |
| 60' 28' | 102' 40' |
| 59' 48' | 102' 12' |
| 60' 40' | 103' 12' |
| <hr/> | <hr/> |
| 60' 47' | 102' 26' |

20 = 41' 39'

Blue Scattered

| | |
|---------|---------|
| 64' 32' | 99' 40' |
| 65' 16' | 99' 36' |
| 64' 36' | 98' 4' |
| 64' 28' | 98' 36' |
| 63' 24' | 99' 36' |
| <hr/> | <hr/> |
| 64' 27' | 98' 54' |

20 = 34' 27'

Gray mid

| | |
|---------|---------|
| 64' 8' | 98' 32' |
| 64' 40' | 98' 40' |
| 63' 40' | 99' 24' |
| 63' 48' | 98' 28' |
| 65' 24' | 98' 36' |
| <hr/> | <hr/> |
| 64' 20' | 98' 32' |

20 = 32' 12'

Or. Scat

| | |
|---------|----------|
| 63' 8' | 100' 12' |
| 63' 36' | 99' 20' |
| 62' 52' | 100' 0' |
| 62' 20' | 101' 8' |
| 62' 28' | 100' 40' |
| 62' 0' | 99' 52' |
| <hr/> | <hr/> |
| 62' 41' | 100' 15' |

20 = 37' 29'

Green Scattered

| | |
|---------|----------------------------|
| 62' 44' | 99' 48' |
| 63' 20' | 99' 44' |
| 63' 12' | 99' 44' |
| 63' 16' | 99' 24' 99' 24' |
| 62' 44' | 99' 40' |
| <hr/> | <hr/> |
| 63' 3' | 99' 52' |

20 = 36' 49'

Green mead

| | |
|---------|--------|
| 63 52' | 99 44' |
| 64 40' | 98 28' |
| 64 28' | 98 36' |
| 65 4' | 97 48' |
| 4 64 0' | 98 28' |
| <hr/> | |
| 64 25' | 98 37' |

34 12'

27th Mr

Repeited after ready that white lign

| | |
|----------|--------|
| 64 4' | 98 36' |
| 64 16' | 98 24' |
| 63 56' | 98 28' |
| 2 65 12' | 97 32' |
| 65 8' | 98 44' |
| 64 52' | 99 40' |
| 63 52' | 99 24' |
| 64 12' | 98 36' |
| <hr/> | |
| 64 26' | 98 40' |

Blue mead

| | |
|-------------|---------|
| 60 36' | 102 32' |
| 11 6 60 52' | 102 12' |
| 60 40' | 102 44' |
| 60 56' | 102 8' |
| 60 40' | 102 20' |
| <hr/> | |
| 60 45' | 102 28' |

Blue Sect

| | |
|--------|--------|
| 63 28' | 98 44' |
| 63 28' | 99 8' |
| 60 40' | 98 48' |

Water cut

| | |
|----------|--------|
| 63 4' | 99 20' |
| 2 63 52' | 98 28' |
| <hr/> | |
| 63 30' | 98 54' |
| <hr/> | |
| 20 = | 35 24' |

~~white lign~~
orange section

| | | |
|------------|----------------------|----------|
| 61 56' | 100 24' | 38 28' |
| Ready that | (With full aperture) | |
| 59 0' | 101 44' | of lens. |
| 58 48' | 102 48' | |
| | 102 52' | |
| | 103 0' | |

original aperture

| | |
|----------|--------|
| 63 32' | 99 28' |
| 63 12' | 99 36' |
| 2 62 52' | 99 44' |
| 62 52' | 99 44' |
| 63 24' | 99 20' |
| <hr/> | |
| 63 10' | 99 34' |
| <hr/> | |
| 20 = | 36 24' |

orange mead

| | |
|--------|--------|
| 63 40' | 99 16' |
| <hr/> | |
| | 98 44' |

See Mr 3, 4 & 5

Pruple alcohol distilled for 8 hrs - 120
20th from 21st + 6 on 22nd - at 55-57

Water bottles for 6 hrs on 20th. Examined
20th - still a lot of particles - heated
back & allowed to distill at room
temp 24-27 + ice [with a + salt] for
8 hrs on 21st - ~~examined~~ ^{examined} on 23rd mg
has improved enormously - ~~very few~~
two' like some particles -

at distill again 8 hrs on 23rd

Glycerine ~~is~~ tried at about 80
+ ice + salt twice or three -
the dark and of discolored alcohol
evaporated by heating - done on
21st + 22nd with ice & 45-50
23rd mg. washed back in liquid
distilled with ice water & 45-50
for 3 hrs & ice & 45-50 for 8 hrs
on 23rd

24th ground top bulb. contains few
particles - transferred & allowed to
distill with ice & room temp.
Glycerine bulb also contained
very few particles - all to be
heated & allowed to distill

after 2^{hr}

List of liquids redistilled

12th
16th Nov

- (1) Propyl bromide
- (2) Methyl bromide

(1) Propyl bromide - B.P. 71° - ~~distilled~~ ^{distilled} ~~at~~ ^{at} 50-55° ~~the~~ ^{the} ~~ther.~~ ^{ther.}
~~when~~ ~~set~~ ~~distilled~~ ~~at~~ ~~50-55°~~ ~~the~~ ~~ther.~~
 bulb being ~~at~~ ^{water at} ~~room~~ ^{temp} -

Exam of liquids for impurity

- 13th Feb. (1) acetic anhydride. cut to 8th parts (6) ^{at 100°}
- 14th " (2) Opionic " no parts - ^{but with}
 not quite blue - instead X.
- (3) water bulb prep'd of Banavaian -

17th examined on 17th Feb. full of ~~dist.~~ ^{dist.} parts -
 distilled at about 50° for most of the time while
 occasionally rose a little higher once reaching
 56° - and set salt - for about 7 1/2 hrs when it
 distilled more than half the bulb.

18th examined on 18th - still full of parts - two much
 improved - distilled at 35-40° rice & salt - for 6 hrs
 distilled about a 2nd of the bulb.

19th Exam on 19th still full of parts - two improved -
 distilled at 35° for 3 1/2 hrs - still full of parts -
 again at 35° for 2 hrs.

20th Exam on 20th still a lot of parts - set
 up for distill at 9 A.M. at room temp - 23°C
 & rice & salt. 24 1:30 hrs

Set up for distill also Propyl alcohol
 19th at 50° - ~~was~~ ^{was} ~~extending~~ ^{extending} ~~slow~~ ^{slow} - raised to
 57°
 20th → could distill of propyl alcohol at 50°

