

A

A

**Thesis dated 26th November, 1939**

presented by Sadgopal, M.Sc for the degree of 'Doctor-of-Science' (D.Sc.)  
of the Benares Hindu University (BHU)@Department of Industrial Chemistry,

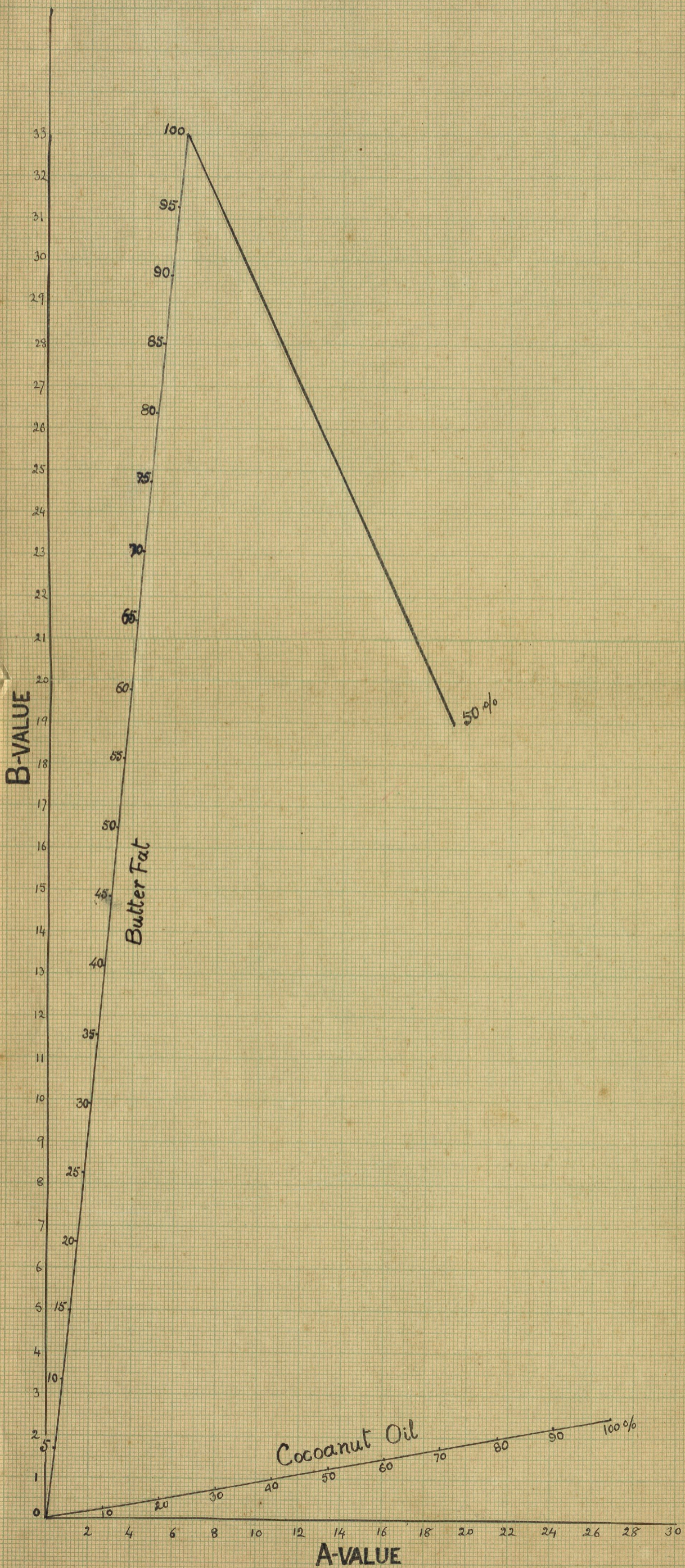
•  
GRAPHS Placed in Pocket attached to the Back Cover of the Thesis

**GRAPH-A/1 to A/5**

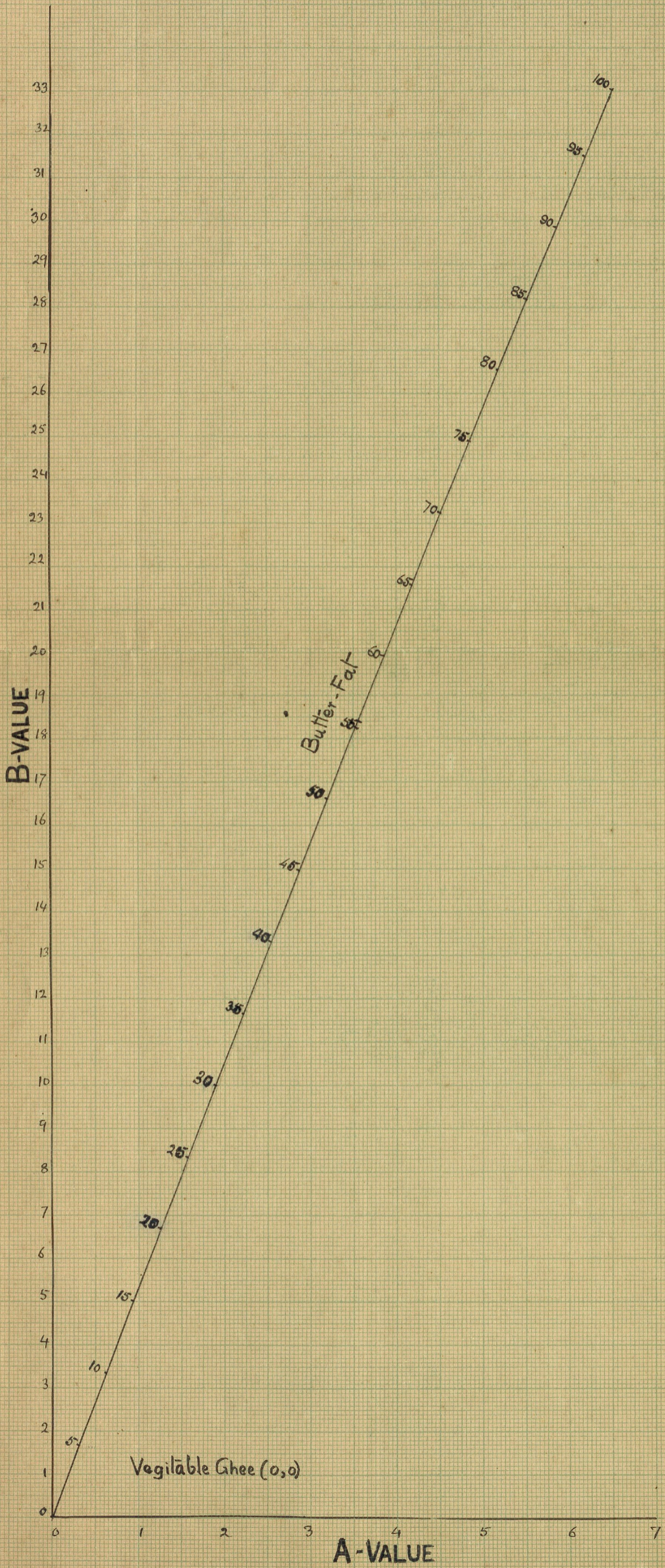
**A-VALUE by B-VALUE**

**BUTTER-FAT ADULTERATED WITH  
COCONUT OIL OR OTHER SOURCES**

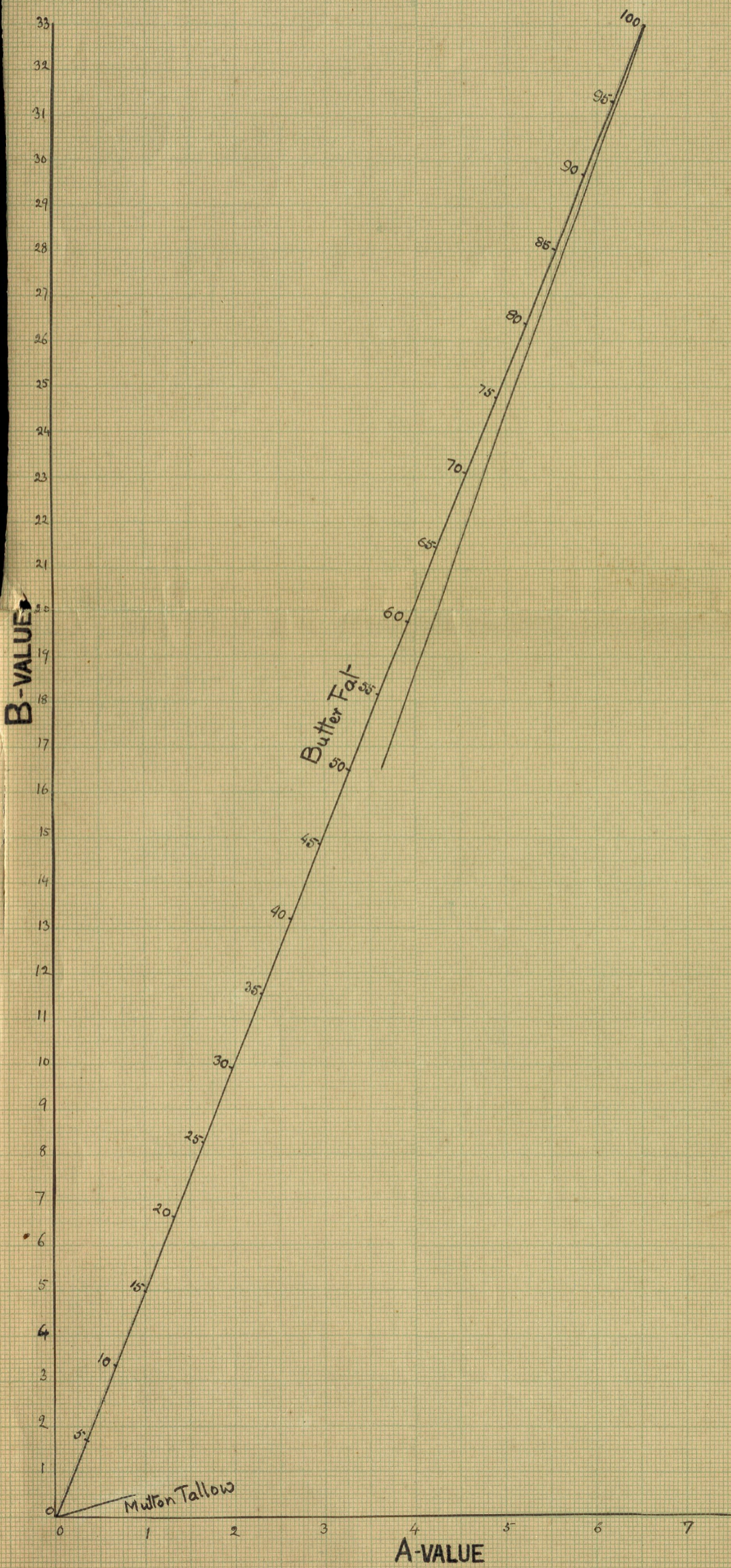
BUTTER-FAT ADULTERATED WITH COCOANUT OIL



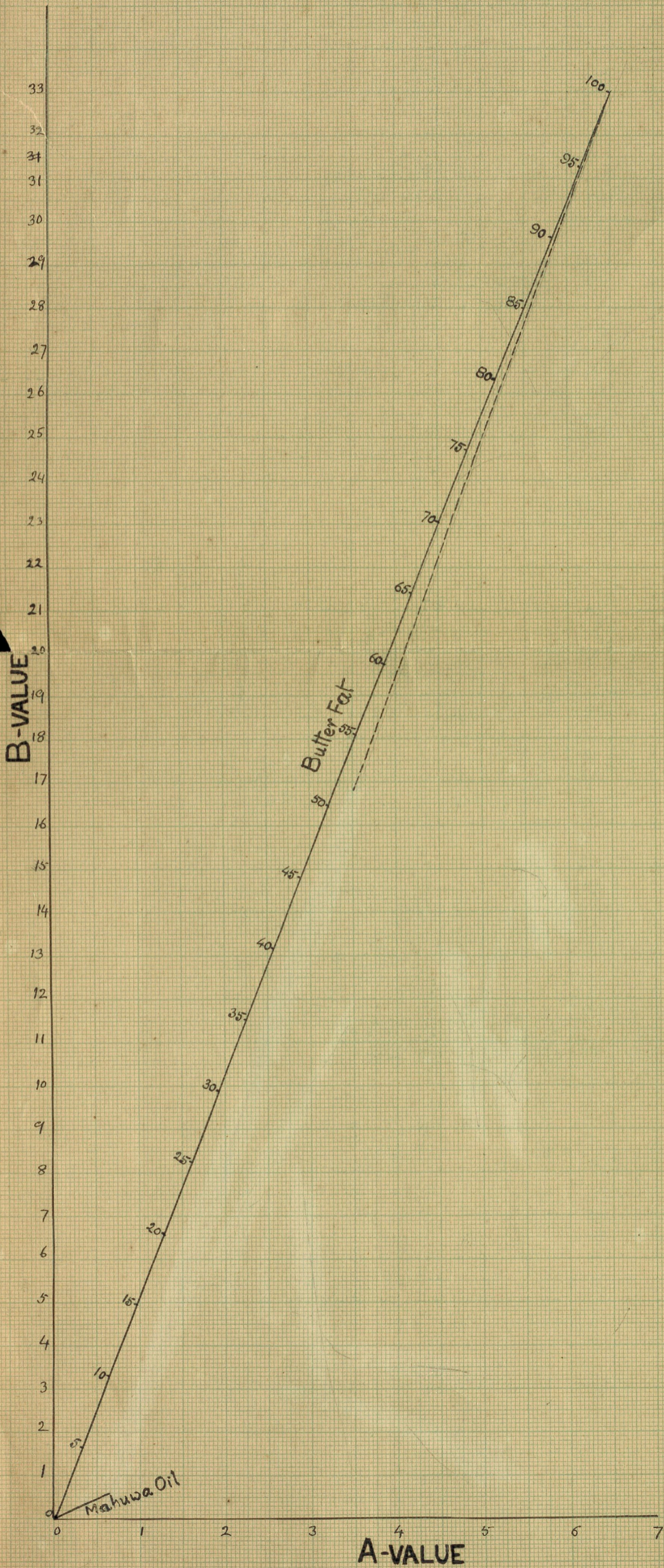
BUTTER-FAT ADULTERATED WITH VEGETABLE-GHEE



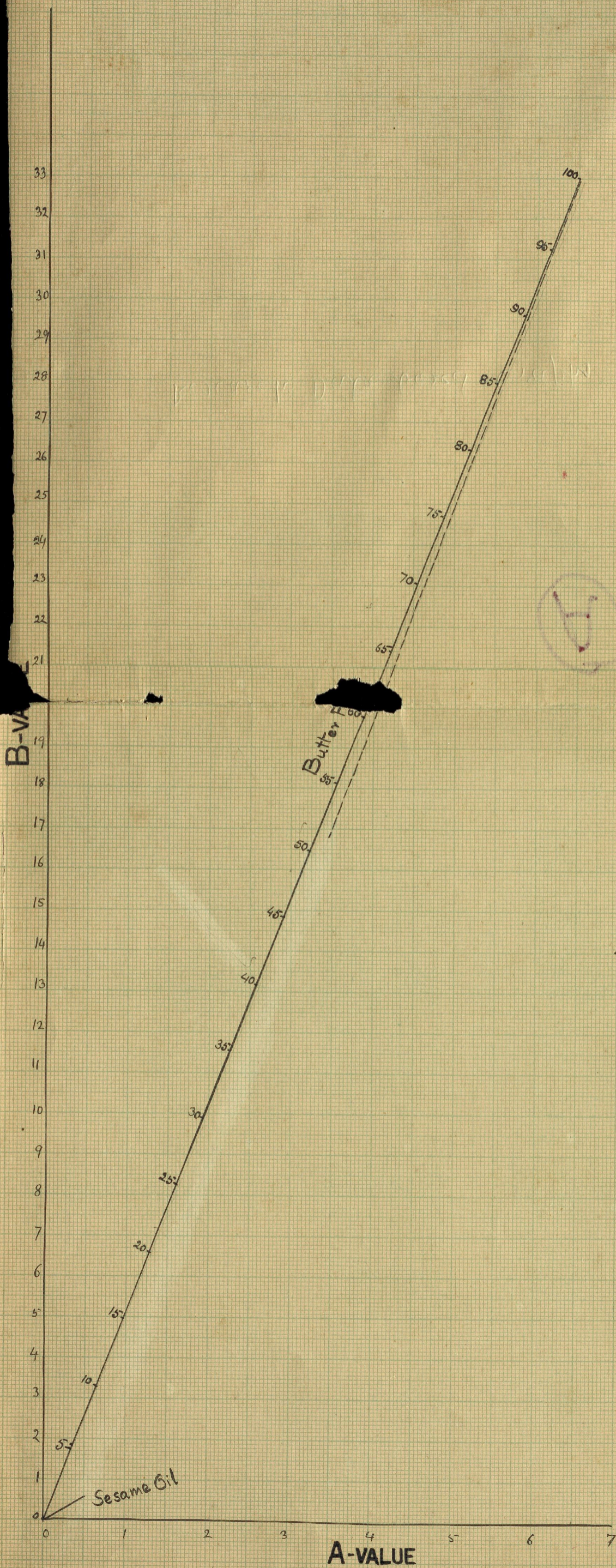
BUTTER-FAT ADULTERATED WITH MUTTON-TALLOW



BUTTER-FAT ADULTERATED WITH MAHUWA OIL



BUTTER-FAT ADULTERATED WITH SESAME OIL



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**GRAPH-B/1 to B/2**

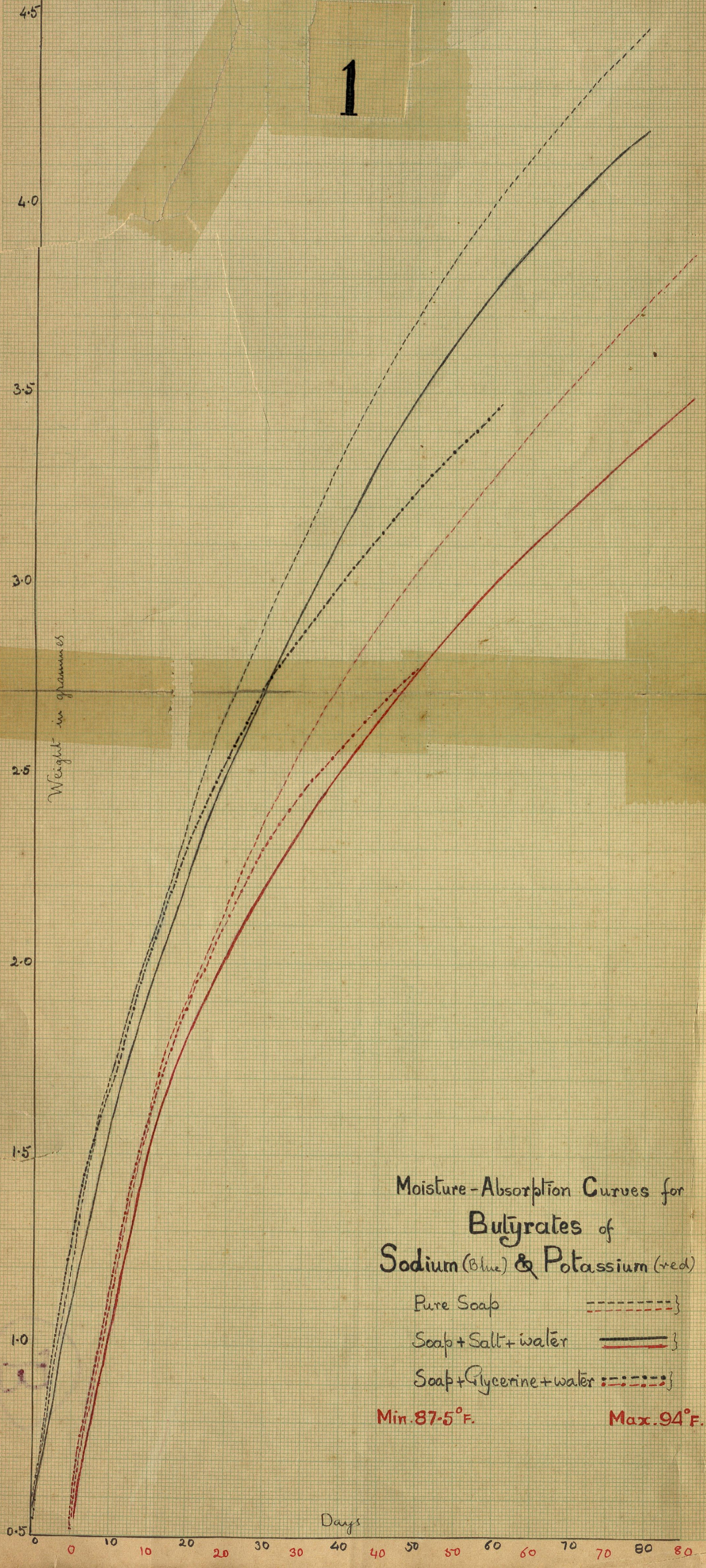
X- Axis (Days) by Y-Axis (Weight in gms)

**Moisture-Absorption Curves for Butyrates & Coproates**

Of Sodium (Blue) & Potassium (Red)

**B**

1



# Moisture-Absorption Curves for Caproates of Sodium (Blue) & Potassium (Red)

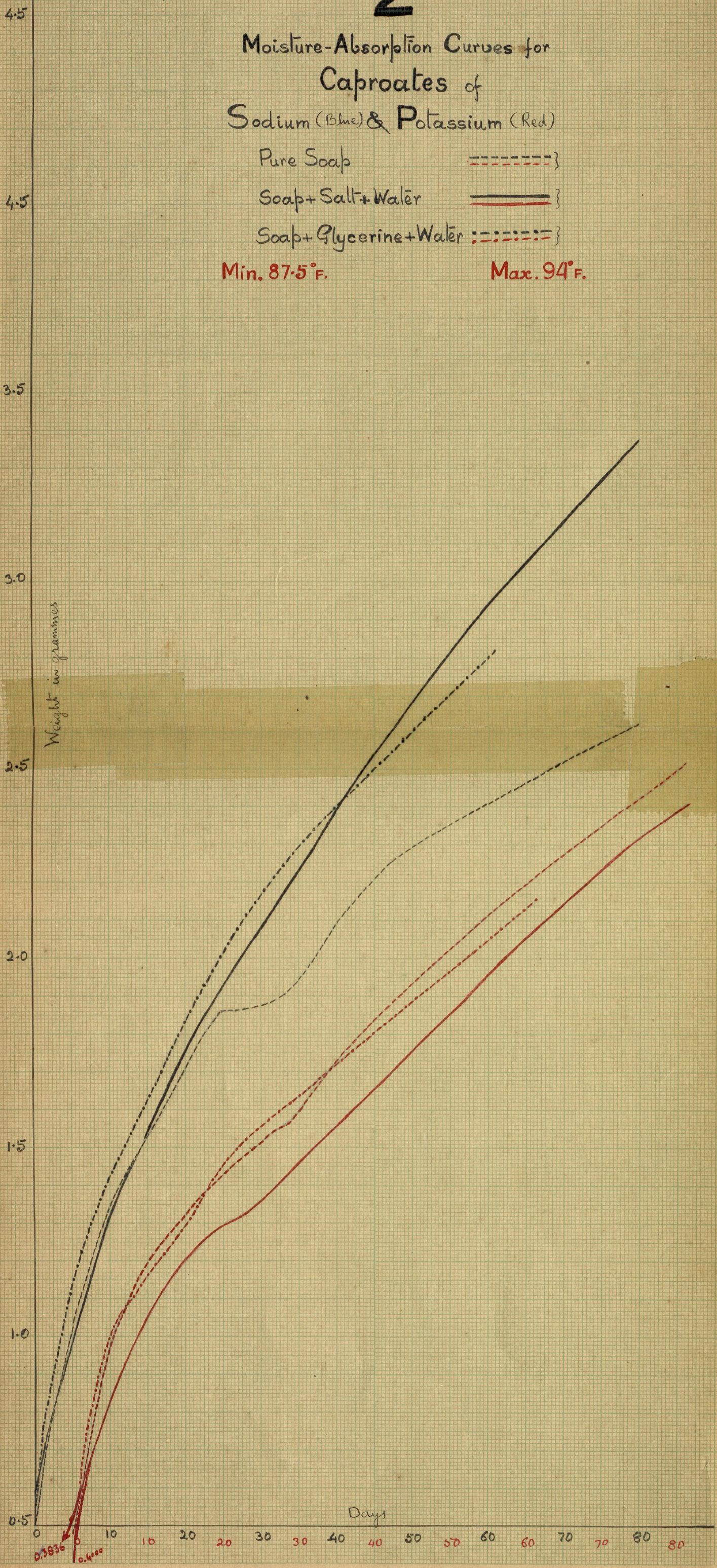
Pure Soap ----- }

Soap + Salt + Water \_\_\_\_\_ }

Soap + Glycerine + Water : - - - - - }

Min. 87.5° F.

Max. 94° F.



0.3836  
0.4000



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**GRAPH-B/3 to B/11**

X- Axis (Days) by Y-Axis (Weight in gms)

**Moisture-Absorption Curves for Butyrates  
& Others of this chemical family**

Of Sodium (Blue) & Potassium (Red)

# 3

## Moisture-Absorption Curves for Caprylates of Sodium (Blue) & Potassium (Red)

Pure Soap - - - - - }

Soap + Salt + Water — — — — — }

Soap + Glycerine + Water - · - · - · - · - · - · - · - · }

Min. 87.5°F.

Max. 94°F.

4.5

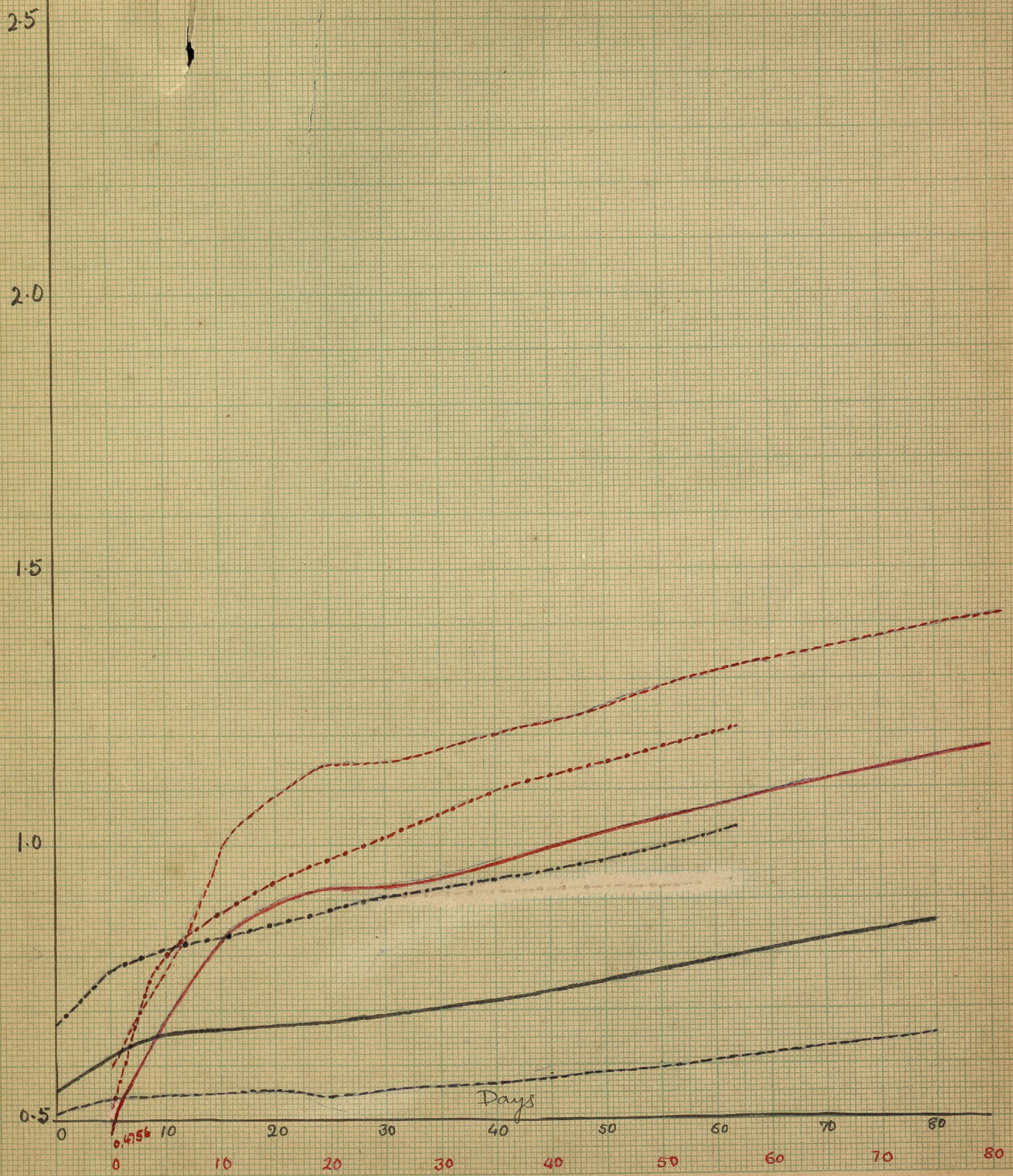
4.0

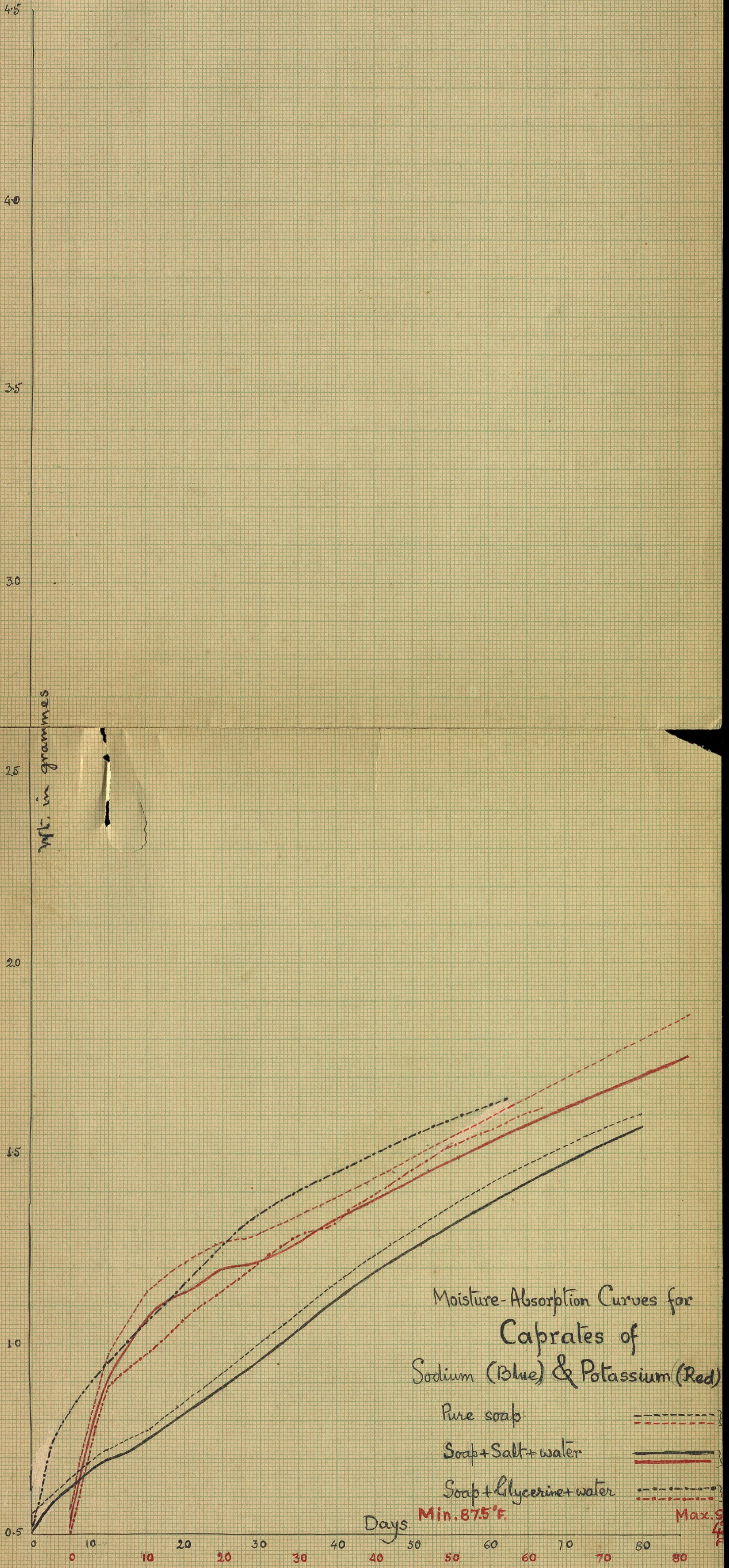
3.5

3.0

Weight in grammes

Me





# 5

## Moisture-Absorption Curves for Laurates of Sodium (Blue) & Potassium (Red)

Pure soap ----- }

Soap + Salt + Water \_\_\_\_\_ }

Soap + Glycerine + Water ..... }

Min. 87.5°F.

Max. 94°F.

4.5

4.0

3.5

3.0

ght in grams

Wang

2.5

2.0

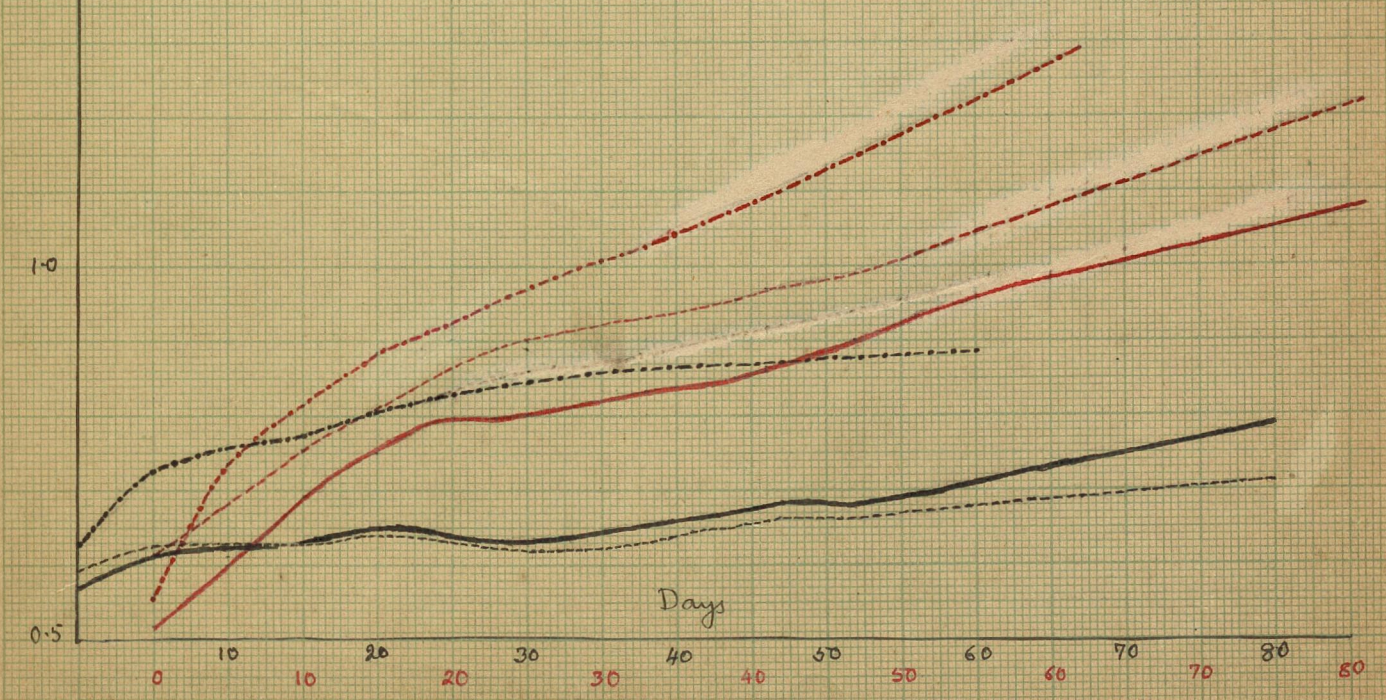
1.5

1.0

0.5

Days

0 10 20 30 40 50 60 70 80 90



# 6

## Moisture-Absorption Curves of Myristates of Sodium (Blue) & Potassium (Red)

4.5

4.0

3.5

3.0

Pure soap

-----}

Soap + Salt + Water

—————}

Soap + Glycerine + Water

.....}

Min. 87.5°F.

Max. 94°F.

ight in grams

2.5

2.0

1.5

1.0

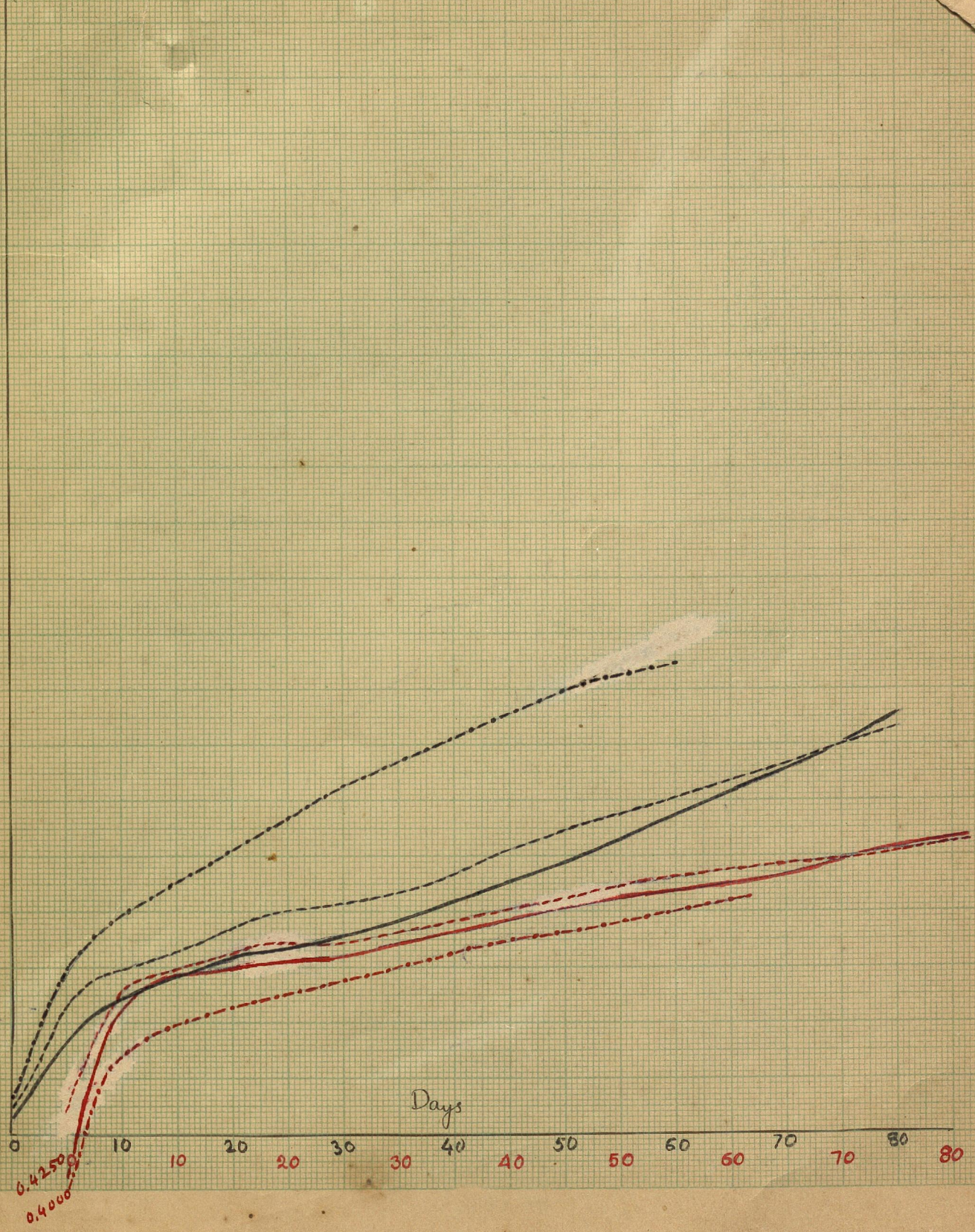
0.5

W

Days

0.4250  
0.4000

0 10 10 20 20 30 30 40 40 50 50 60 60 70 70 80 80



# 7

## Moisture-Absorption Curves for Palmitates of Sodium (Blue) & Potassium (Red)

4.5

4.0

3.5

3.0

Pure Soap

----- }  
----- }

Soap + Salt + water

===== }  
===== }

Soap + Glycerine + water

..... }  
..... }

Min. 87.5°F.

Max. 94°F.

wt in grams

2.5

2.0

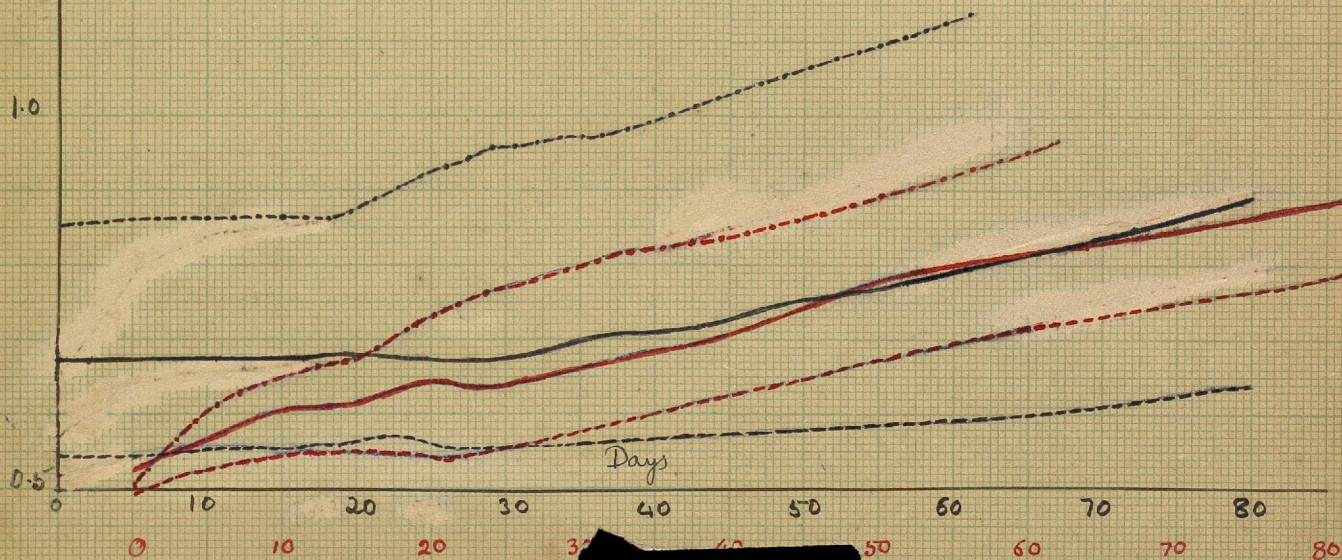
1.0

0.5

Days

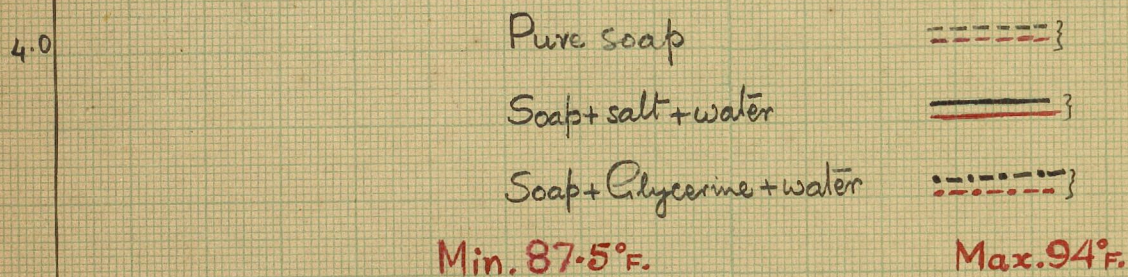
0 10 20 30 40 50 60 70 80

0 10 20 30 40 50 60 70 80



# 8

## Moisture-Absorption Curves of Stearates of Sodium (Blue) & Potassium (Red)



2.5

2.0

1.5

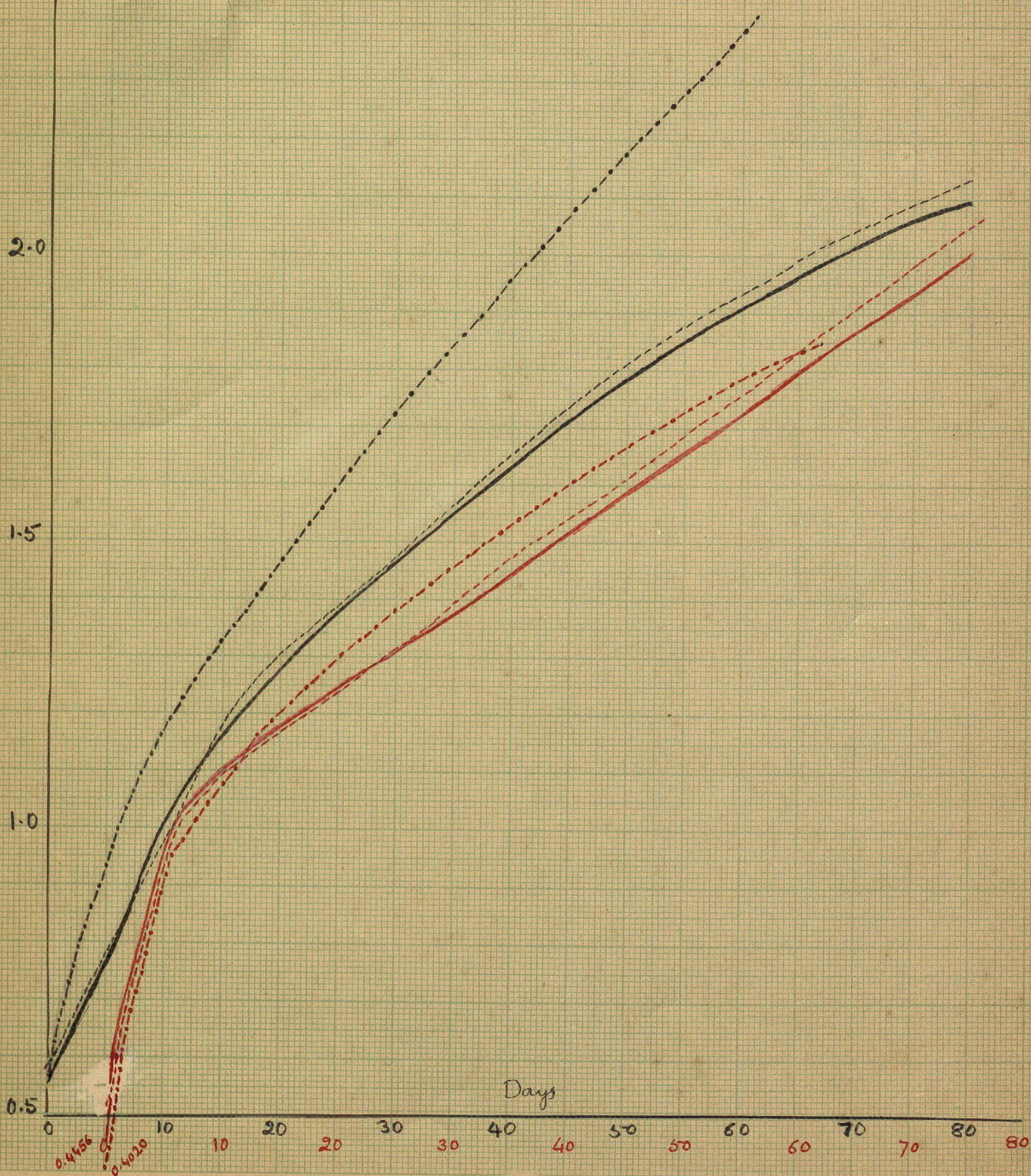
1.0

0.5

Days

0 10 20 30 40 50 60 70 80 80

0.4456  
0.4020



# 9

## Moisture-Absorption Curves for Oleates of Sodium (Blue) & Potassium (Red)

Pure Soap - - - - - }  
- - - - - }

Soap + Salt + Water - - - - - }  
- - - - - }

Soap + Glycerine + Water : - - - - : }  
: - - - - : }

Min. 87.5°F.

Max. 94°F.

4.0

3.5

3.0

wt in grammes

Weia

2.5

2.0

1.5

1.0

0.5

Days

0 10 20 30 40 50 60 70 80 80 2

0.4980

10

20

30

40

50

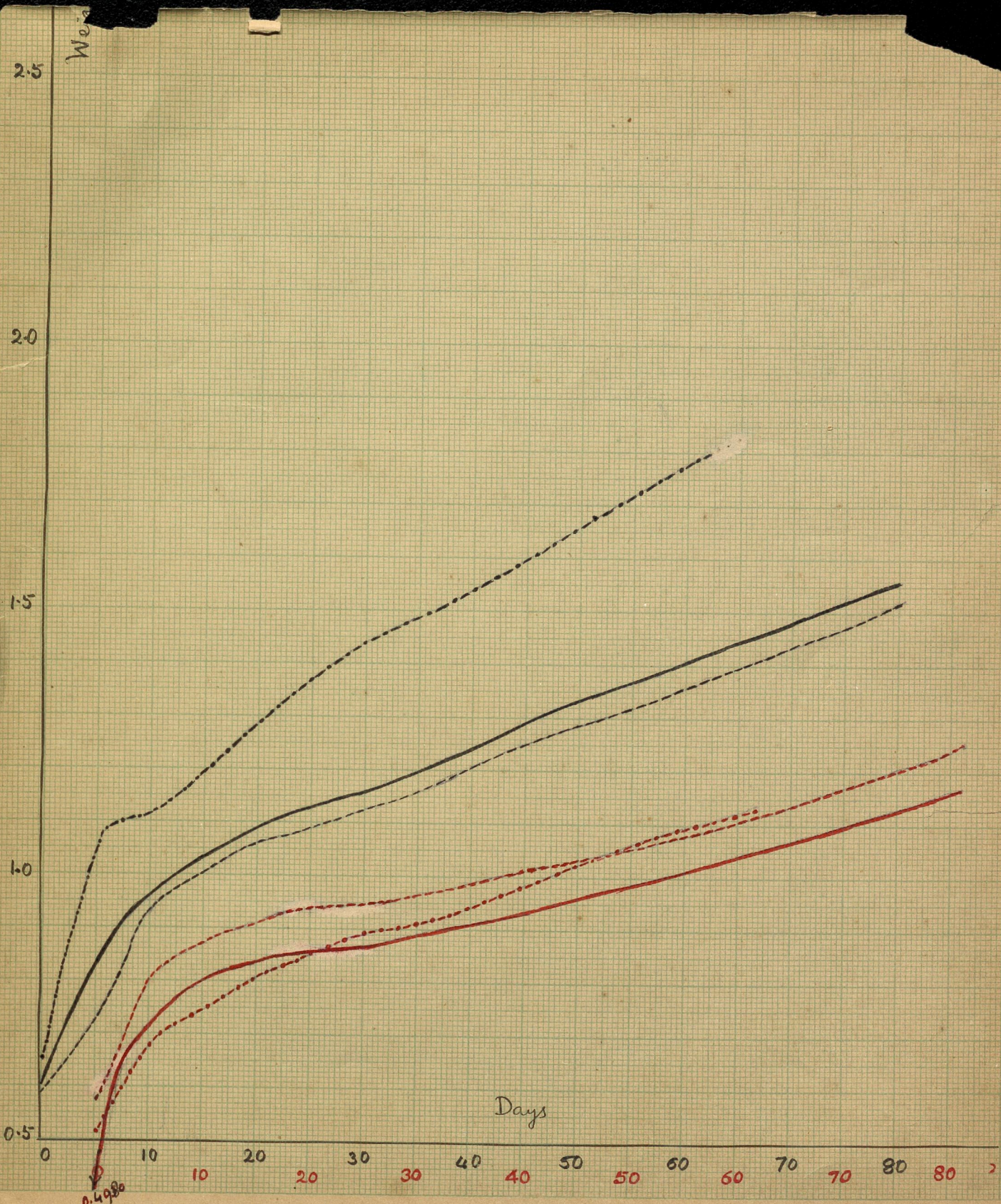
60

70

80

80

2



# 10

## Moisture-Absorption Curves for Linolates of Sodium (Blue) & Potassium (Red)

4.5

4.0

3.5

3.0

Pure Soap

-----}

Soap + Salt + water

=====}

Soap + Glycerine + water

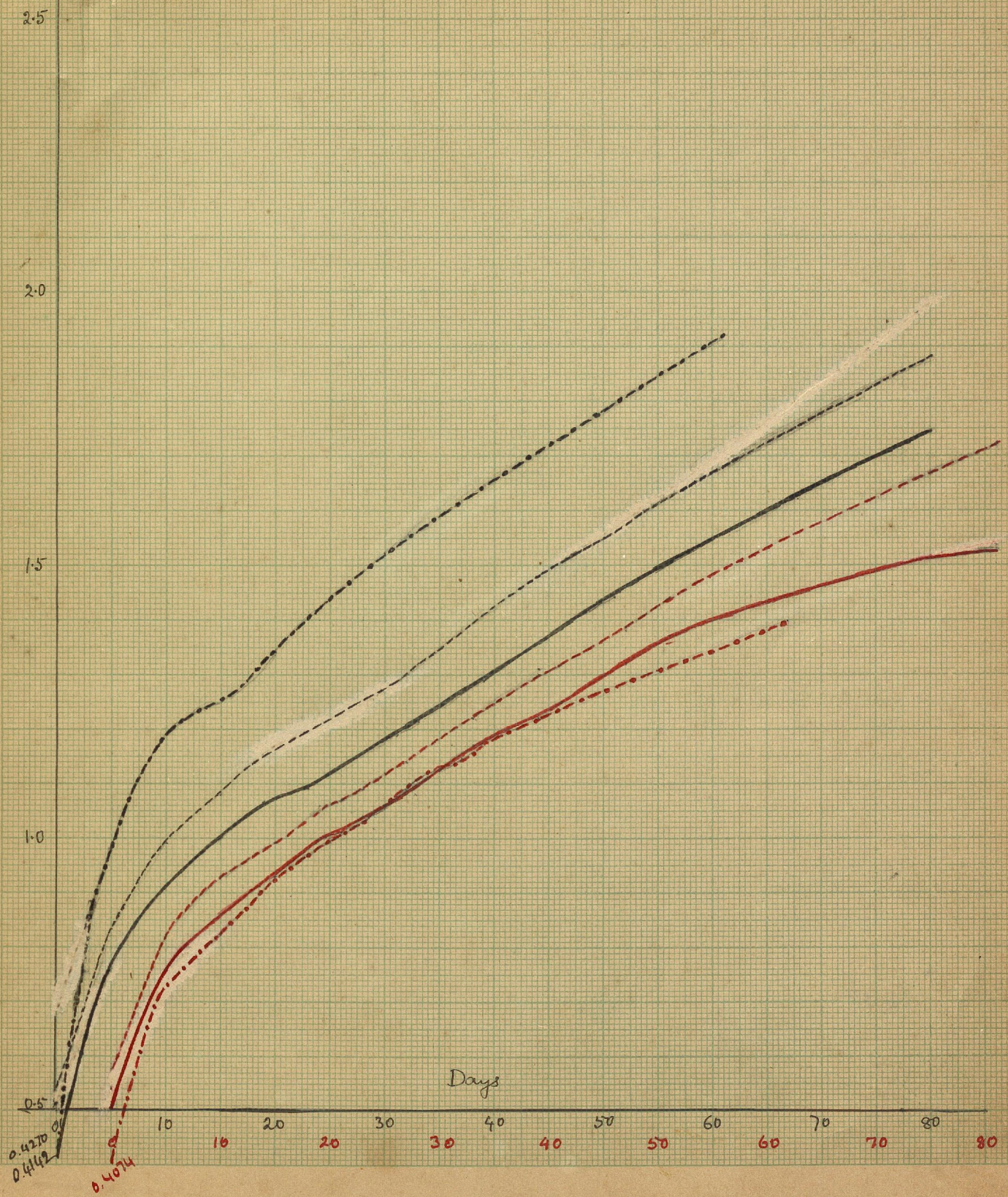
.....}

Min. 87.5°F.

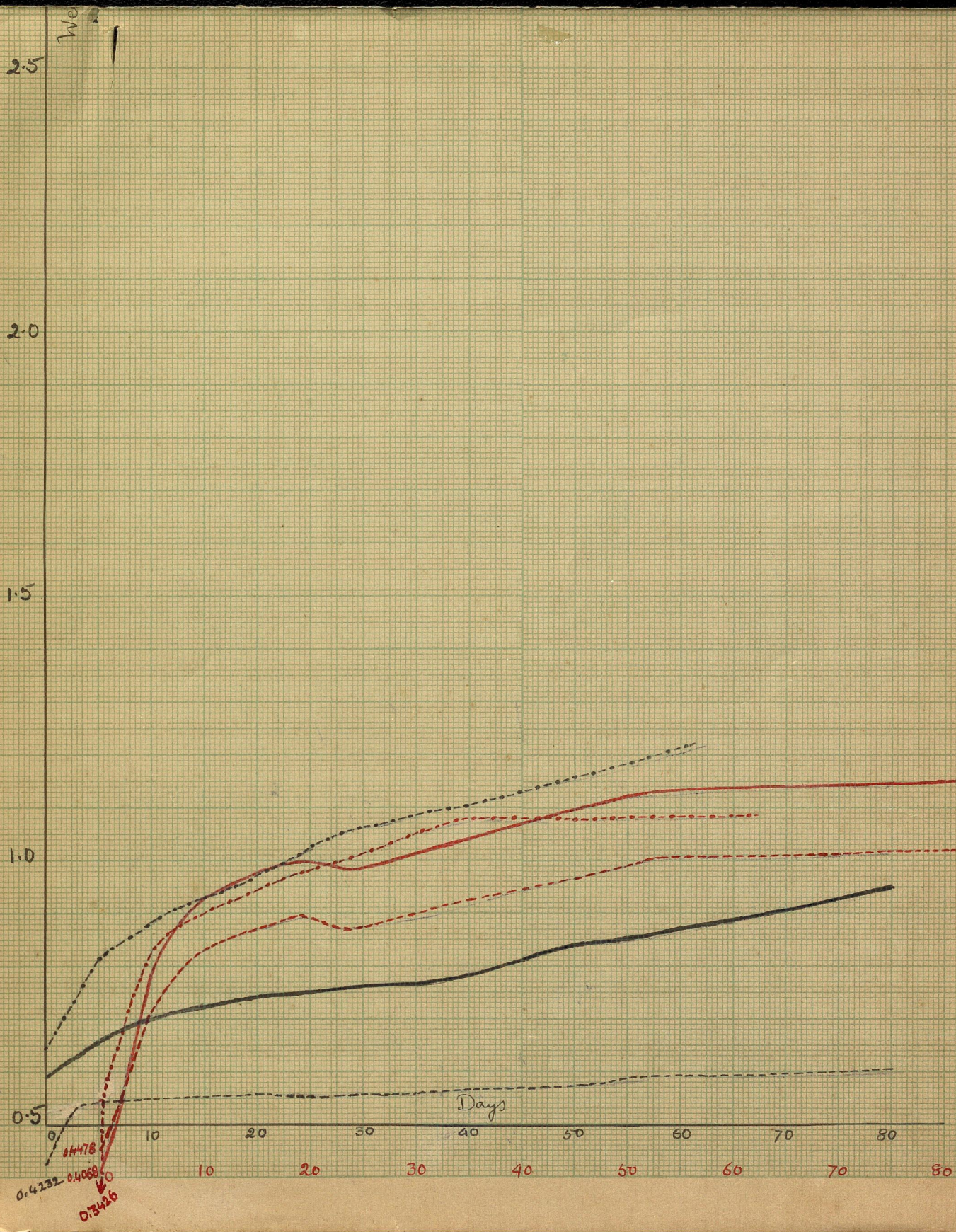
Max. 94°F.

glt in grammes

Wet









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**GRAPH-C/12 to C/15**

**C/12: Effect of Molecular Weights & the Character of the Fatty Acids  
on the Surface Tension of  
their Sodium (Blue) & Potassium (Red) Soaps**

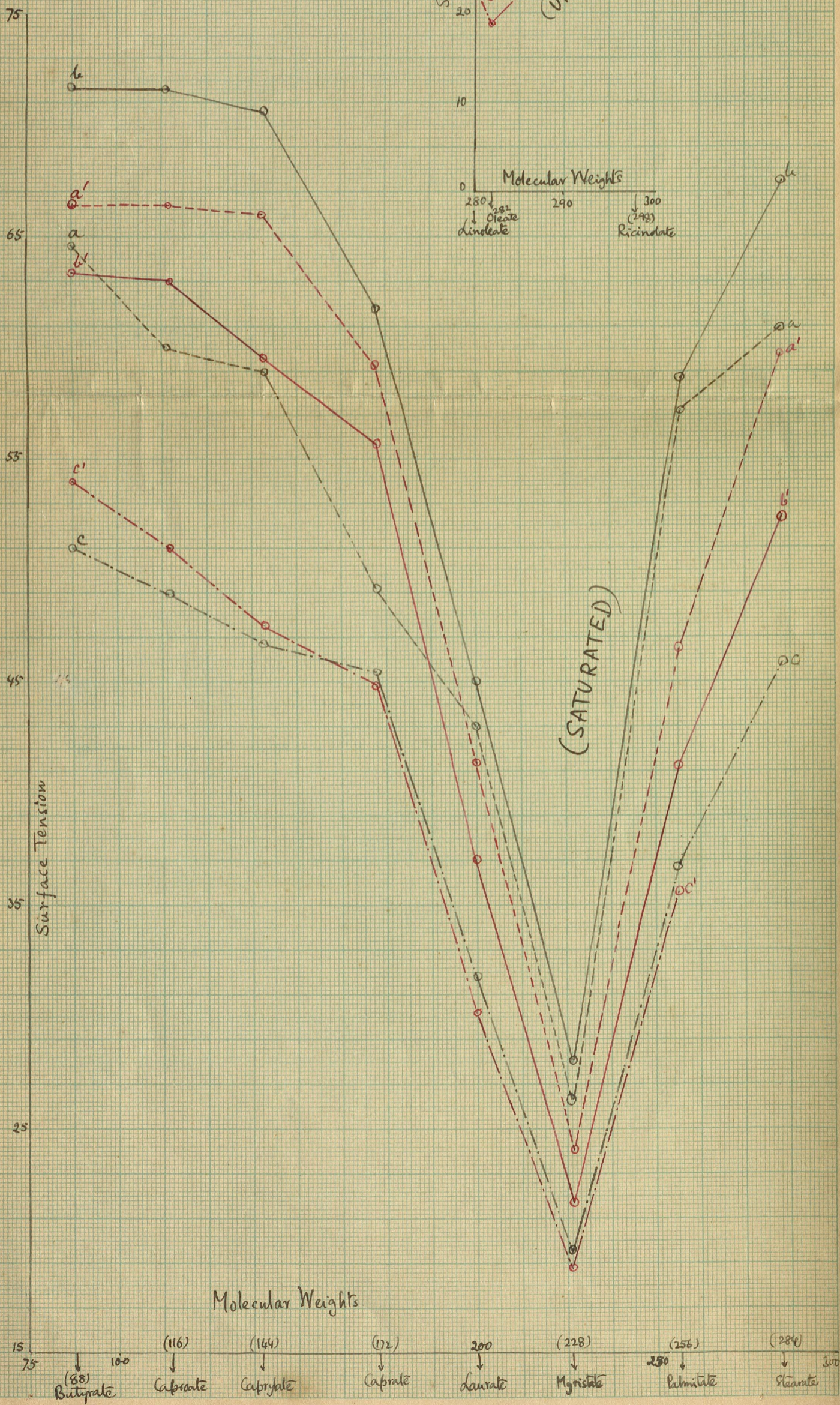
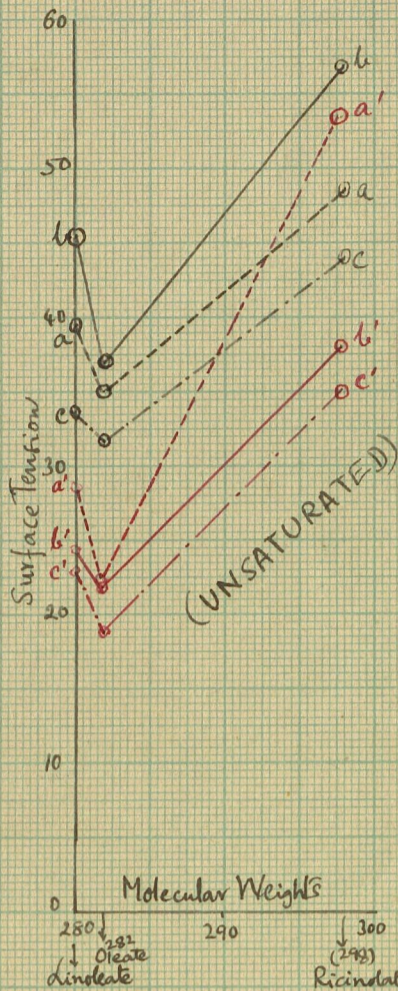
●  
**C/13: Effect of Molecular Weights & the Character of the Fatty Acids  
on the Gold Numbers of  
their Sodium (Blue) & Potassium (Red) Soaps**

●  
**C/14: Effect of Molecular Weights & the Character of the Fatty Acids  
on the Lather Numbers of  
their Sodium (Blue) & Potassium (Red) Soaps**

●  
**C/15: Effect of Molecular-Weights & the Character of the Fatty Acids  
on the Swelting of  
their Pure Sodium (Blue) & Potassium (Red) Soaps**

## Effect of Molecular-Weights and the Character of the Fatty Acids on the Surface Tension of Their Sodium (Blue) and Potassium (Red) Soaps

Pure Soap ----- a'  
 Soap + Salt + Water ----- b'  
 Soap + Glycerine + Water ----- c'  
Temp. 30°C.



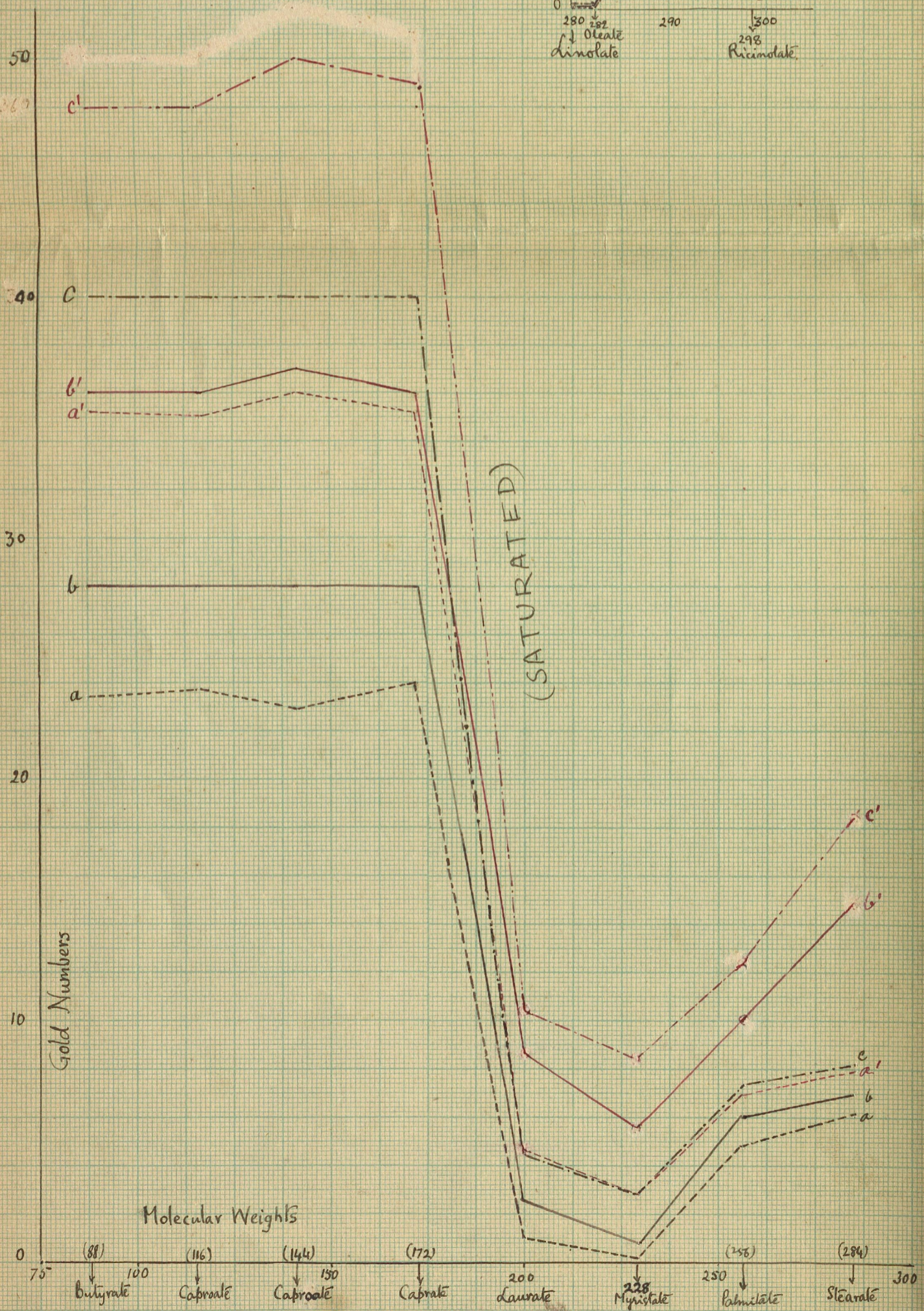
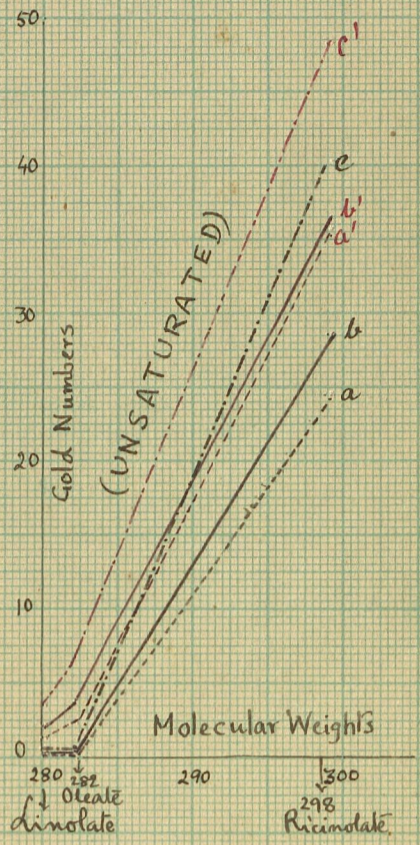
## Effect of Molecular-Weights and the Character of the Fatty Acids on the Gold Numbers of Their Sodium (Blue) and Potassium (Red) Soaps

Pure soaps ----- a'

Soap + Salt + Water ----- b, b'

Soap + Glycerine + Water ----- c, c'

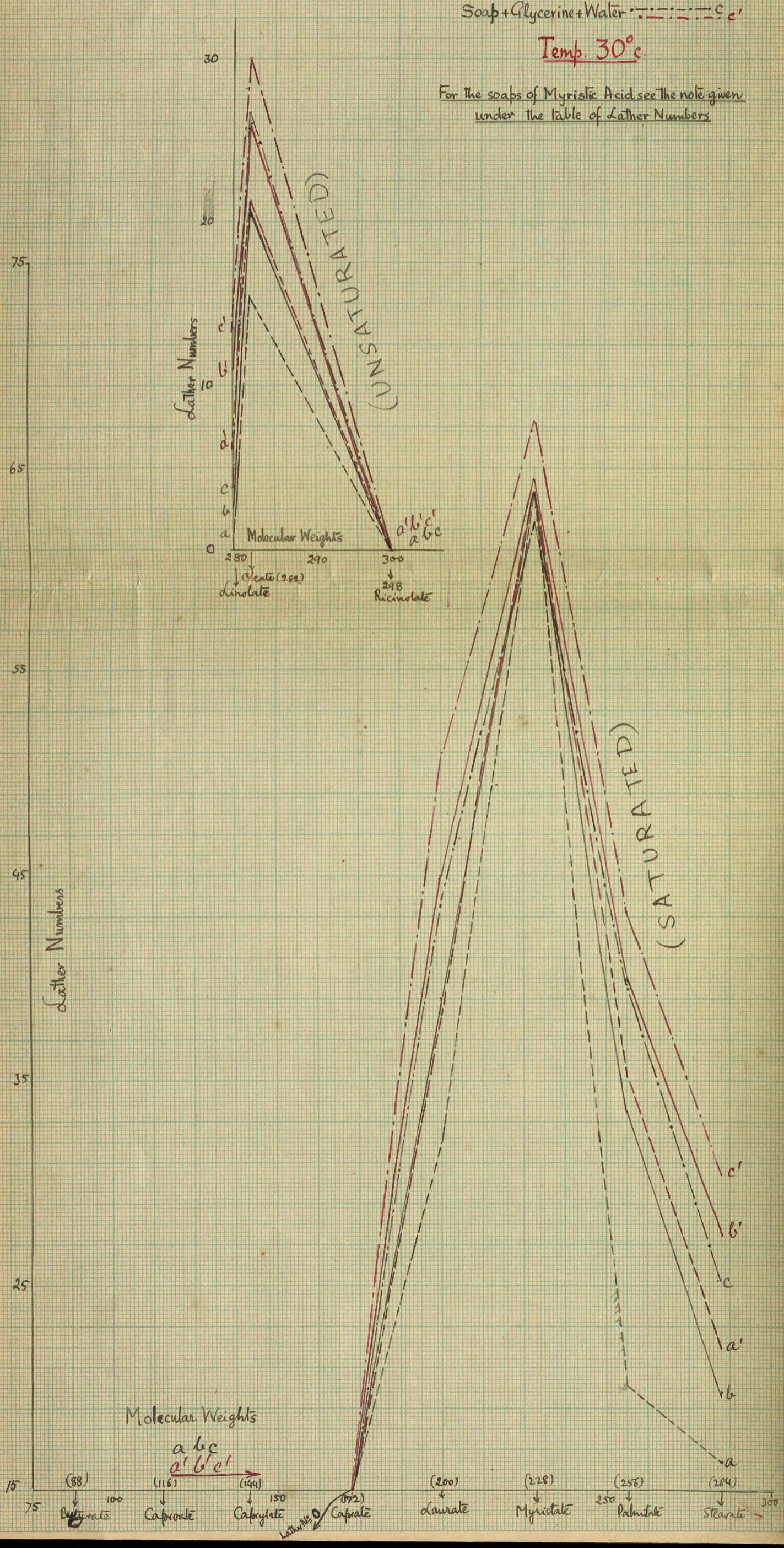
Temp. 30°C.



## Effect of Molecular-Weights and the Character of the Fatty Acids on the Lather Numbers of Their Sodium (Blue) and Potassium (Red) Soaps.

Pure Soap ----- a a'  
 Soap + Salt + Water ----- b b'  
 Soap + Glycerine + Water ----- c c'  
 Temp. 30°c.

For the soaps of Myristic Acid see the note given under the table of Lather Numbers



## Effect of Molecular-Weights and the Character of the Fatty acids on the Swelling of their Pure Sodium (Blue) and Potassium (Red) Soaps.

