

INDIAN COTTON COMMITTEE

MINUTES OF EVIDENCE

TAKEN BEFORE THE

INDIAN COTTON COMMITTEE

VOLUME VI

APPENDIX

MAPS AND DIAGRAMS

NOTICE

The first five volumes of the Minutes of Evidence taken before the Indian Cotton Committee, 1917-19 were issued in 1920. The accompanying Volume VI—Appendix contains Maps and Diagrams pertaining to the Evidence recorded during the Enquiry and should be added to the volumes previously issued.



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1920

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P. S. King & Sons, 2 & 4, Great Smith Street,
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H. S. King & Co., 65, Cornhill, E.C., and 9, Pall
Mall, London, W.
Grindlay & Co., 54, Parliament Street, London, S.W.
Luzac & Co., 46, Great Russell Street, London, W.C.
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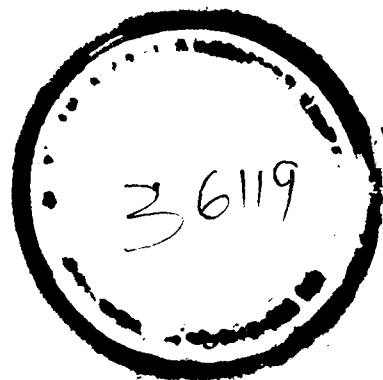
Thacker, Spink & Co., Calcutta and Simla.
Newman & Co., Calcutta.
R. Cambray & Co., Calcutta.
S. K. Lahiri & Co., Calcutta.
B. Banerjee & Co., Calcutta.
The Indian School Supply Depot, 309, Bow Bazar
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Lal Chand & Sons, Calcutta.
Association Press, Calcutta.
Higginbotham & Co., Madras.
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G. A. Natesan & Co., Madras.
S. Murthy & Co., Madras.
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Association, Ltd." (Successors to A. John & Co.,
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Ram Dayal Agarwala, 184, Katra, Allahabad.*
D. C. Anand & Sons, Peshawar.*
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VOLUME VI.

Plans and Diagrams.

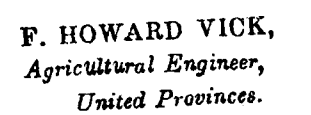
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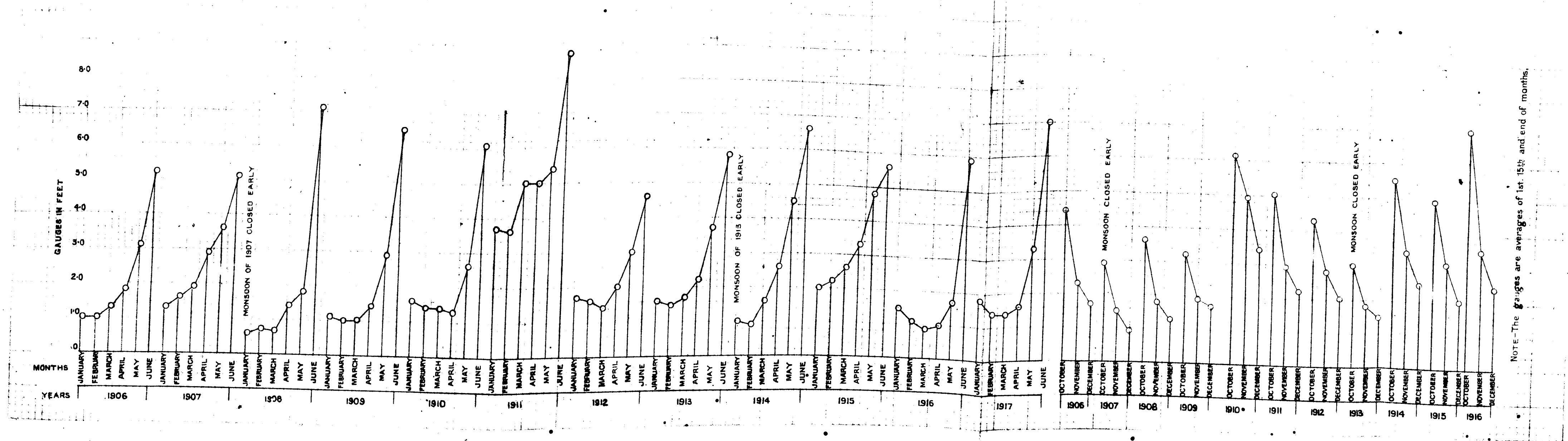
ANUPSHAHR BRANCH
DIVISION IRRIGATION



No. 2. Annexure IV to evidence of Mr. A. C. H. Laurie, Superintending Engineer, Second Circle, Agra, United Provinces.

ANNEXURE IV.
DIAGRAM SHOWING AVERAGE MONTHLY GAUGE OF GANGES RIVER AT RAIWALA.

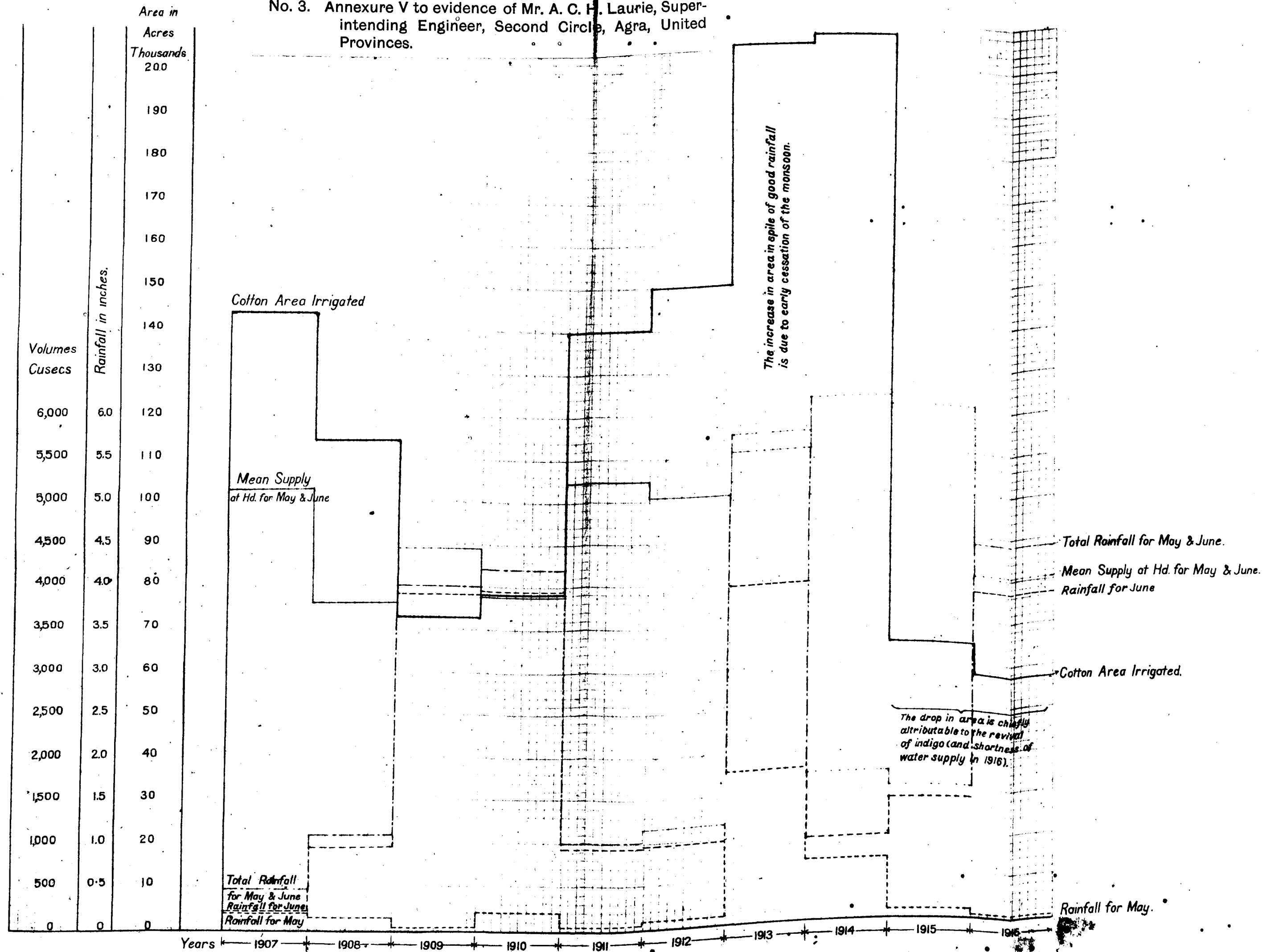
For January to June shown Black; October to December shown Red.



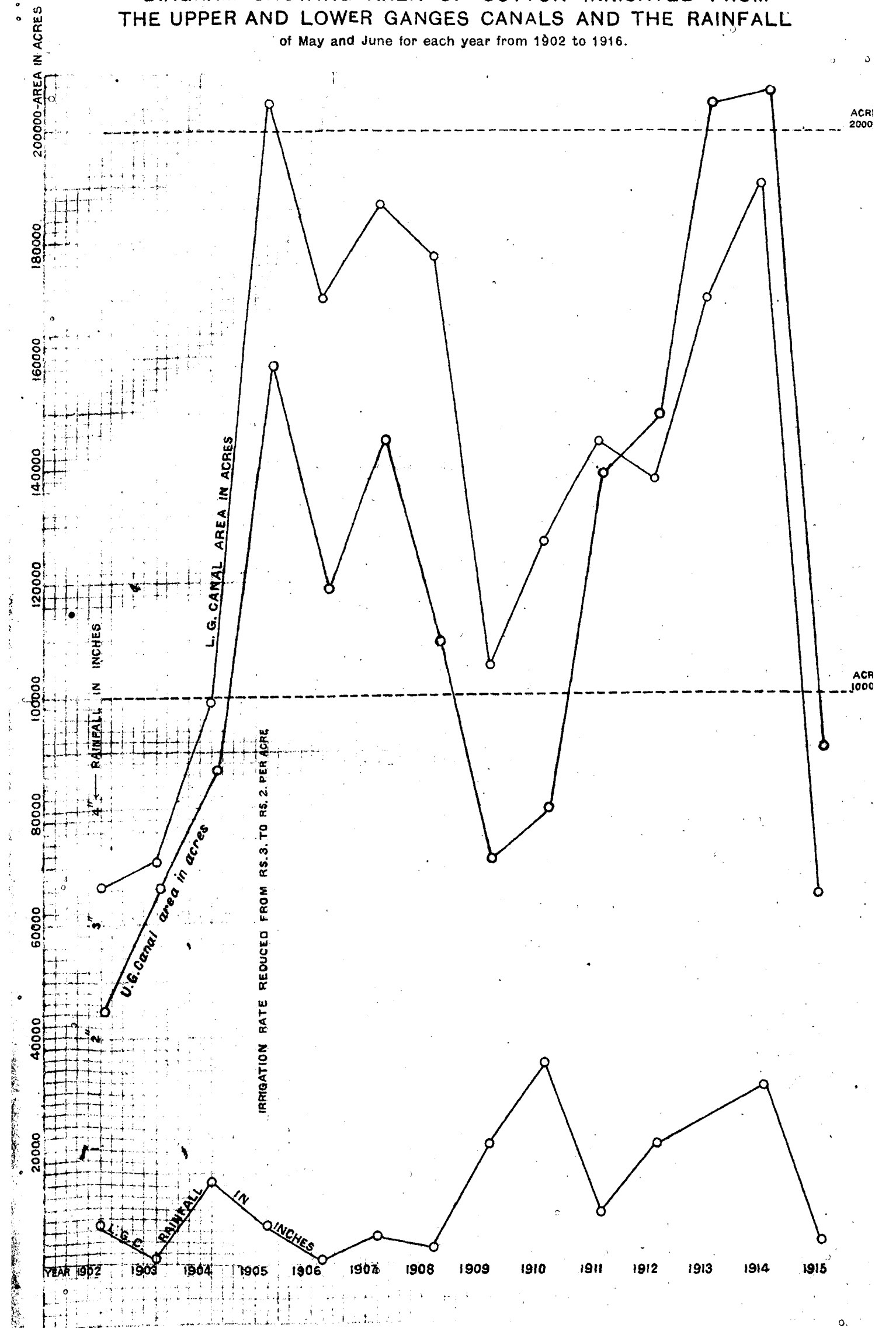
Note - The gauges are averages of 1st, 15th and end of months.

DIAGRAM SHOWING COTTON AREA IRRIGATED FROM THE LOWER GANGES CANAL
AND AVERAGE RAINFALL AND SUPPLY OF MAY AND JUNE IN THE CIRCLE.

No. 3. Annexure V to evidence of Mr. A. C. F. Laurie, Superintending Engineer, Second Circle, Agra, United Provinces.



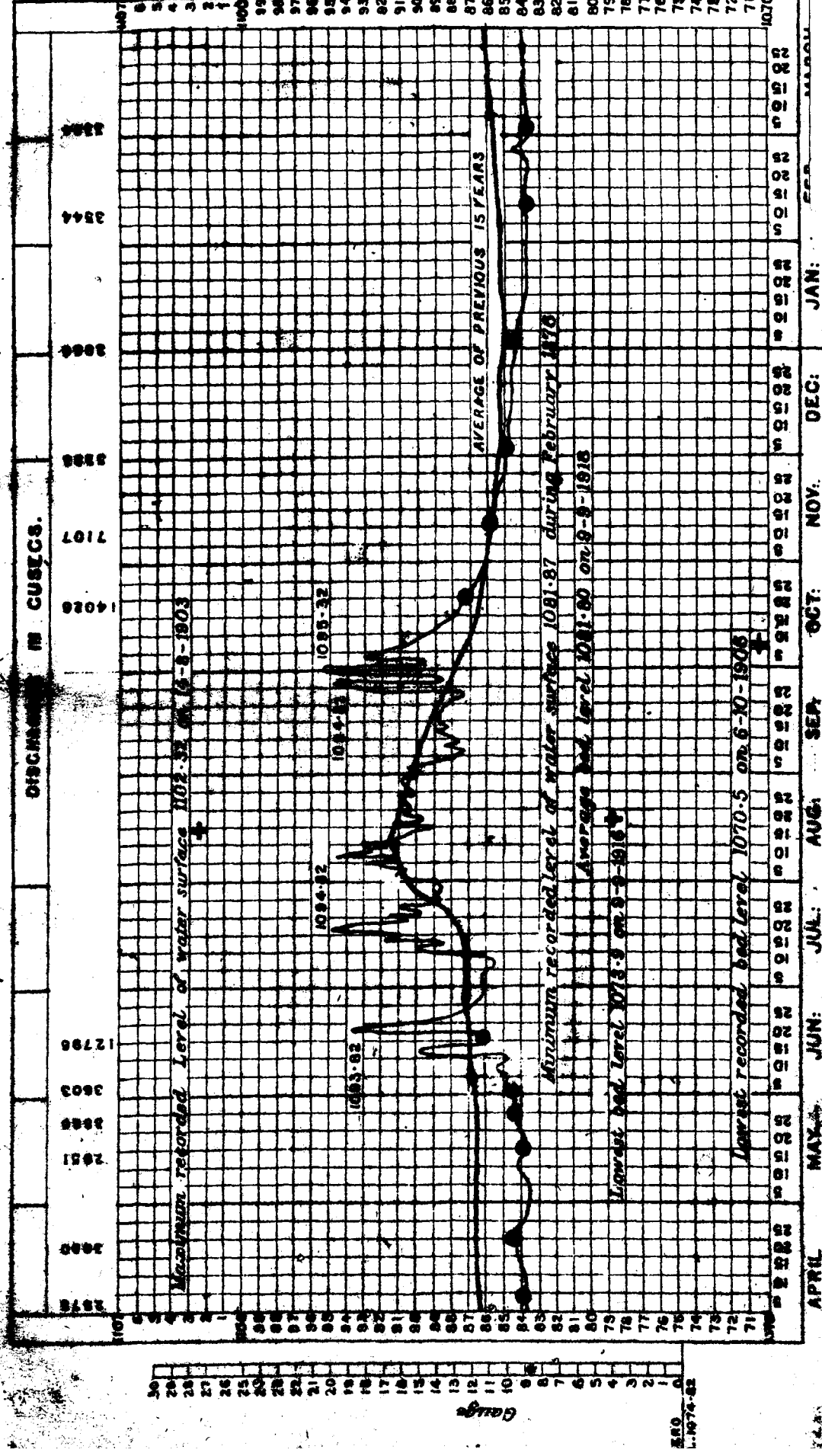
No. 4. Annexure VI to evidence of Mr. A. C. H. Laurie, Super-
intending Engineer, Second Circle, Agra, United
Provinces.
DIAGRAM SHOWING AREA OF COTTON IRRIGATED FROM
THE UPPER AND LOWER GANGES CANALS AND THE RAINFALL
of May and June for each year from 1902 to 1916.



No. 5. Annexure V to evidence of Mr. G. C. Laurie, Superintendenting Engineer, Western Jumna Canal Circle, Puniab.

FOR AND FILE OF THE WESTERN JUMNA 1916-1917 AT HANAU.

Note: The discharges at ● were actually observed.



G. C. LAURIE

No. 6. Annexure II to evidence of Mr. H. W. M. Ives, Superintending Engineer, Upper Jhelum Canal Circle, Punjab.

CURVE SHOWING AVERAGE COLD WEATHER DISCHARGES
IN RIVER JHELUM
AT MANGLA
FROM 1907-1915.
ALSO MAXIMUM AND MINIMUM CURVES FOR THE SAME PERIOD
AND THE MINIMUM CURVE FOR 1915-16 AND THAT FOR 1916-17.

REFERENCES.

Maximum Discharge Curve for 1914-1915

Average Discharge Curve

Minimum Discharge Curve for 1915-1916

Actual Discharge Curve for 1916-1917

NOTE.

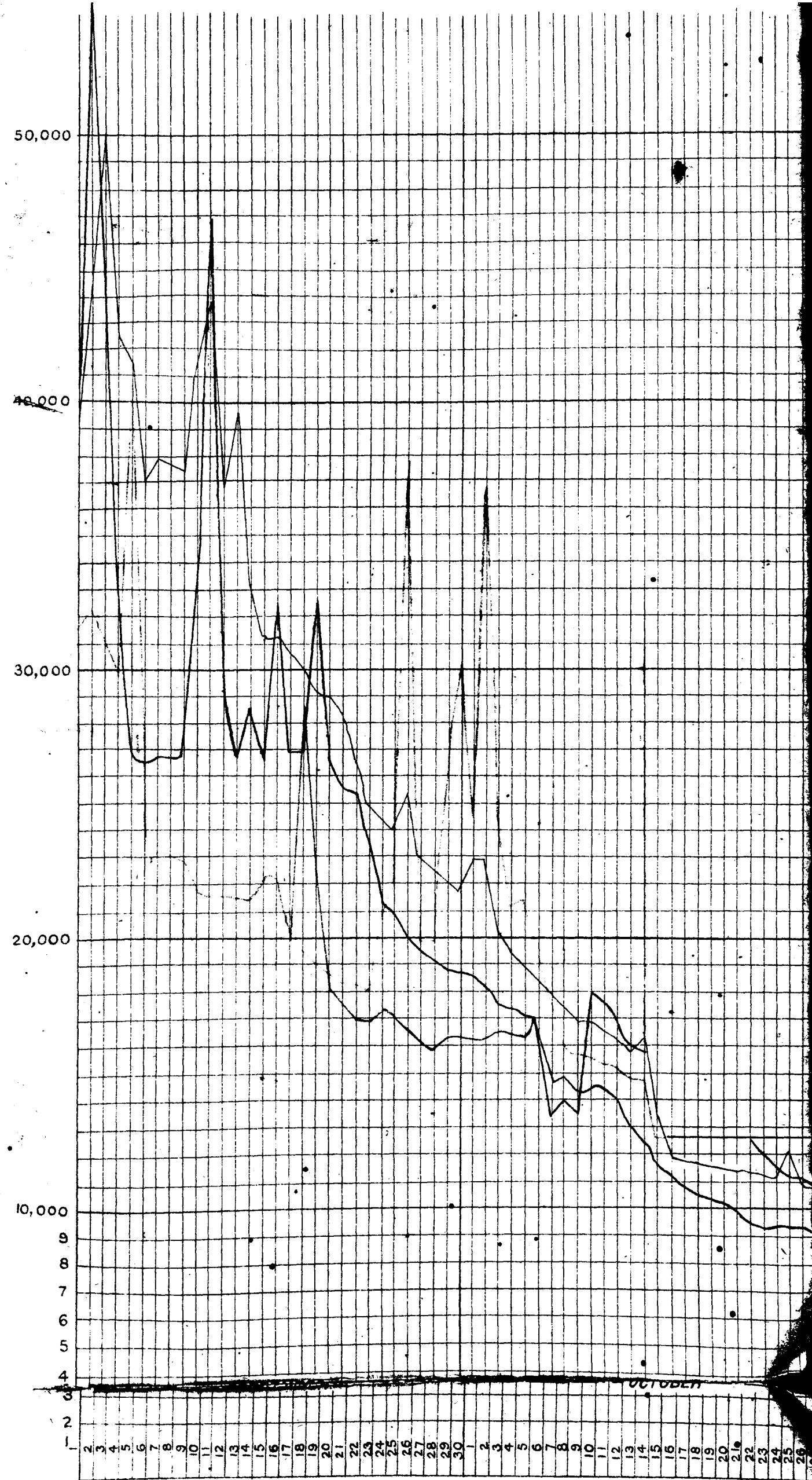
These curves have been prepared in accordance with C.E. latest order & it is only in the period October 15th to December 15th that the curve has been smoothed out by not considering any discharges above 12500 cusecs.



A. N. M. ROBERTSON,
Executive Engineer,
Mangla Division U. J. Canal.
11th September, 1916.

Superintending Engineer,
Upper Jhelum Canal Circle.
11th October, 1916.
Photo, Zinco. February, 1920. - No. 6080. 1500.

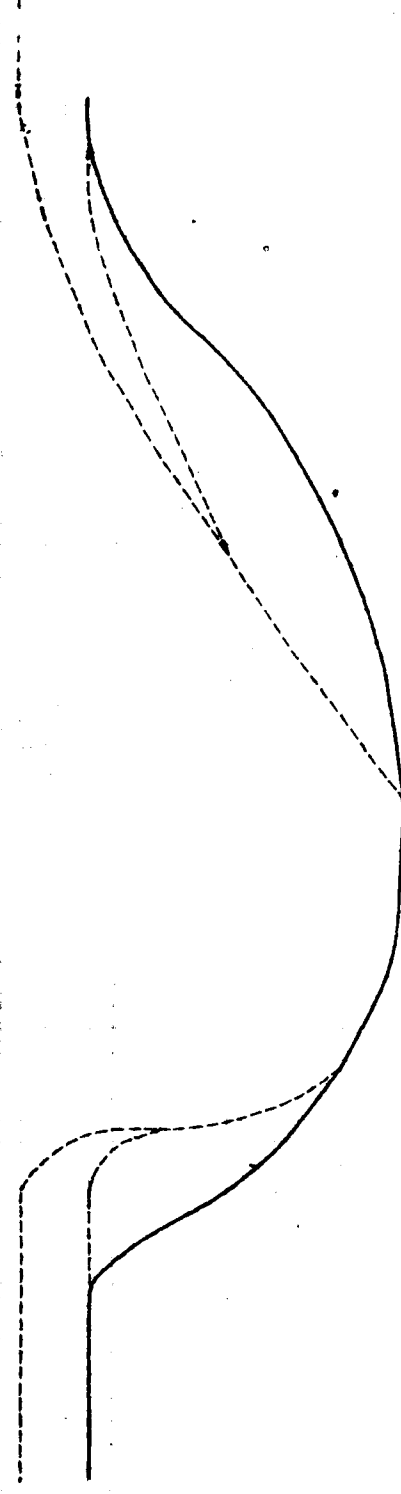
DISCHARGE IN CUSECS.



No. 7. Annexure to evidence of Mr. A. S. Gibb, Engineer, Upper Bari Doab Canal, Punjab.

DIAGRAM SHOWING CURVE OF EACH SUPPLY FAVOURABLE TO AMERICAN COTTON.

— Typical Curve of Existing Canal Supply
- - - Curve of Canal Supply favourable to American Cotton



Discharge

No. 8. Annexure II to evidence of Mr. A. S. Gibb, Executive Engineer, Upper Bari Doab Canal, Punjab.

TYPICAL PUNJAB RIVER SUPPLY DIAGRAM.

Typical Punjab River

Supply Diagram

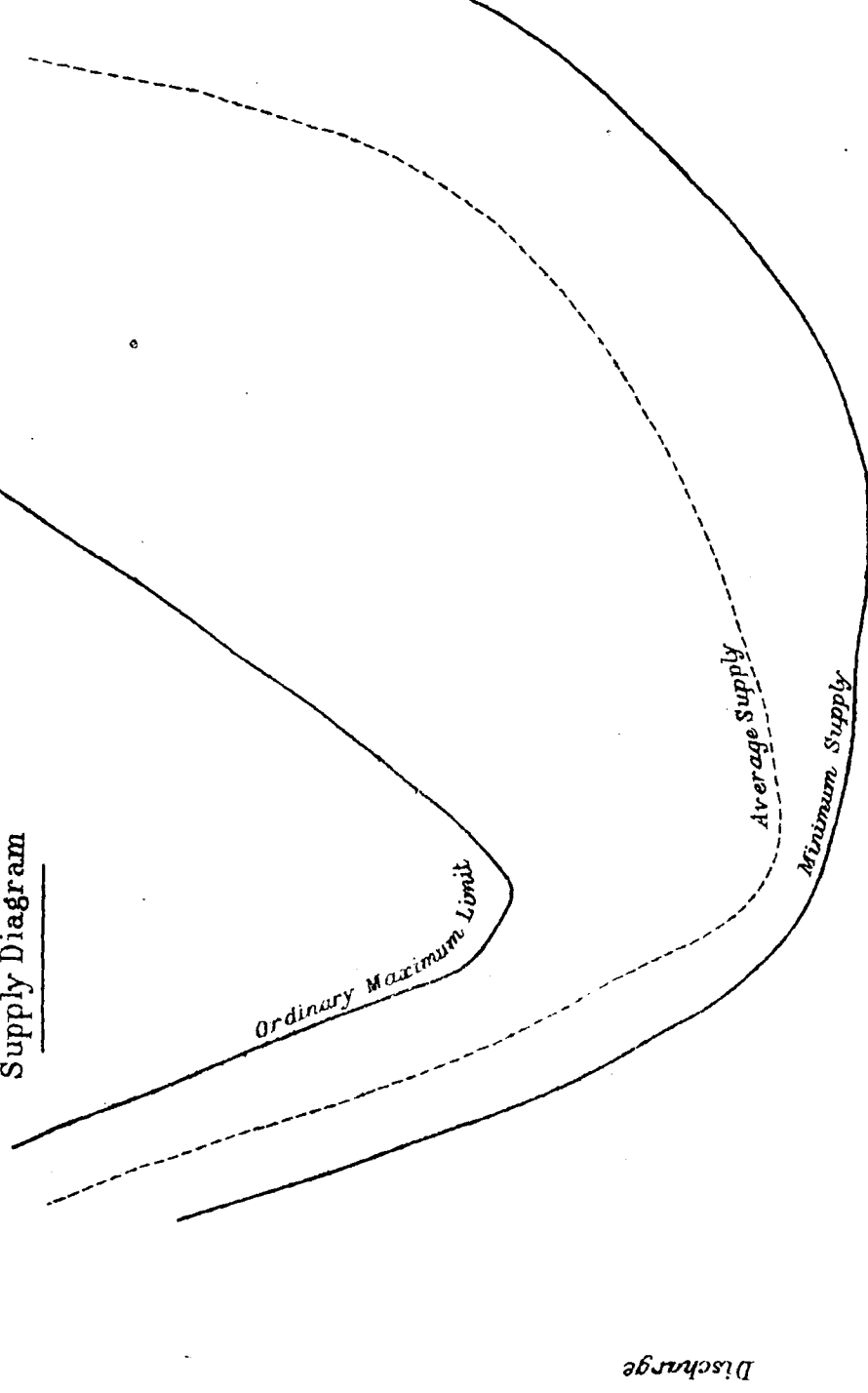
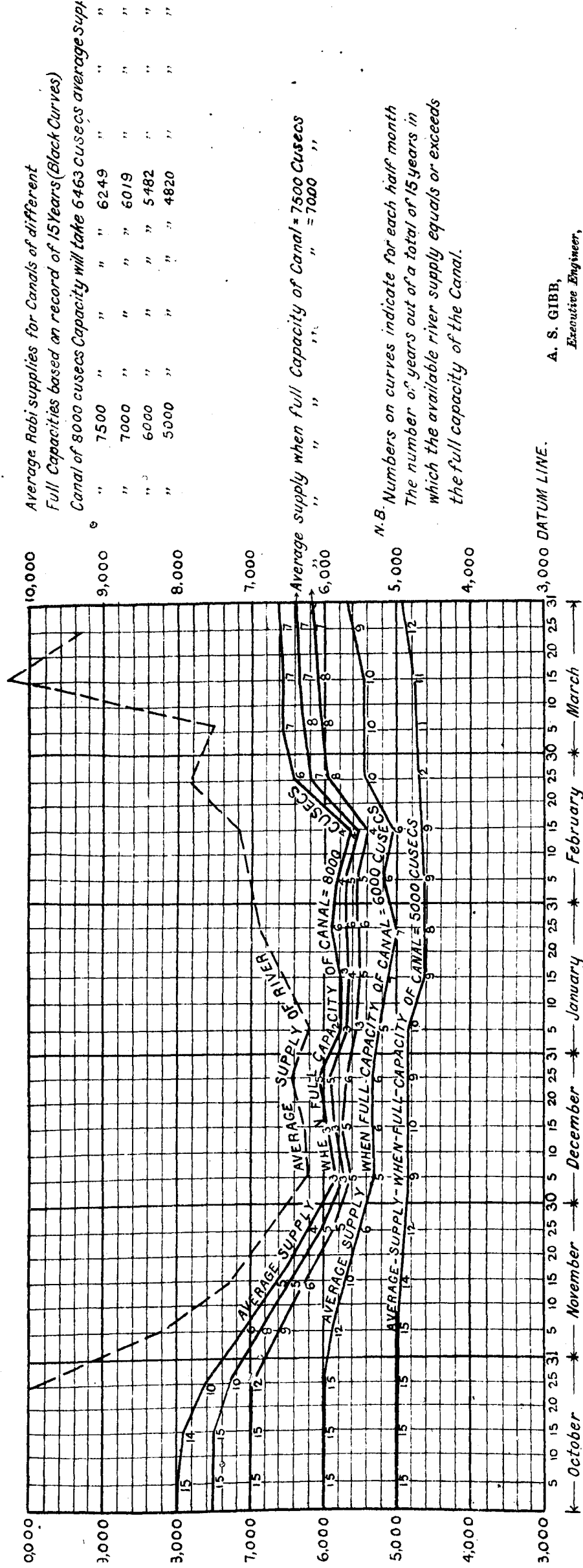


Photo-Mechl and Litho Dept., Thomason College, Roorkee.

March, 1920.—No. 5080-2.1500.

ANNEXURE III.
 DIAGRAM SHOWING AVERAGE RABI SUPPLIES THAT CAN BE TAKEN BY CANALS
 OF DIFFERENT FULL CAPACITY
 RABI

AVERAGE BASED ON FIGURE FOR TENDAY PERIODS FOR 15 YEARS 1902-03 TO 1916-17.

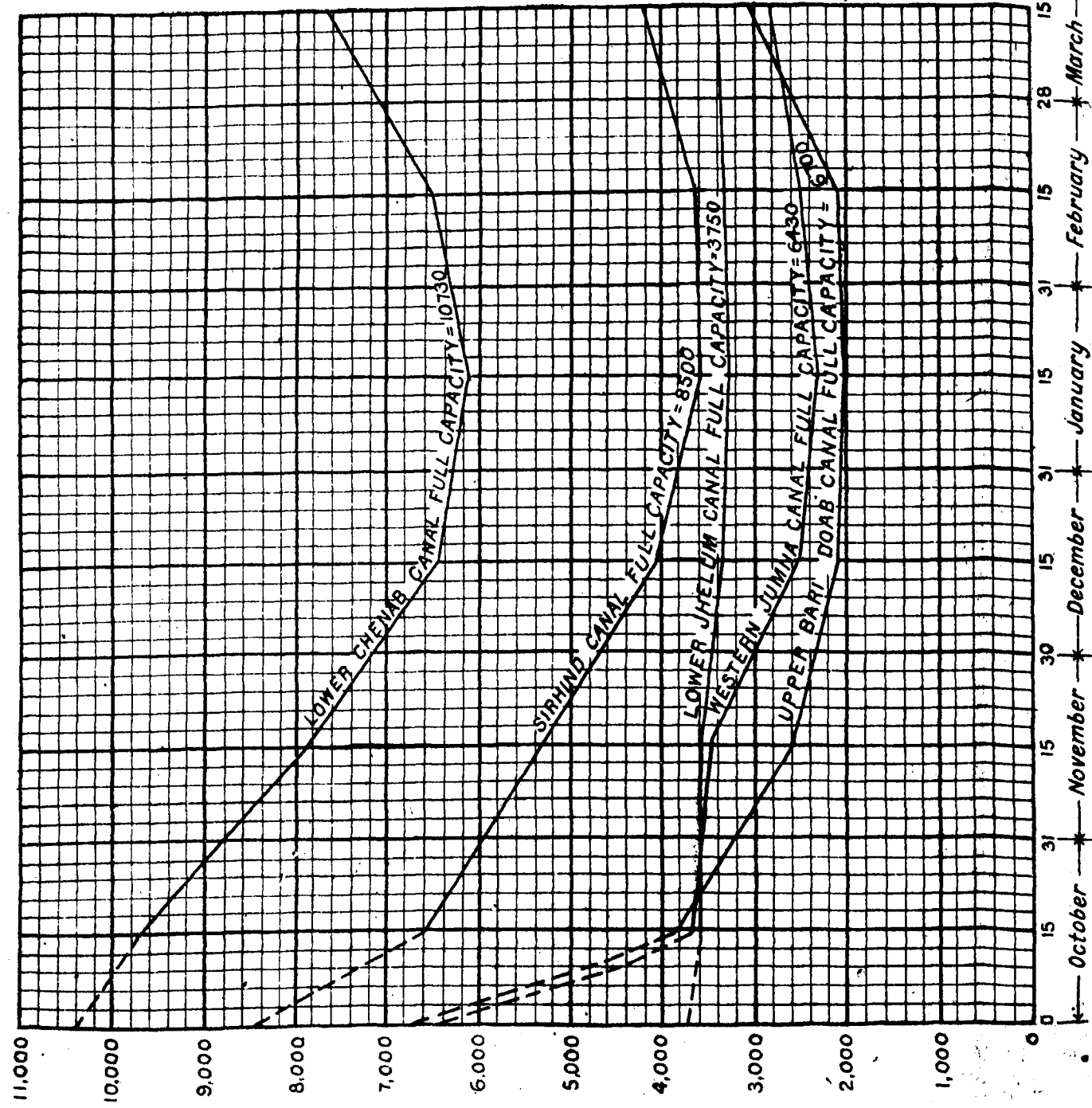


No. 9. Annexure III to evidence of Mr. A. S. Gibb, Executive Engineer, Upper Bari Doab Canal, Punjab.

No. 10. Annexure IV to evidence of Mr. A. S. Gibb, Executive Engineer, Upper Bari Doab Canal, Punjab.

DIAGRAMS SHOWING AVERAGE MONTHLY SUPPLIES

TAKEN BY CANALS
RABI



Averages of 16 years 1899-00 to 1914-15 except Lower Jhelum which is averaged for 10 years only 1904-05 to 1914-15.

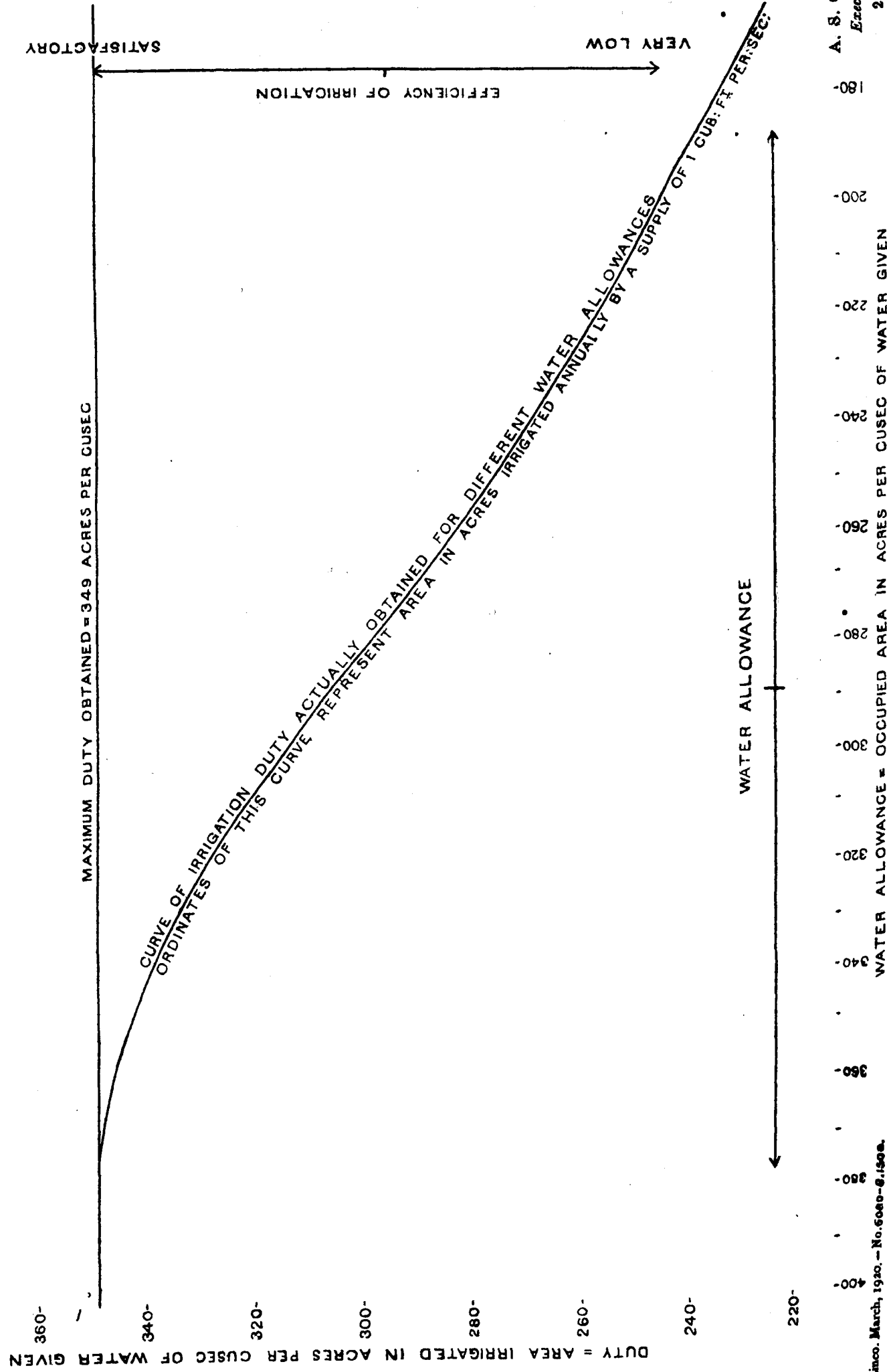
	FULL CAPACITY OF CANAL. (a)	AVERAGE RABI SUPPLY. (b)	$\frac{a-b}{b} \times 100$	$\frac{b}{a} \times 100$
Western Jumna	6430	2889	122.5	43.4
Sirhind	8500	4583	85.5	53.9
Upper Bari Doab	6700	2613	156.4	39.0
Lower Chenab	10730	7435	44.3	69.3
Lower Jhelum	3750	3334	92	88.9

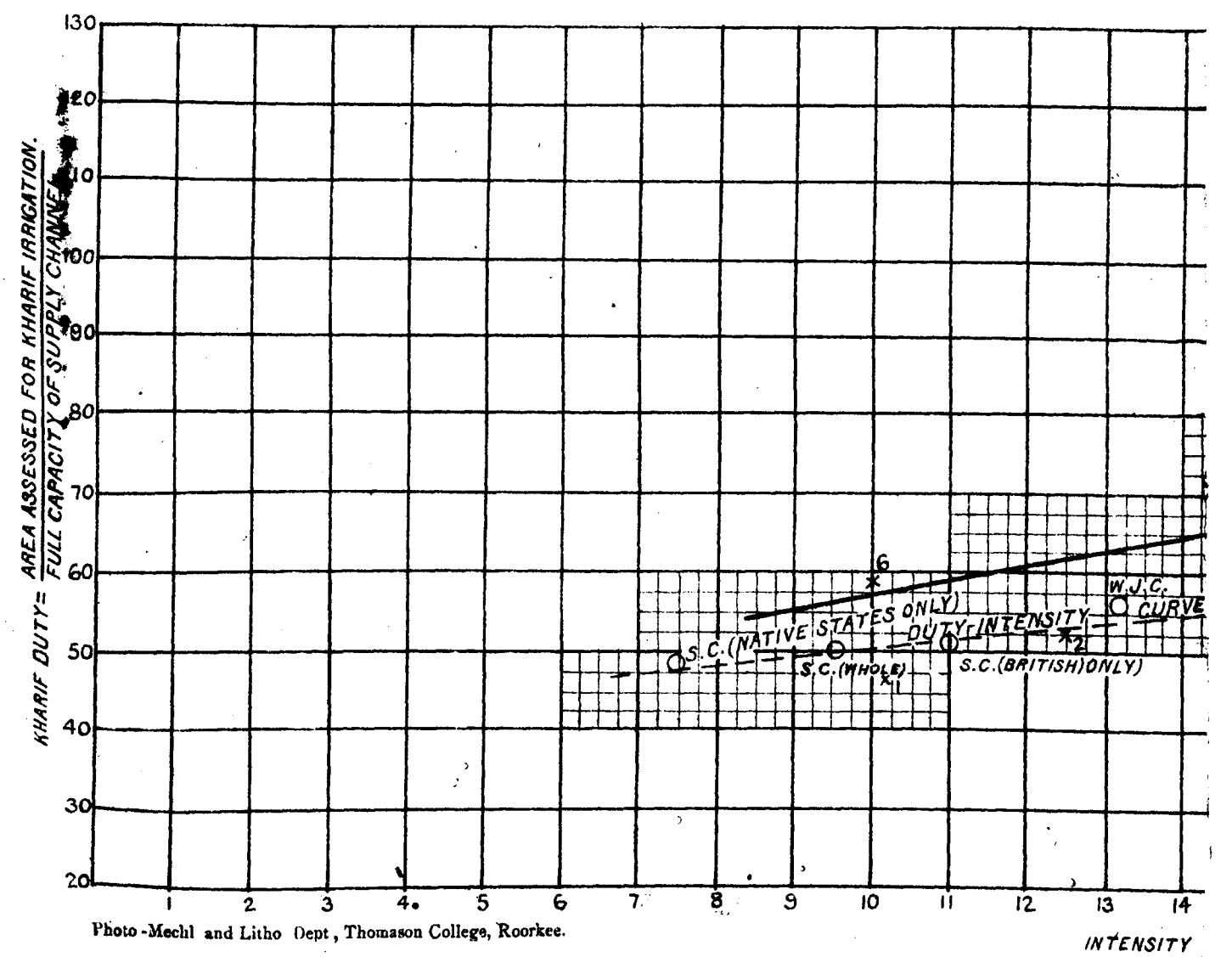
A. S. GIBB,
Executive Engineer,

Photo. Zineo., February, 1910. - No. 6088-7-1500

**DIAGRAM SHOWING COMPARATIVE EFFICIENCIES OF IRRIGATION DONE
FOR VARYING DEGREES OF LIBERALITY OF WATER SUPPLY ALLOWED
DERIVED FROM OBSERVATIONS MADE ON LOWER CHENAB CANAL, PUNJAB-INDIA.**

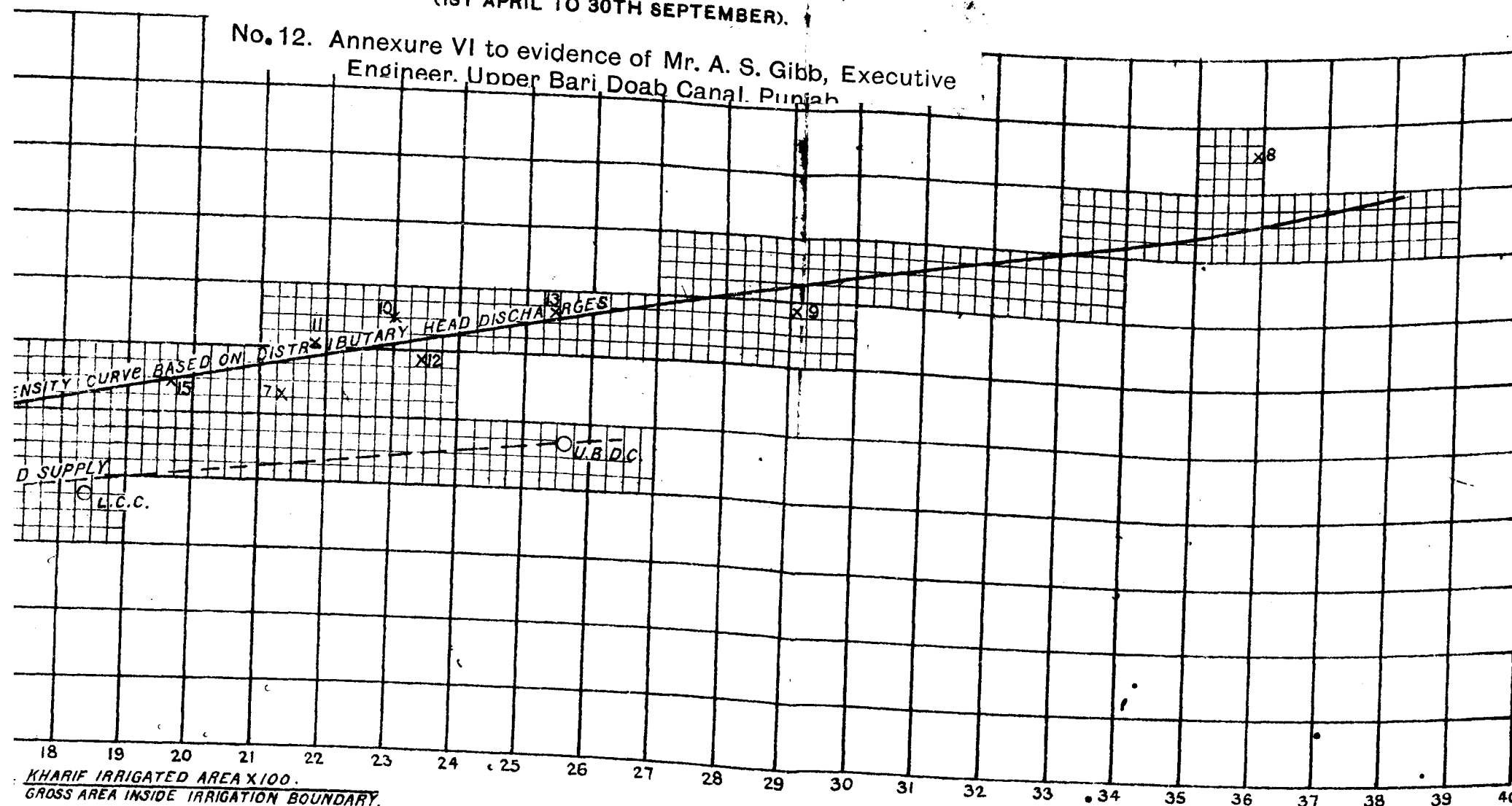
No. 11. Annexure V to evidence of Mr. A. S. Gibb, Executive
Engineer, Upper Bari Doab Canal, Punjab.





ANNEXURE VI.
DIAGRAM SHOWING THE RELATION BETWEEN DUTY & INTENSITY
 OF IRRIGATION ON PUNJAB CANALS
 FOR KHARIF
 (1ST APRIL TO 30TH SEPTEMBER).

No. 12. Annexure VI to evidence of Mr. A. S. Gibb, Executive
 Engineer, Upper Bari Doab Canal, Punjab



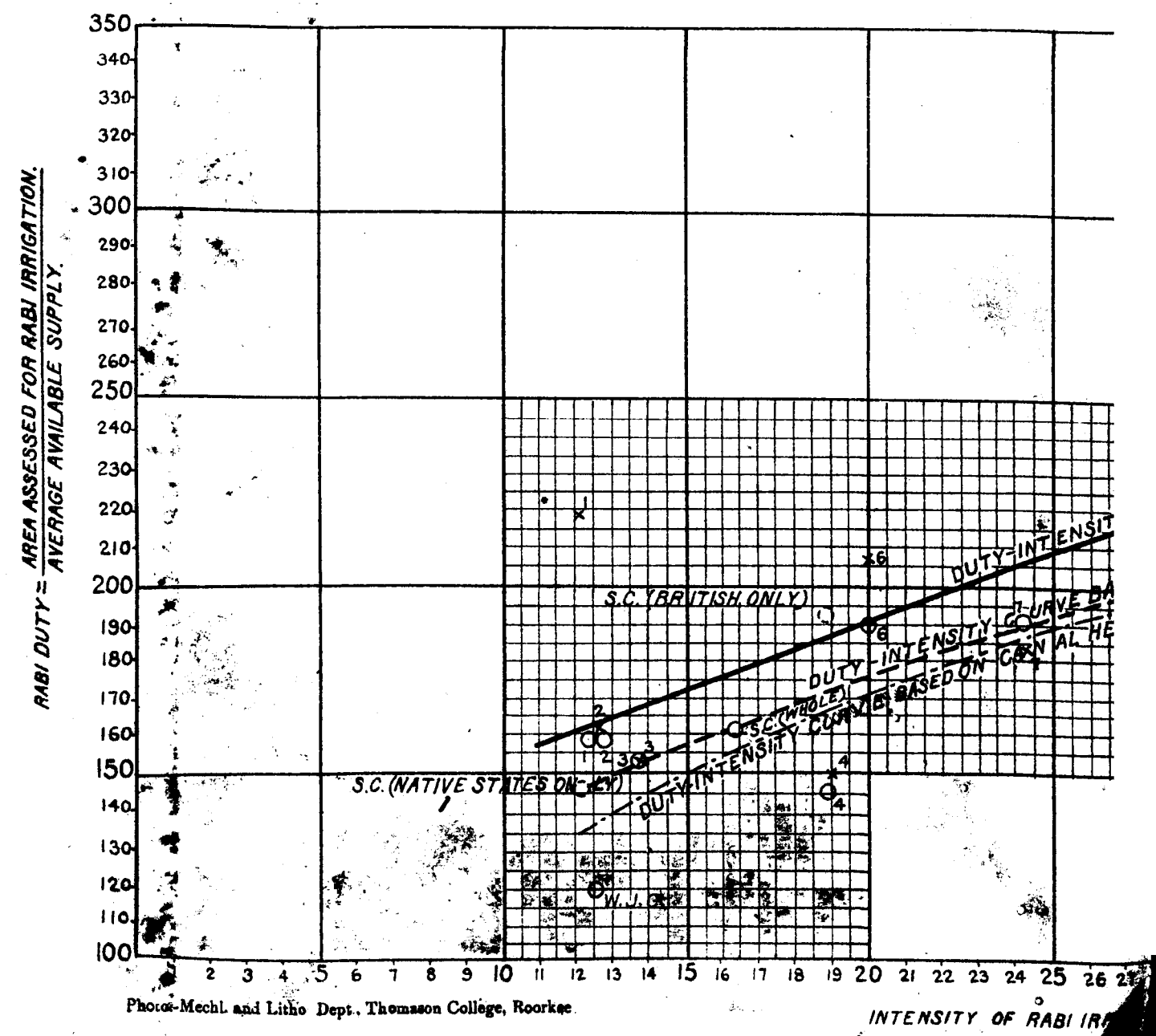
Points marked 5x = Canal Divisions-Duties based on Distributary head.
 Authorized supply, i.e. the supplies available when
 required at Distributary heads, does not include.
 Absorption from Branches feeding Distributaries or
 passing through the Division, nor escaped supply
 (Averages of 5 Years)

Points marked OL.J.C. = Canal System-Duties based on capacity of the
 canal at its head, i.e. the supply that is available
 for Distribution throughout the system whenever
 required, includes all absorption from main line.
 Branches, Distributaries, etc. and all supply escaped.
 (Averages for 16 Years.)

- | | |
|---|---------------------------------------|
| 1. Karnal Division Western Jumna Canal | 10. Lyallpur Div. Lower Chenab Canal. |
| 2. Delhi " " " " | 11. Upper Guggera Div. " " " |
| 3. Rohtak " " " " | 12. Lower " " " " |
| (Average of 2 Years Only) | 13. Burala " " " " |
| 4. Hissar Division Western Jumna Canal. | 14. Jhang " " " " |
| 5. Ferozepur Division Sirhind Canal. | 15. II Division Lower Jhelum Canal. |
| 6. Bhatinda " " " " | 16. III. " " " " |
| 7. II. Division Upper Bari Doab Canal. | S.C. = Sirhind Canal. |
| 8. III. " " " " | W.J.C. = Western Jumna Canal. |
| 9. IV. " " " " | U.B.D.C. = Upper Bari Doab Canal. |
| (Average of 4 Years Only). | L.C.C. = Lower Chenab Canal. |
| | L.J.C. = Lower Jhelum Canal. |

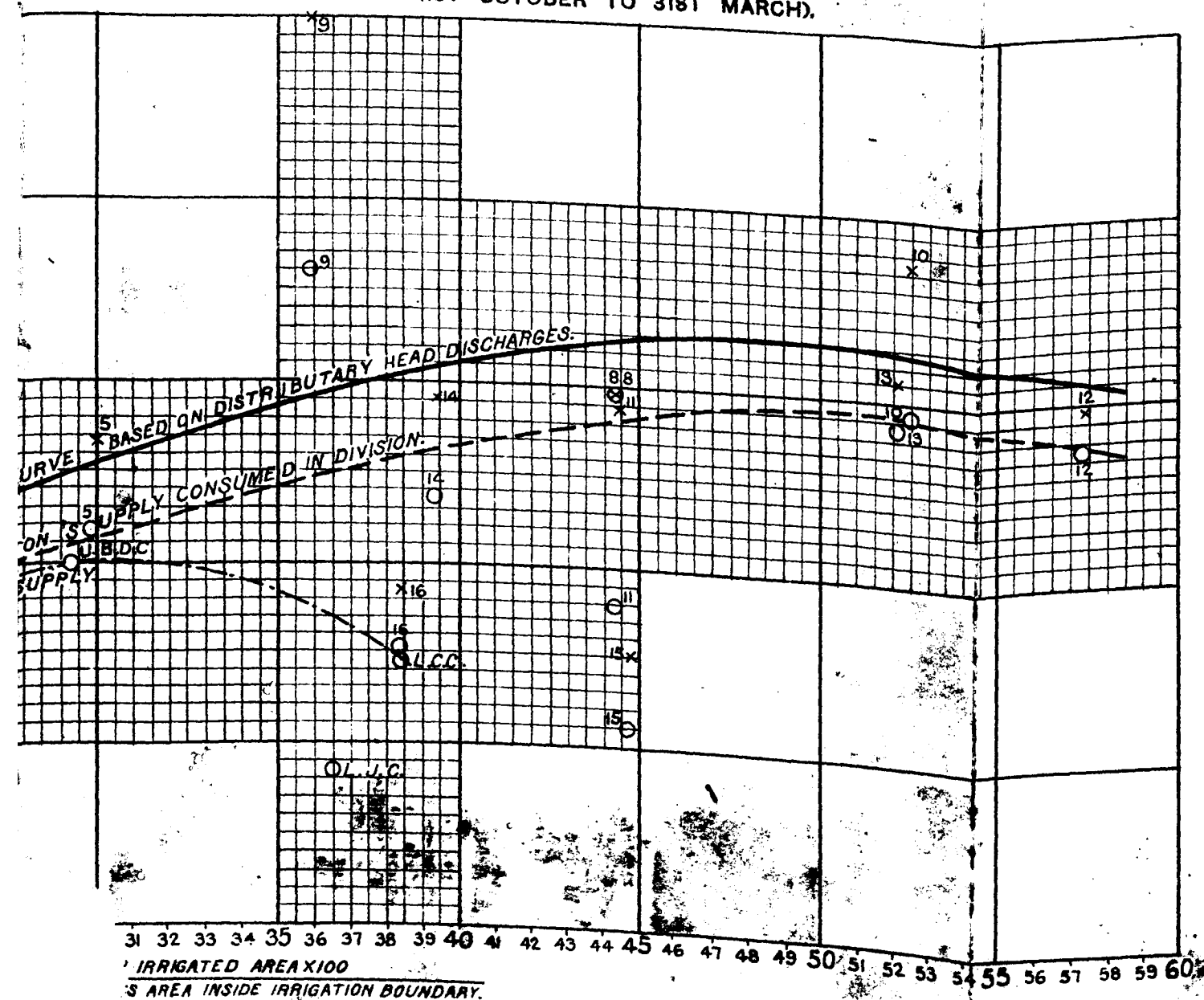
A. S. GIBB,
 Executive Engineer.

February, 1930—No. 5080-10-1500



No. 13. Annexure VII to evidence of Mr. A. S. Gibb, Executive Engineer, Upper Bari Doab Canal, Punjab.

DIAGRAM SHOWING THE RELATION BETWEEN DUTY & INTENSITY OF IRRIGATION ON PUNJAB CANALS
FOR RABI
(1ST OCTOBER TO 31ST MARCH).



REFERENCES.

Points marked 50 = Canal Divisions - Duties based on Total water consumed inside the Division Boundary as indicated by Gauges in Branches, including absorption from all channels (including canal Branches) within the Division Boundary, but excluding escaped supply (Averages of 5 Years)

Points marked 5x = Canal Divisions - Duties based on Distributary head Discharges acknowledged by the division does not include absorption from Branches etc: feeding Distributaries or passing through the division nor escape (Averages of 5 Years).

Points marked OWJ.C. = Canal Systems - Duties based on supply entering canal head which includes all absorption in main line branches distributaries etc: and supply escaped (Averages of 16 Years).

1. Karnal Division Western Jumna Canal.	10. Lyallpur Division Lower Chenab Canal.
2. Delhi " " " "	11. Upper Guggera " " " "
3. Rohtak " " " "	12. Lower " " " "
(Only 2 Years average)	13. Burala " " " "
4. Hissar " " " "	14. Jhang " " " "
5. Ferozepur " Sirhind Canal	15. II. Division Lower Jhelum Canal.
6. Bhatinda " " " "	16. III. " " " "
7. II. Division Upper Bari Doab Canal	S.C. = Sirhind Canal. W.J.C. = Western Jumna Canal.
8. III. " " " " "	L.C.C. = Lower Chenab Canal.
9. IV. " " " " "	L.J.C. = Lower Jhelum Canal.
(Only 4 Years Average)	U.B.D.C. = Upper Bari Doab Canal.

N.B. Points referring to Lower Jhelum Canal are not allowed for in Drawing the curves because its supply curve for Rabi is so very different from that of the others.
The exceptionally high duty of 9x & 90 = IV Division U.B.D.C. is due to the fact that approximately 1/3 of its gross area is served by Kharif Distributaries, which give 1st watering only for Rabi.

The low duty of 110 = Upper Guggera Division is due to bad command and exceptional length of large Branch Channel in the Division.

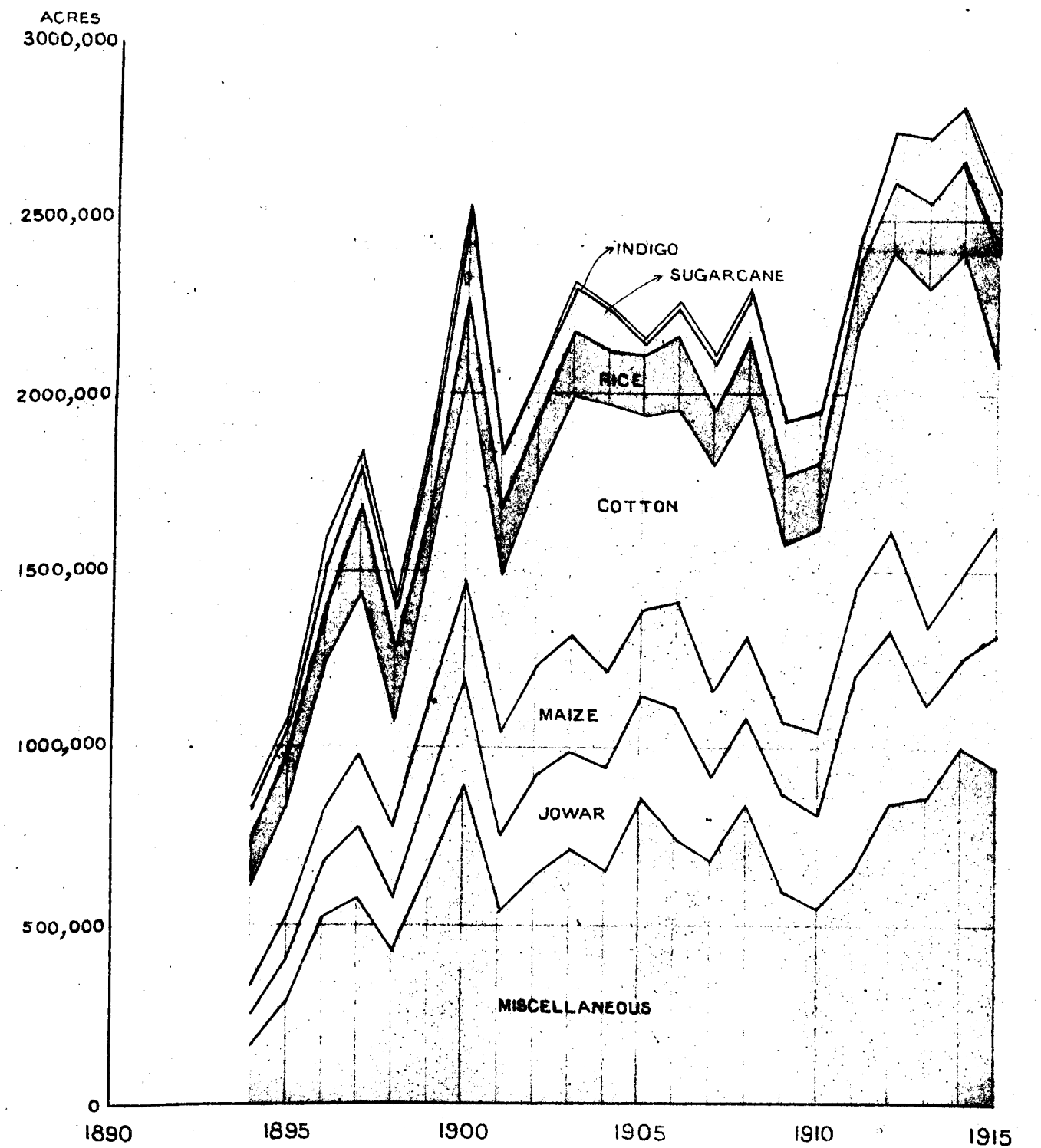
A. S. GIBB
Executive Engineer.

February, 1920. - No. 6080-11-1500

Annexure III to written evidence of Mr. H. W. Nicholson,
Executive Engineer, Sirhind Project Division, Punjab.

PUNJAB CANALS
MAJOR WORKS
KHARIF CROPS.

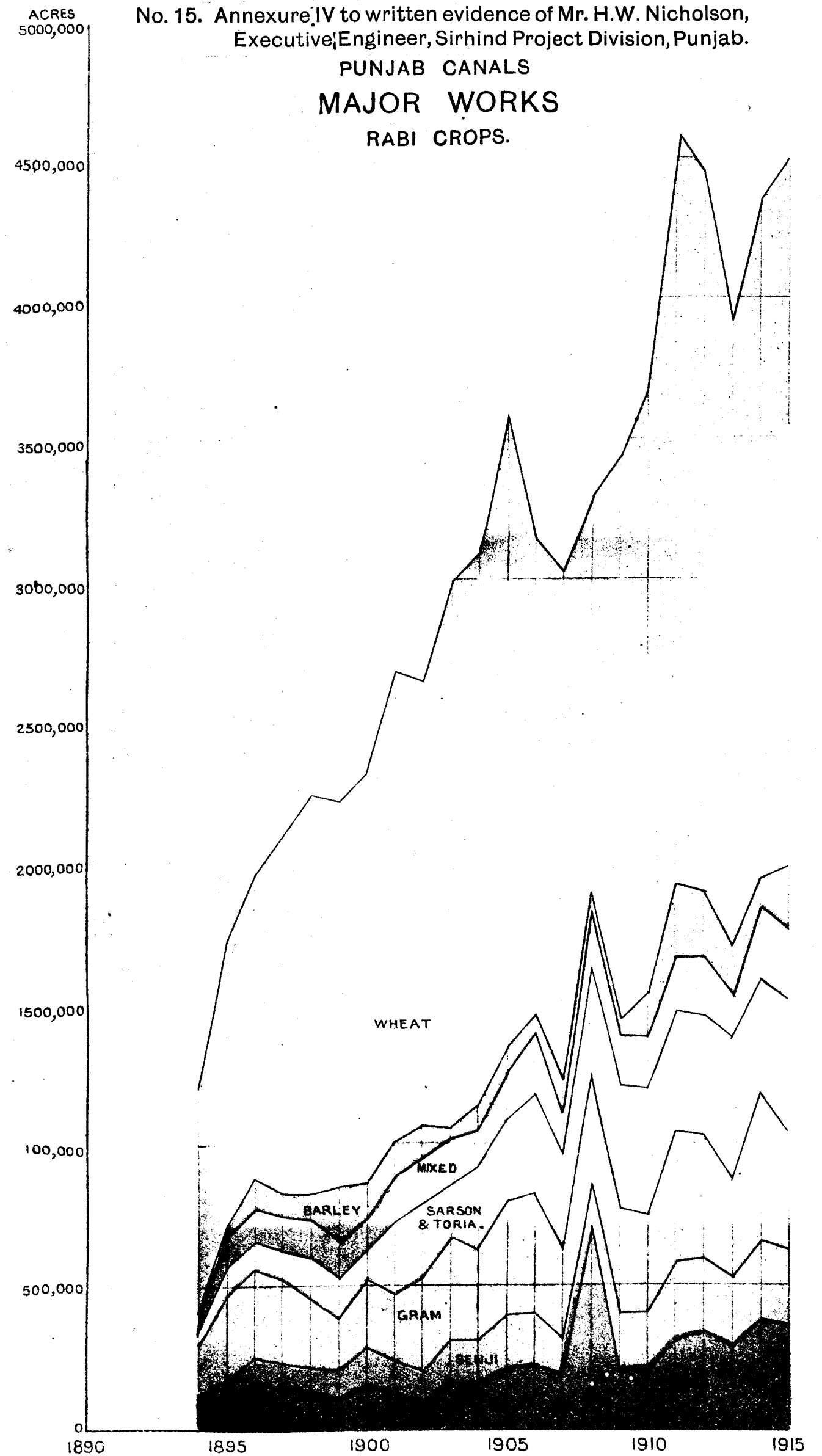
3 Cell 9
~~2 Cell 20~~



Photo, Zinco, March, 1920. - No. 6080-12-1500

No. 15. Annexure IV to written evidence of Mr. H.W. Nicholson,
Executive Engineer, Sirhind Project Division, Punjab.

PUNJAB CANALS
MAJOR WORKS
RABI CROPS.



No. 16. Annexure V to written evidence of Mr. H. W. Nicholson,
Executive Engineer, Sirhind Project Division, Punjab.

PUNJAB CANALS

MINOR WORKS

KHARIF CROPS.

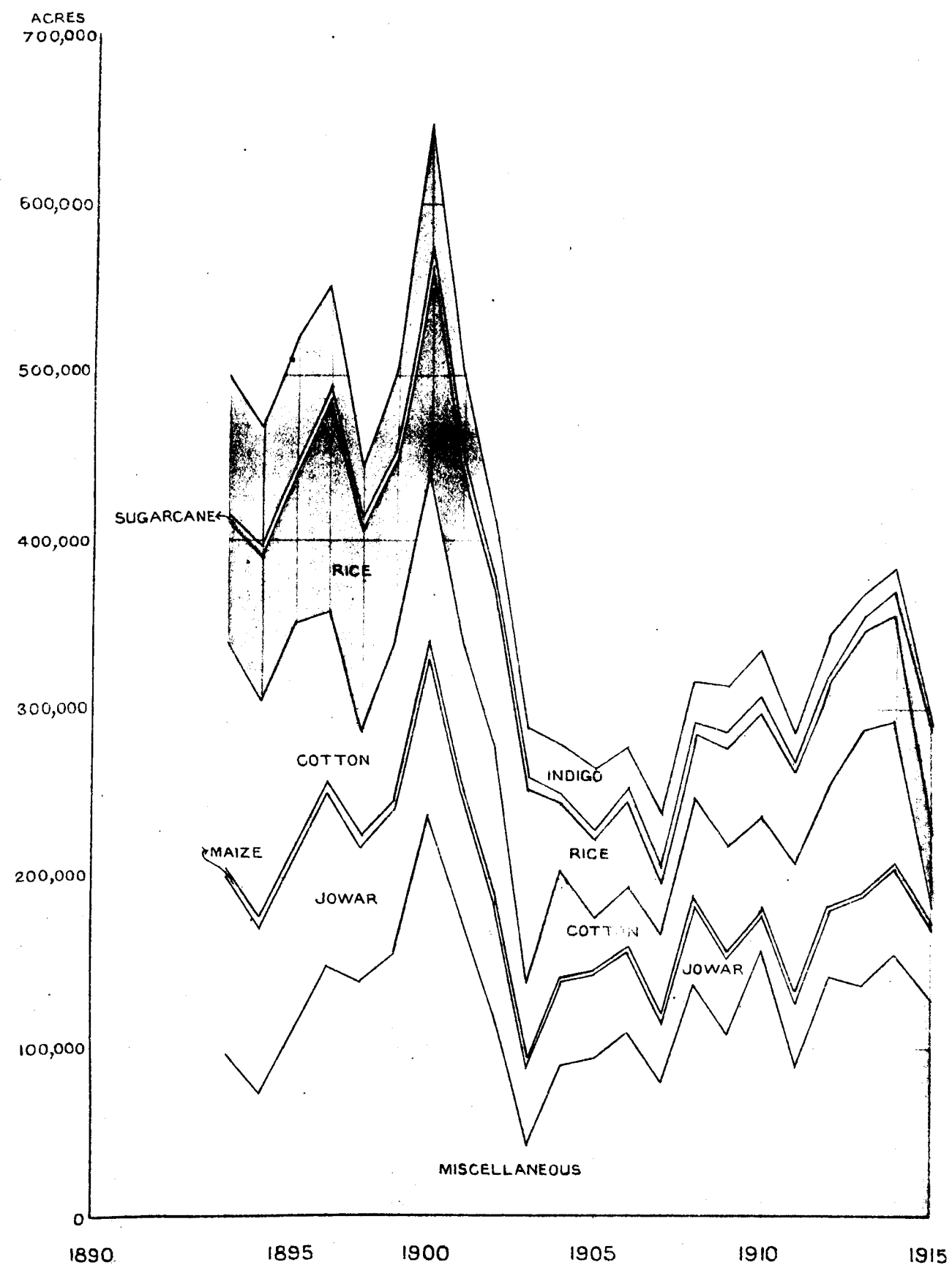
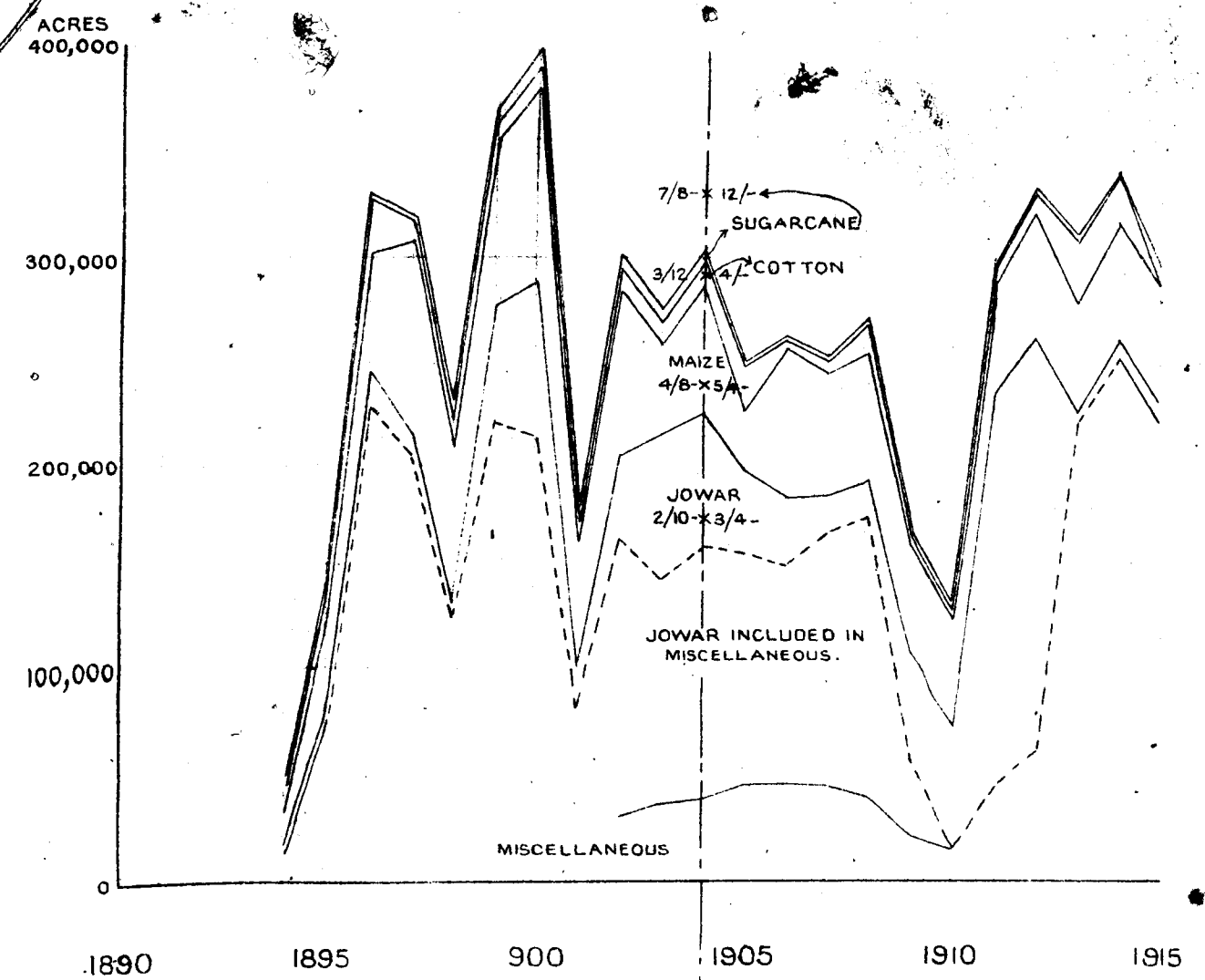


Photo. Zinco, March, 1920.—No. 6080-14-1500

No. 18. Annexure VII to written evidence of Mr. H.W. Nicholson,
Executive Engineer, Sirhind Project Division, Punjab.

PUNJAB CANALS
SIRHIND CANALS
(MAJOR WORKS)
KHARIF CROPS
BRITISH BRANCHES.

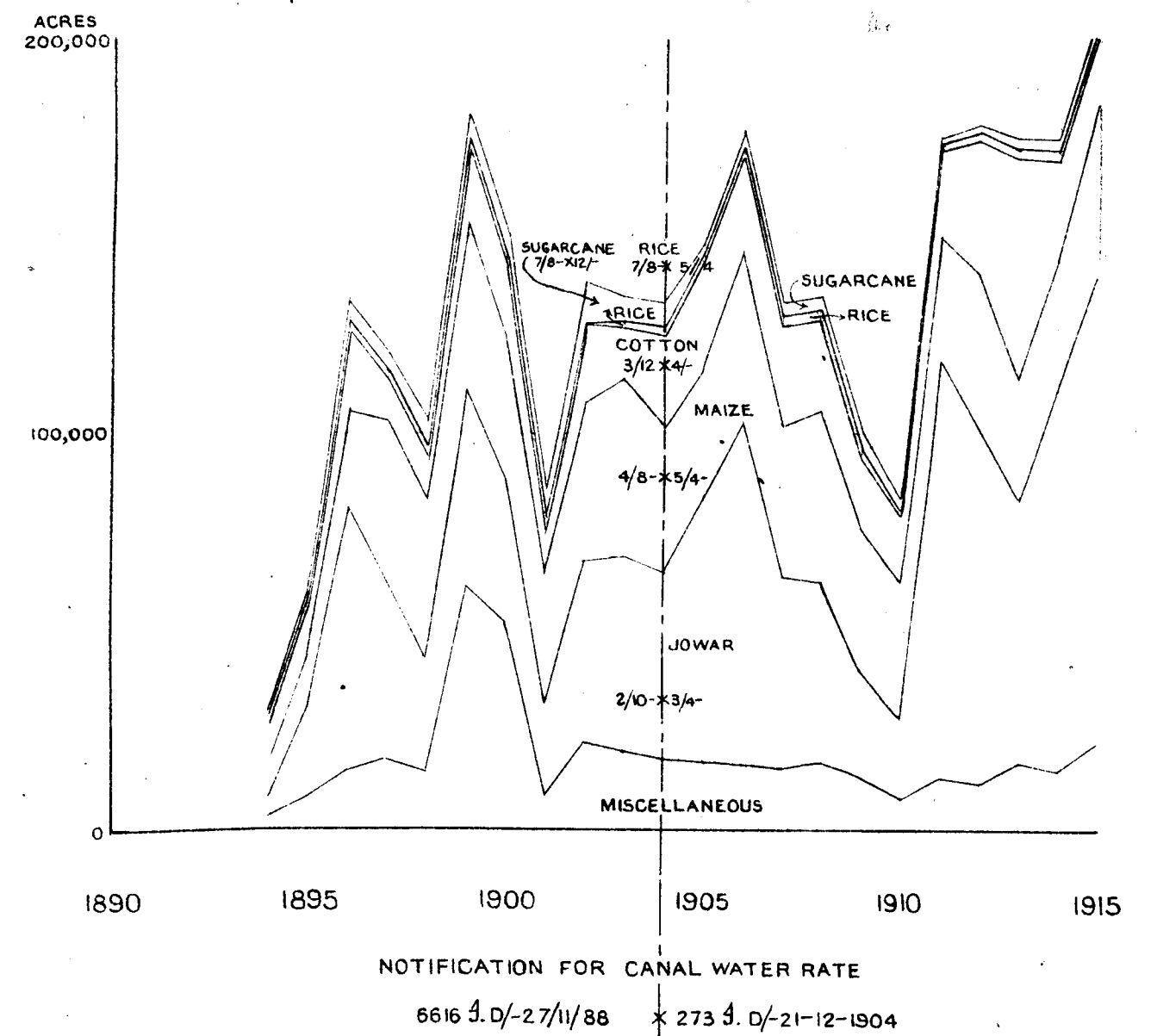


NOTIFICATION FOR CANAL WATER RATE

6616 30/-27/11/88 x 273 30/-21/12/04

No. 19. Annexure VIII to written evidence of Mr.H.W. Nicholson,
Executive Engineer, Sirhind Project Division, Punjab.

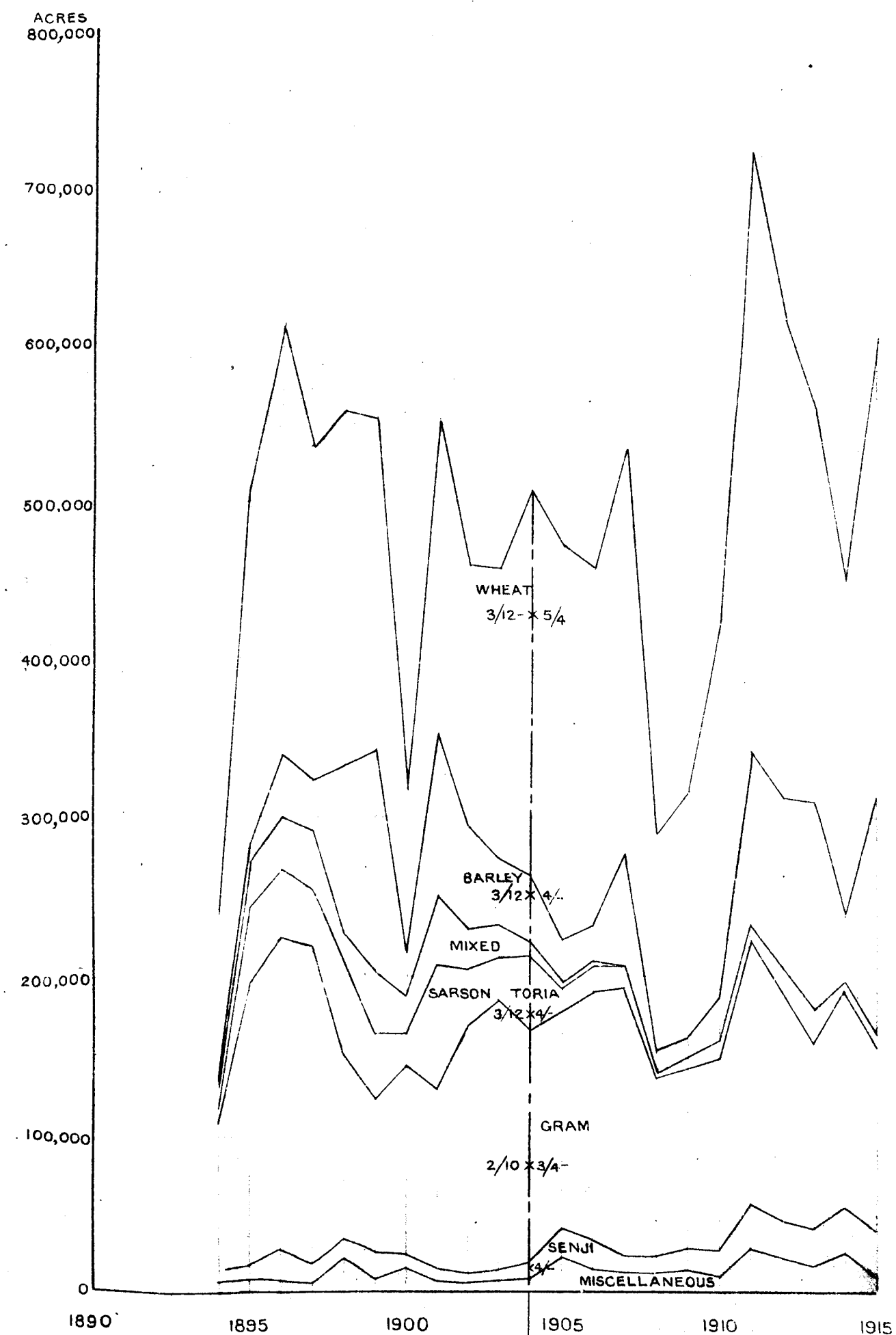
PUNJAB CANALS
SIRHIND CANALS
(MAJOR WORKS)
KHARIF CROPS
NATIVE STATES.



No. 20. Annexure IX to written evidence of Mr. H. W. Nicholson,
Executive Engineer, Sirhind Project Division, Punjab.

PUNJAB CANALS
SIRHIND CANALS

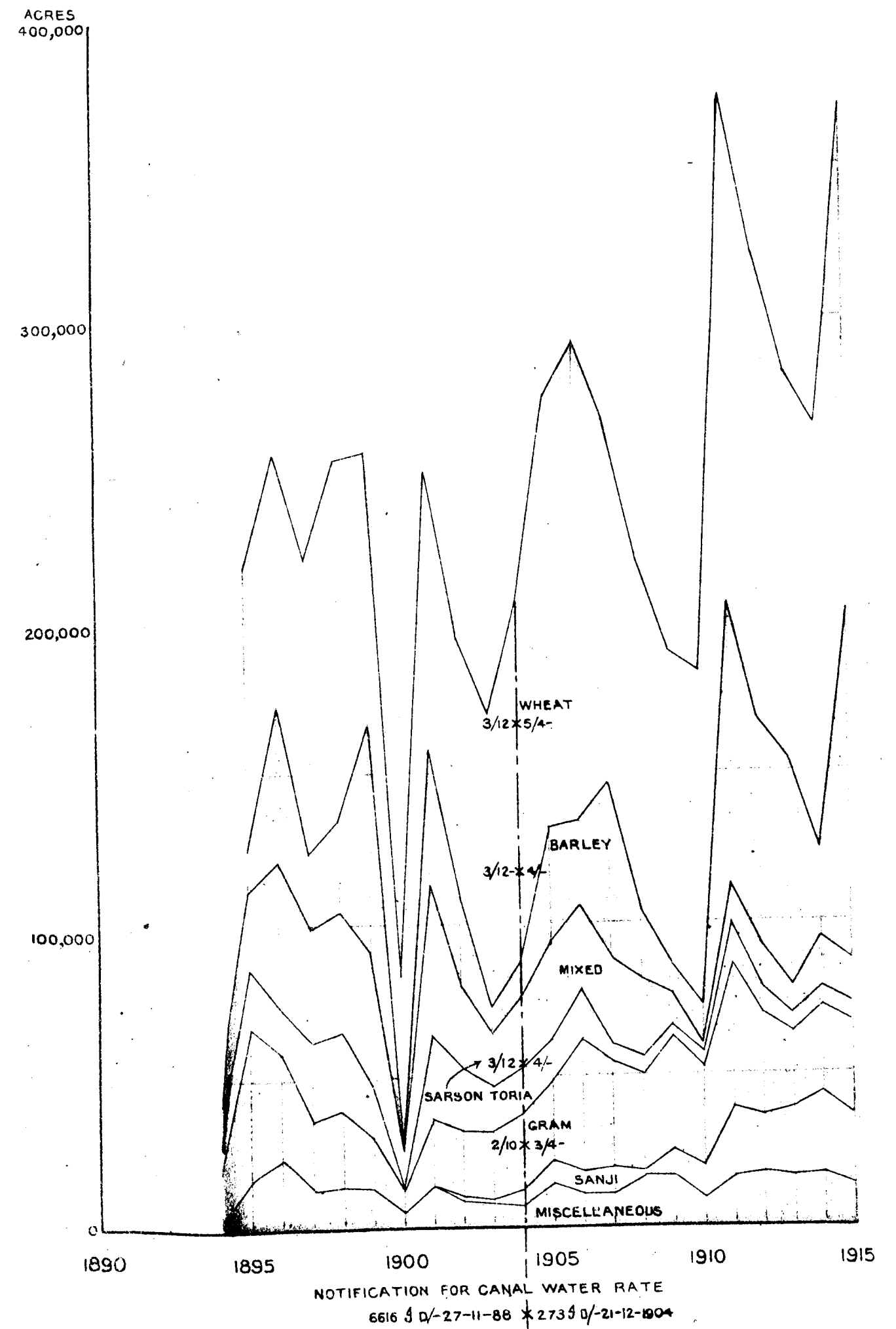
(MAJOR WORKS)
RABI CROPS
BRITISH BRANCHES.

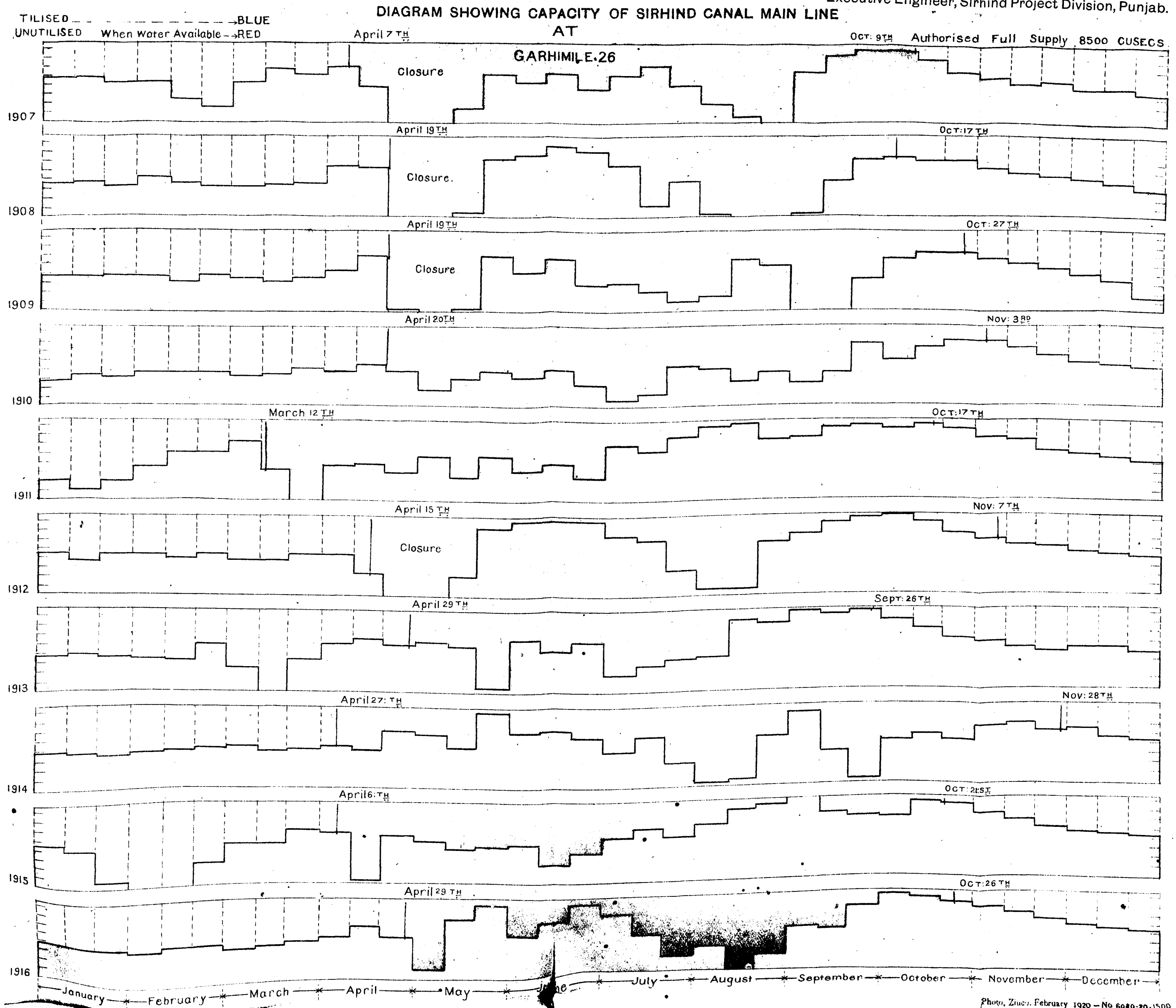


NOTIFICATION FOR CANAL WATER RATE
6616 3 0/-27-11-88 * 27 3 0/-21-12-1904

No. 21. Annexure X to written evidence of Mr. H. W. Nicholson,
Executive Engineer, Sirhind Project Division, Punjab.

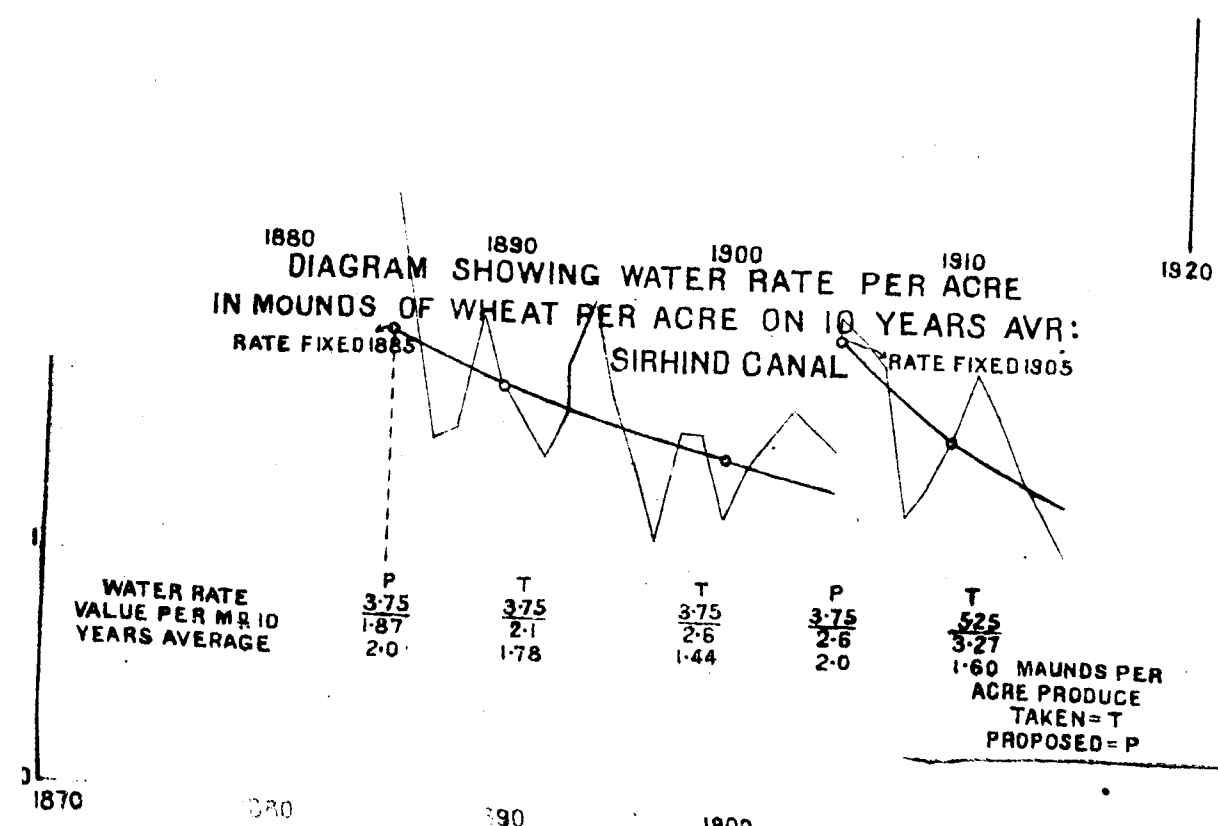
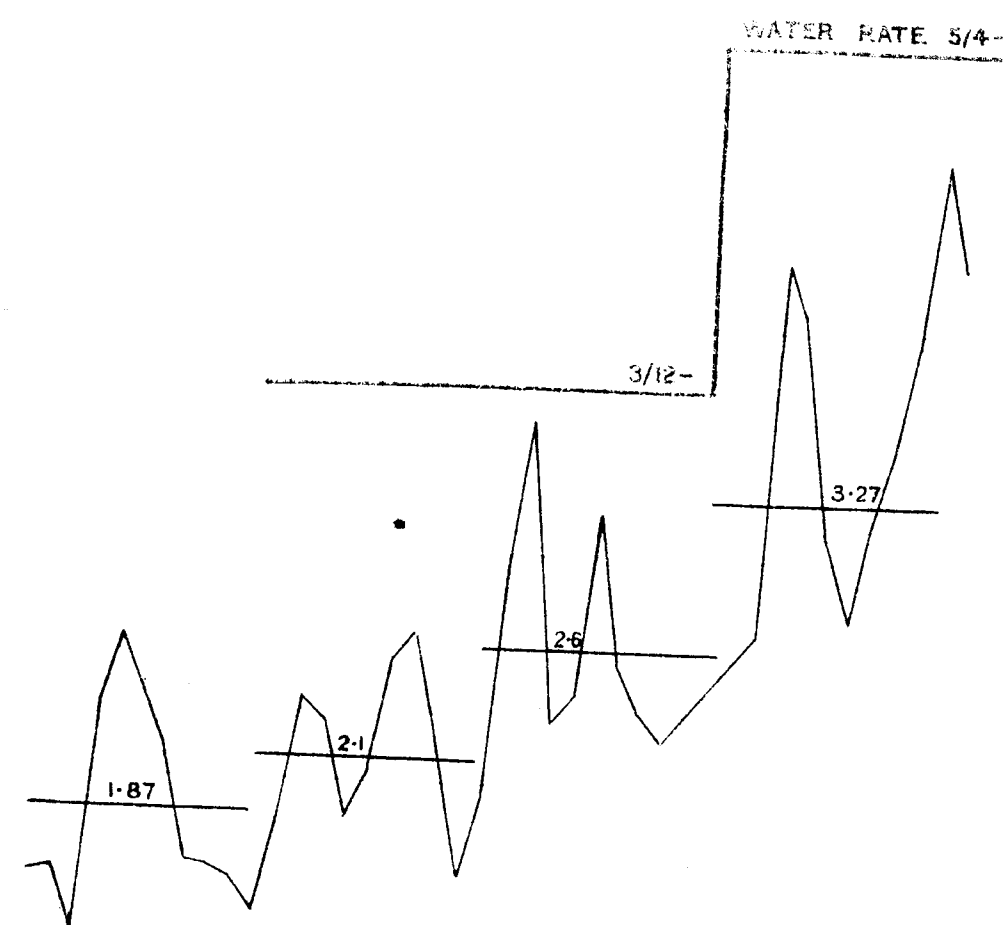
PUNJAB CANALS
SIRHIND CANALS
(MAJOR WORKS)
RABI CROPS
NATIVE STATES.





No. 23. Annexure I to oral evidence of Mr. H. W. Nicholson,
Executive Engineer, Sirhind Project Division, Punjab.

DIAGRAM SHOWING PRICE OF WHEAT
AND
WATER RATE
LUDHIANA DISTRICT.



No. 24. Annexure II to oral evidence of Mr. H.W. Nicholson,
Executive Engineer, Sirhind Project Division, Punjab.
DIAGRAM SHOWING PRICE OF COTTON
LUDHIANA DISTRICT.

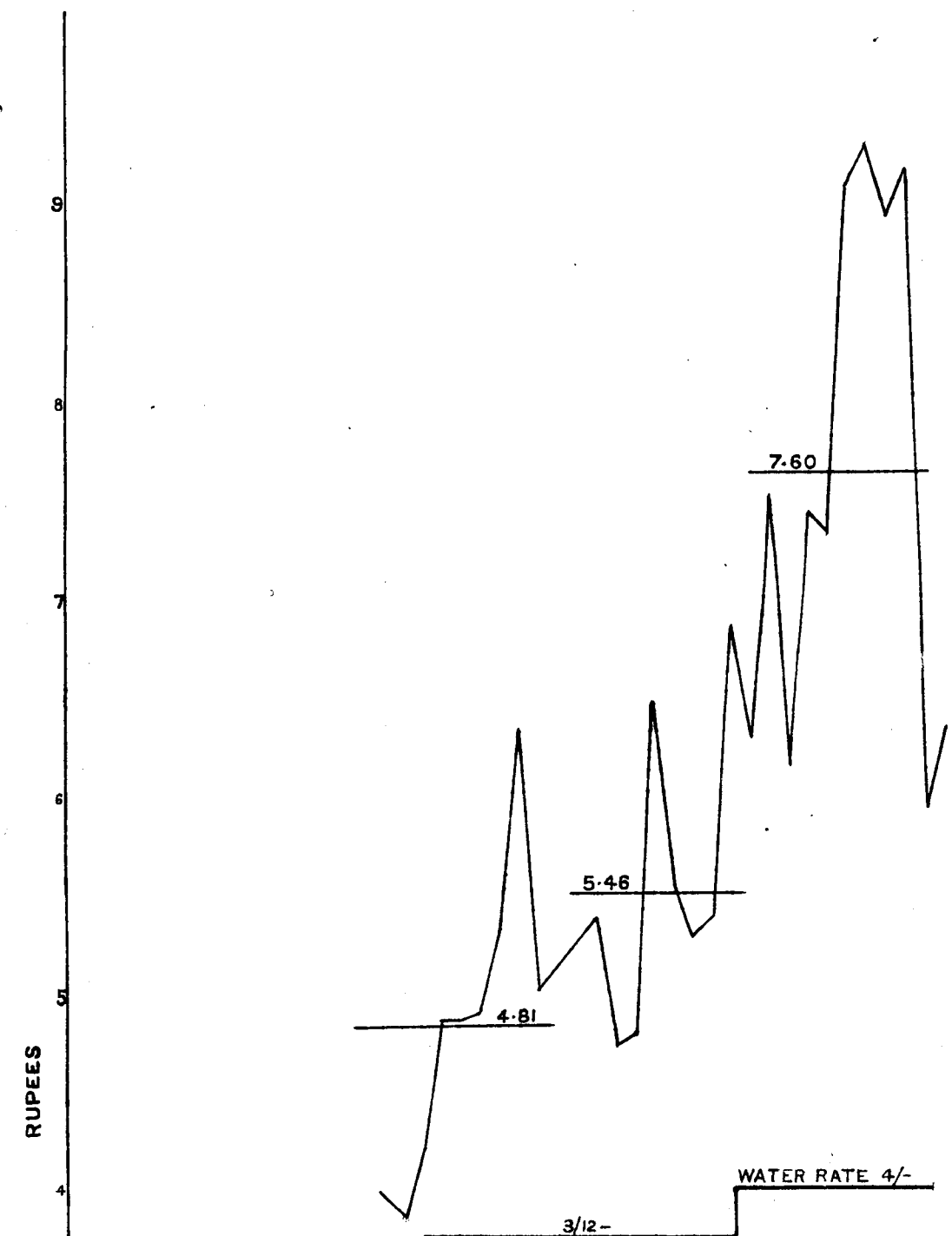
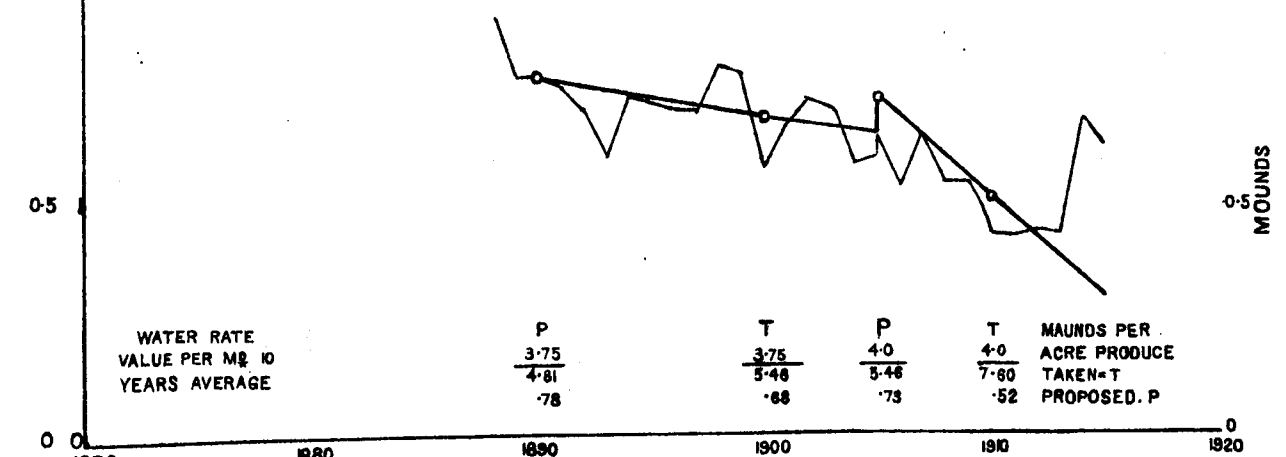


DIAGRAM SHOWING WATER RATE PER ACRE
IN MOUNDS OF COTTON PER ACRE ON 10 YEARS AVERAGE
SIRHIND CANAL

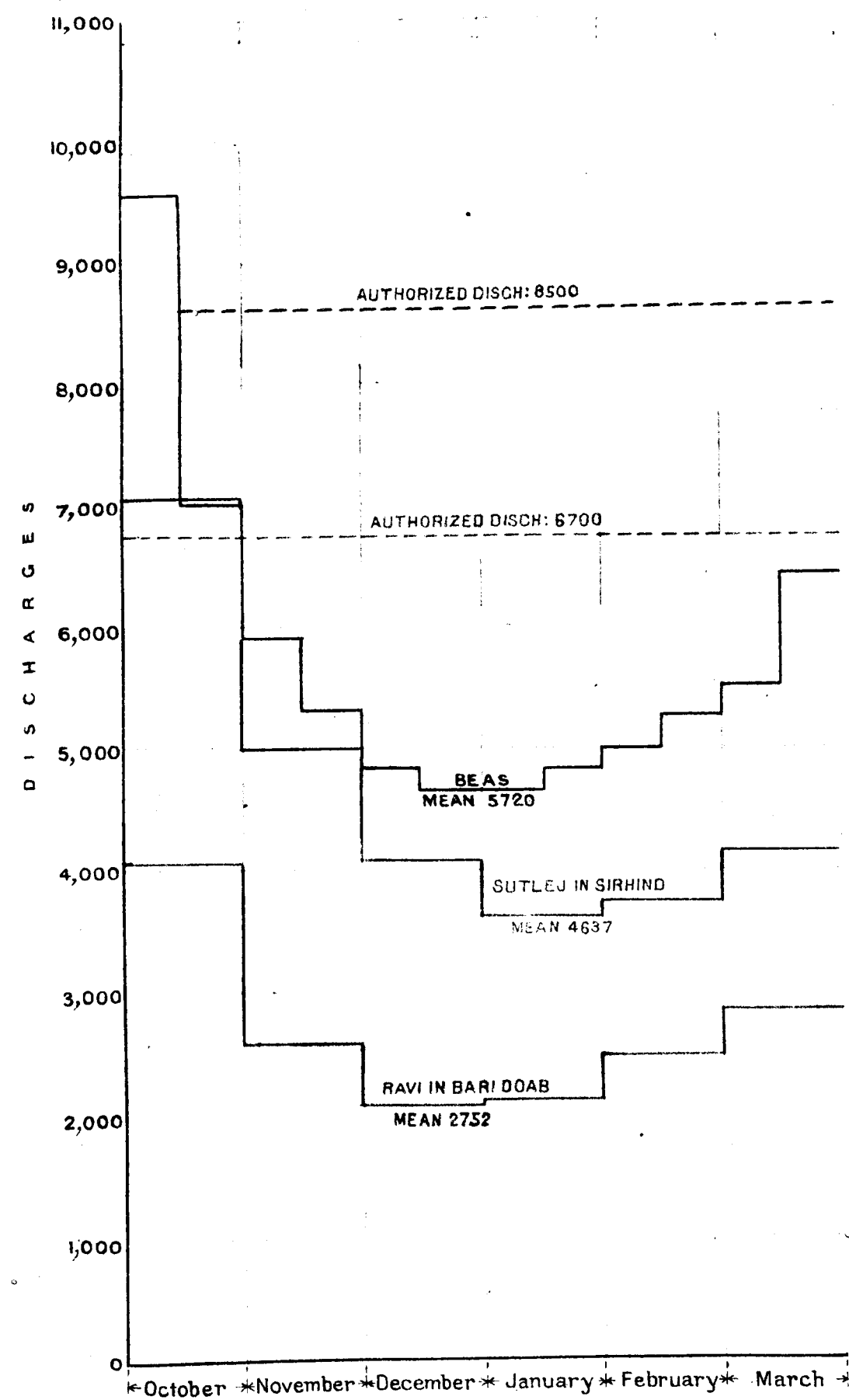


No. 25. Annexure III to oral evidence of Mr. H. W. Nicholson,
Executive Engineer, Sirhind Project Division, Punjab.
MEAN DISCHARGES OF RIVERS IN RABI

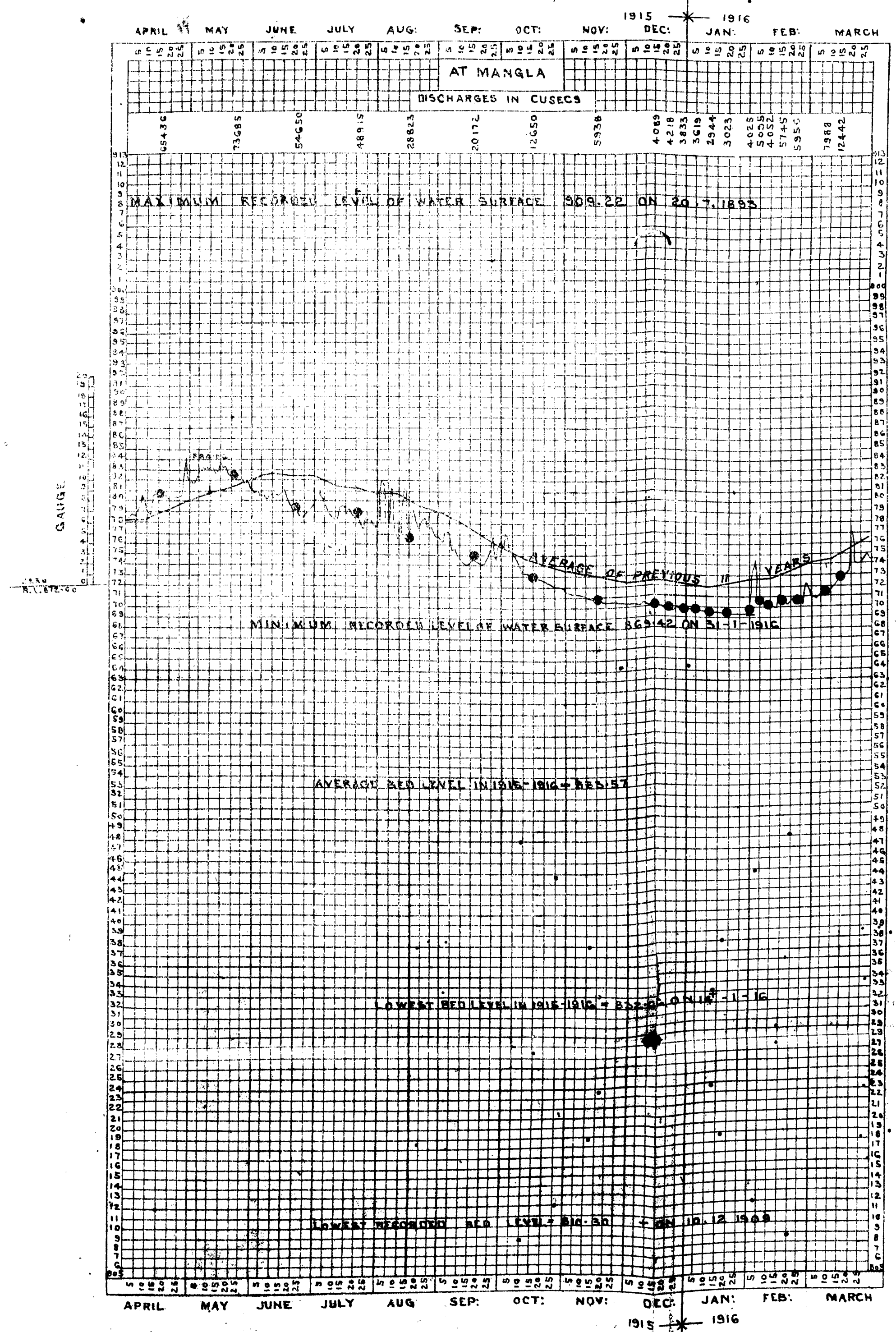
II YEARS MEAN 1903-14

MEASURED IN CANAL

(EXCEPT BIAS).



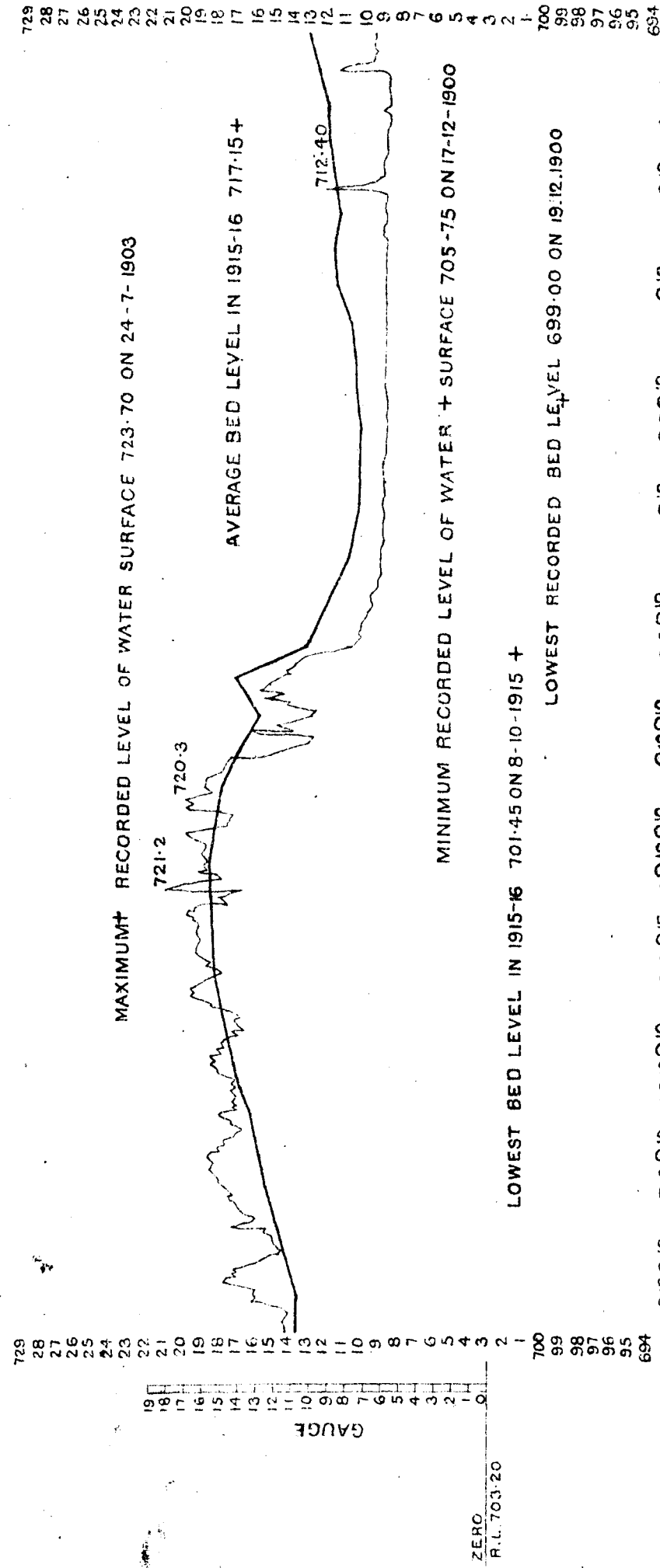
Superintending Engineer, Lower Jhelum Circle,
Punjab.
RISE AND FALL OF THE RIVER JHELM 1915-1916



ANNEXURE VII.
RISE AND FALL DIAGRAM
AT GARHI GOLA FOR 1915-16.

APRIL	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH.
1915	1915	1915	1915	1915	1915	1915	1915	1915	1916	1916	1916

DISCHARGES IN 'CUSECS



APRIL	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH
1915	1915	1915	1915	1915	1915	1915	1915	1915	1916	1916	1916

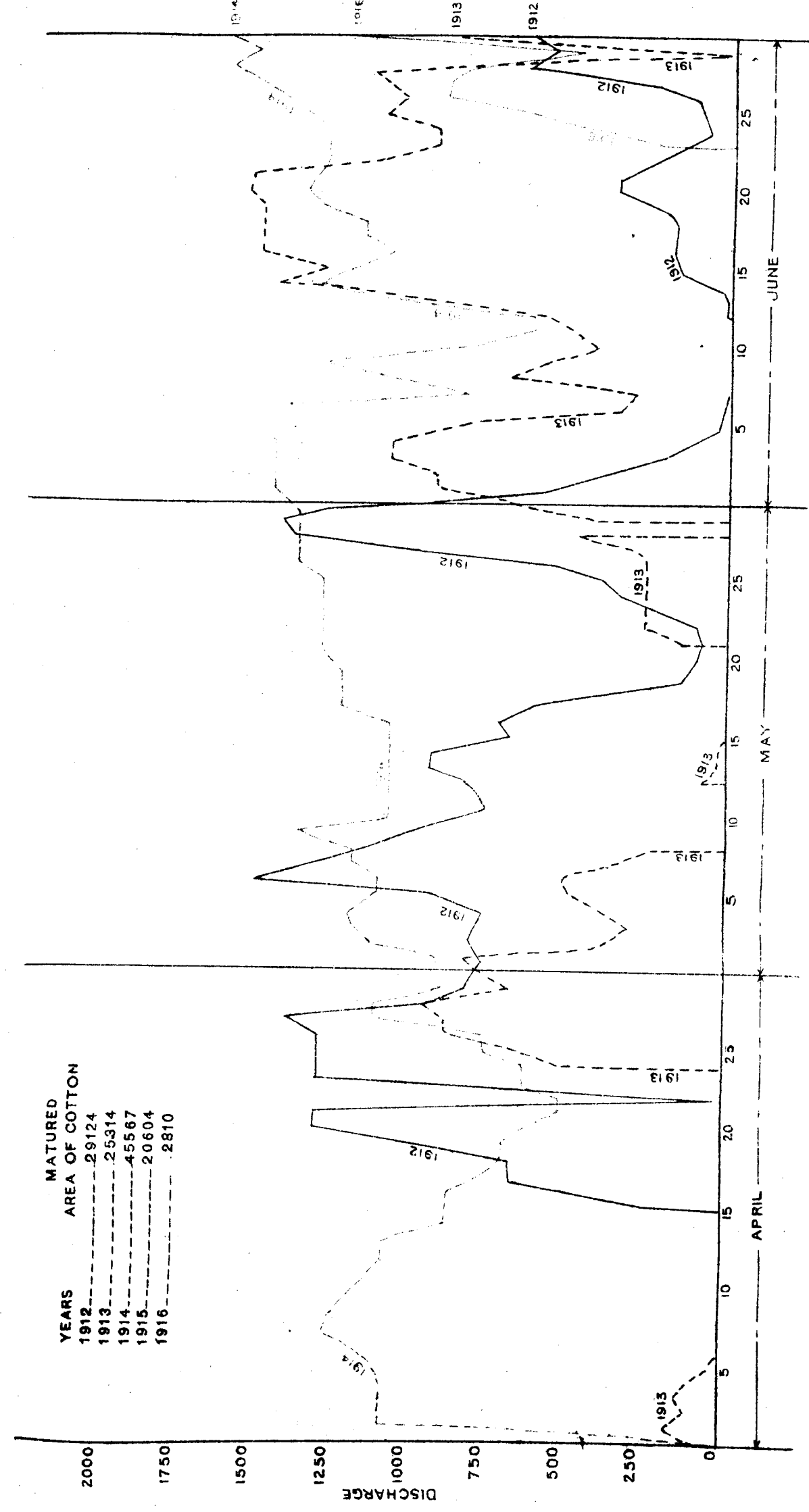
F. T. BATES.
Superintending Engineer,
Lower Chenab Canal Circle.

No. 27. Annexure VII to written evidence of Mr. F. T. Bates,
Superintending Engineer, Lower Chenab Canal
Circle, Punjab.

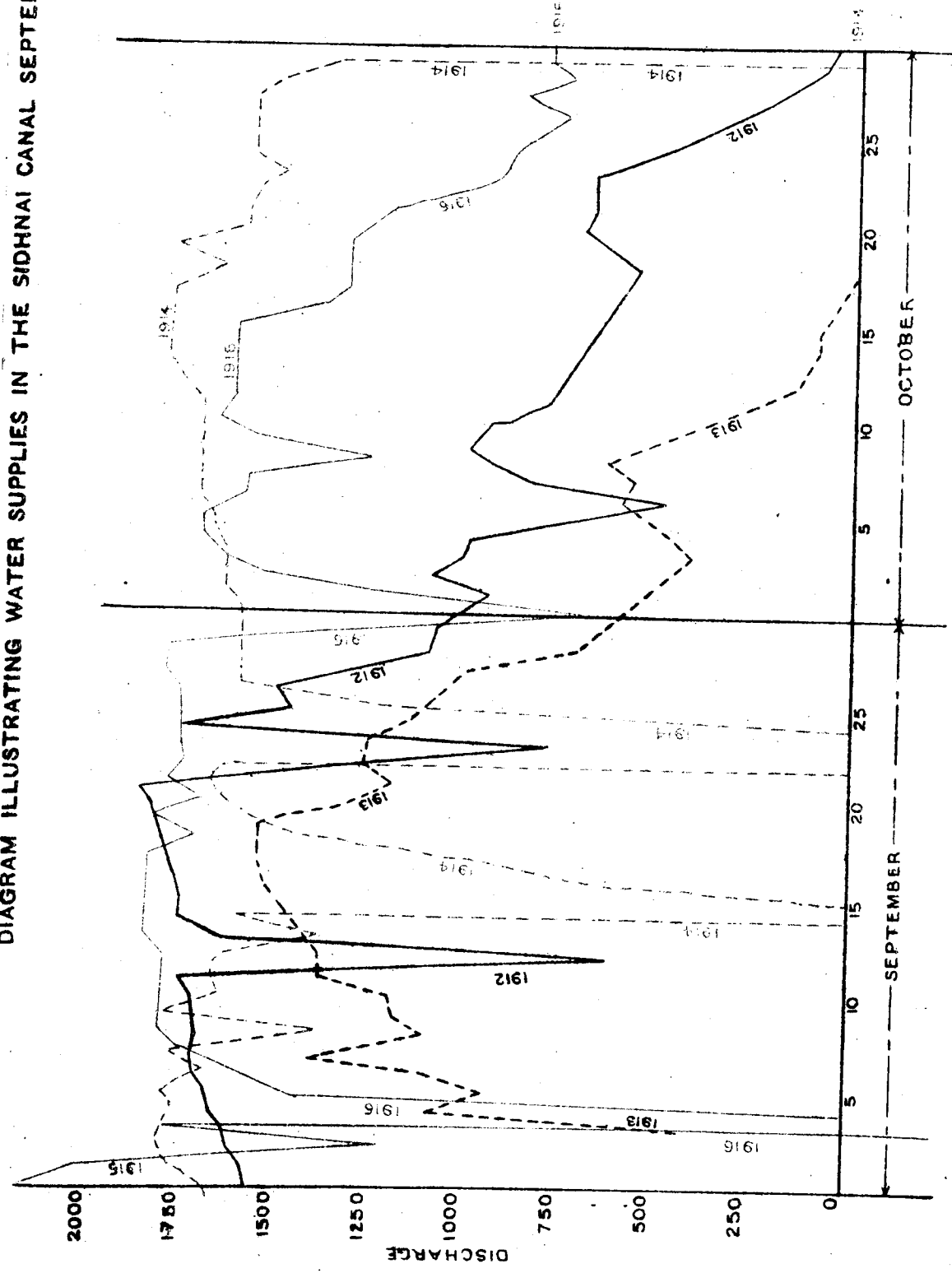
Photo-Mechl. and Litho. Dept., Thomson College, Roorkes.

March, 1920.—No. 6080-25.12-14

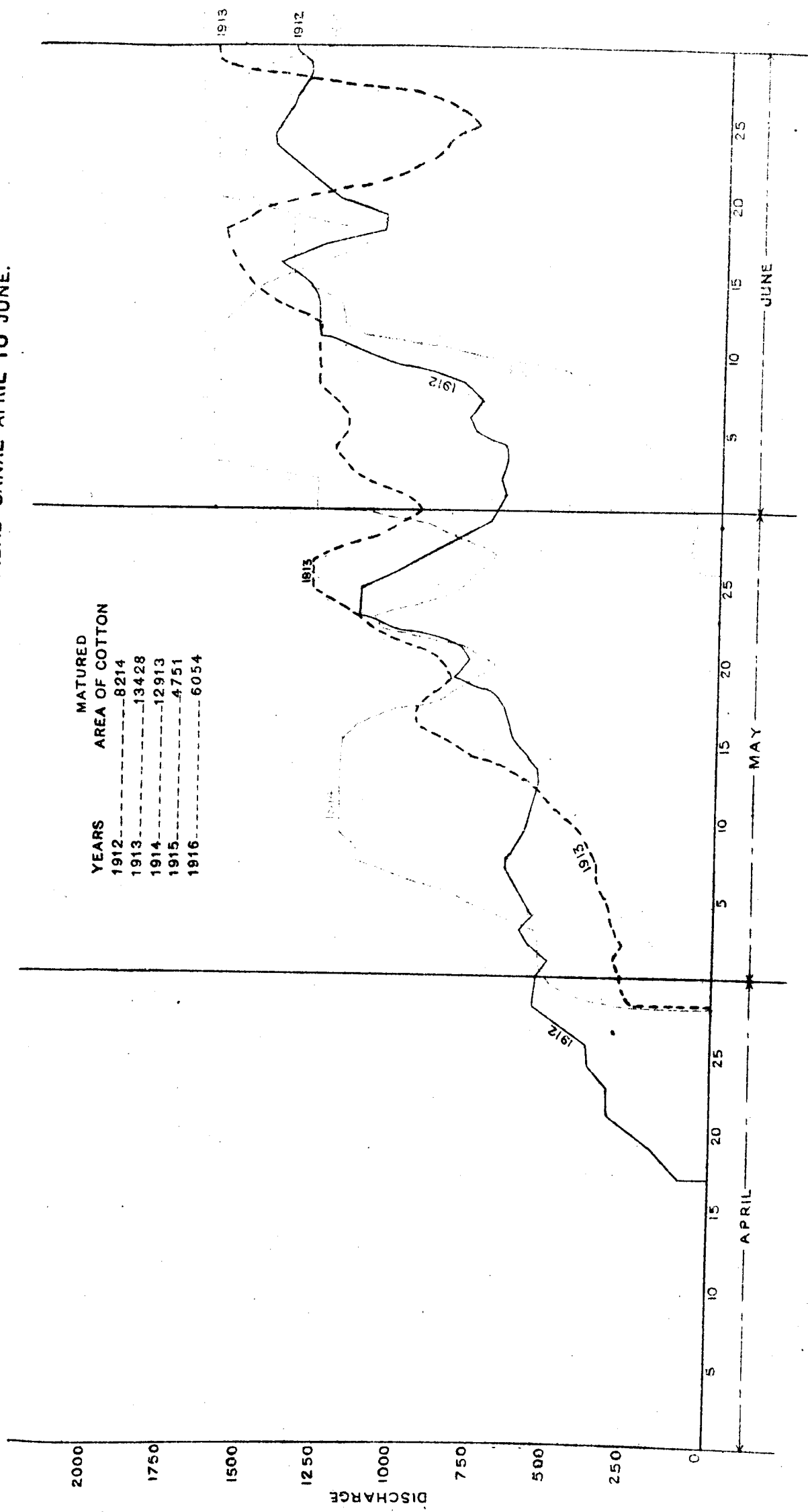
No. 28. Annexure IV to written evidence of Mr. A. R. Murray,
 Superintending Engineer, Derajat Circle, Punjab.
 DIAGRAM ILLUSTRATING WATER SUPPLIES IN THE SIDHNAI CANAL APRIL TO JUNE.



No. 29. Annexure V to written evidence of Mr. A. R. Murray,
 Superintending Engineer, Derajat Circle, Punjab.
 DIAGRAM ILLUSTRATING WATER SUPPLIES IN THE SIDHNAI CANAL SEPTEMBER AND OCTOBER.

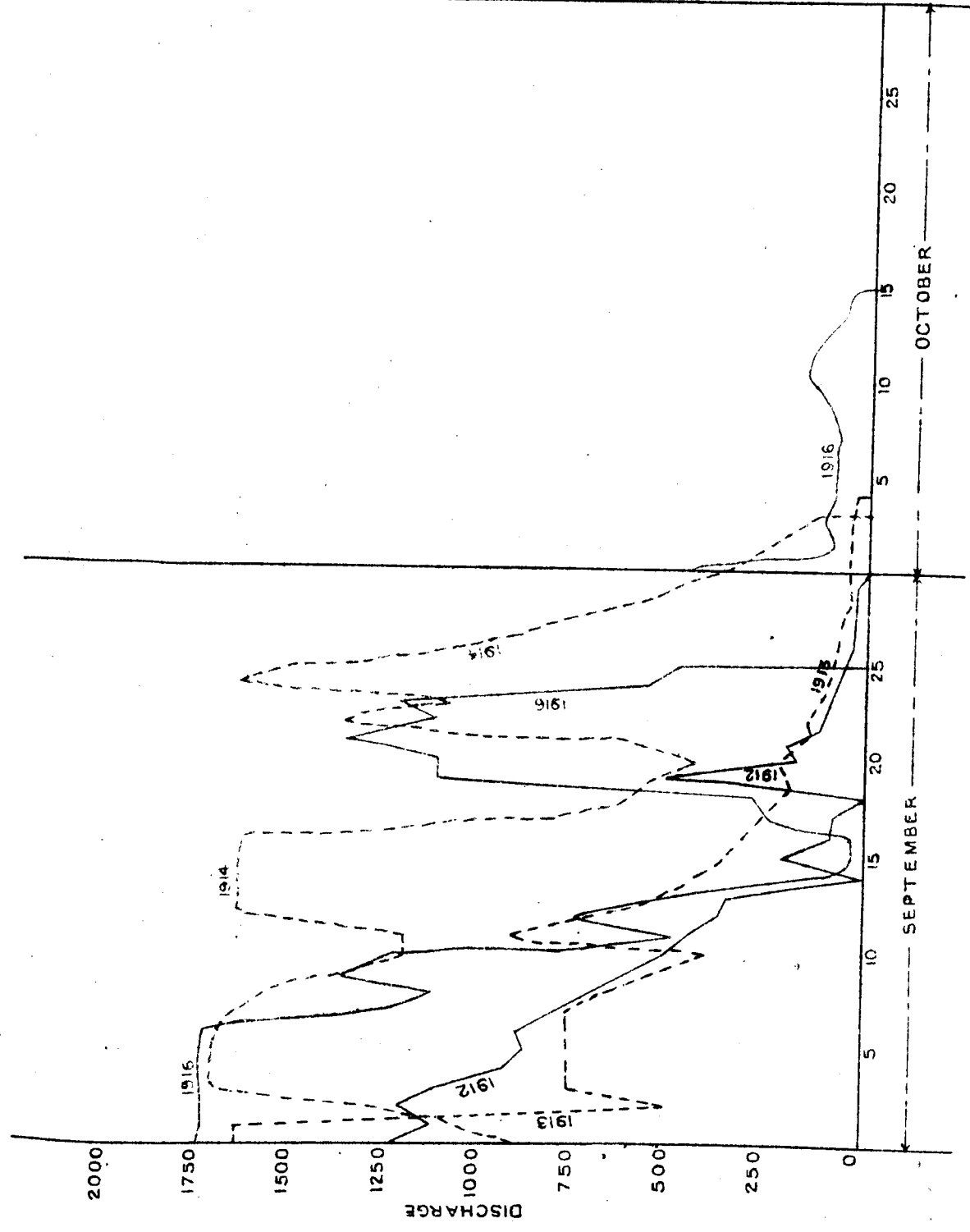


No. 30. Annexure VI to written evidence of Mr. A. R. Murray,
 Superintending Engineer, Derajat Circle, Punjab.
 DIAGRAM ILLUSTRATING WATER SUPPLIES IN THE SIKANDRABAD CANAL APRIL TO JUNE.



Superintending Engineer, Derajat Circle, Punjab.

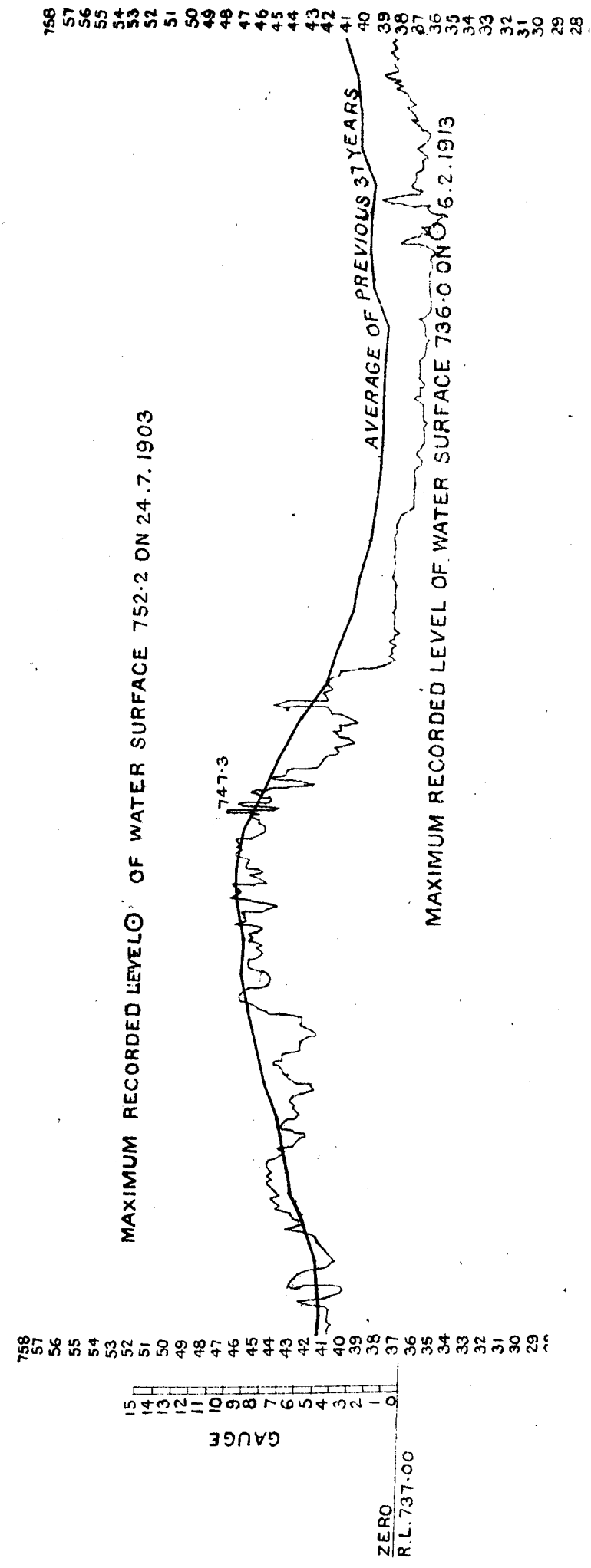
DIAGRAM ILLUSTRATING WATER SUPPLIES IN THE SIKANDRABAD CANAL SEPTEMBER AND OCTOBER.



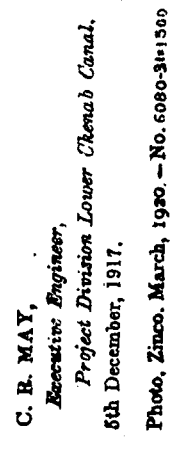
No. 32. Annexure IV to written evidence of Mr. C. G. Ma
Executive Engineer, Project Division, Lower Chenab
Canal, Punjab.

**RISE AND FALL OF THE RIVER CHENAB 1915-1916
AT ALEXANDRA BRIDGE.**

DISCHARGES IN CUSECS



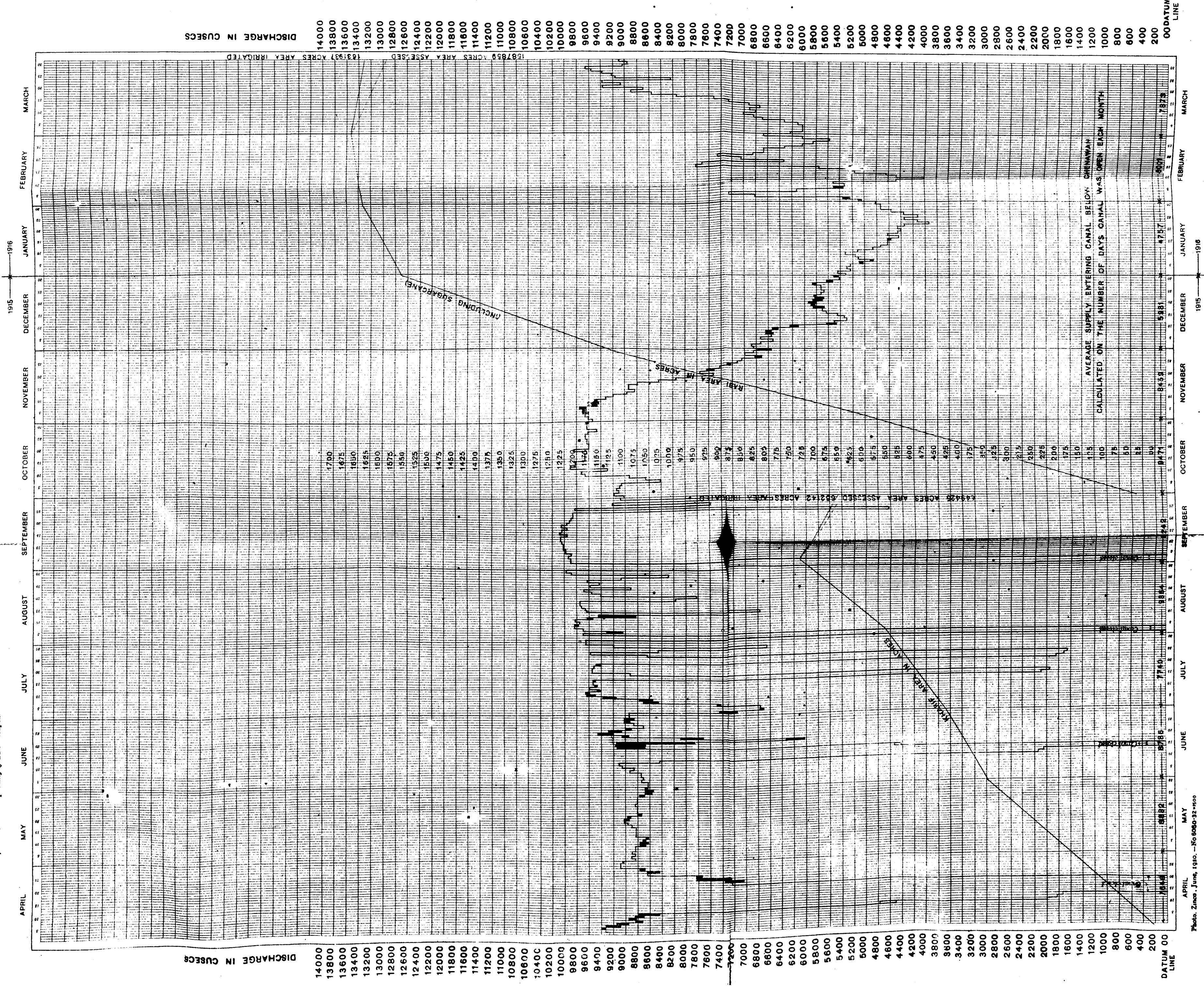
RISE AND FALL OF THE RIVER RAVI 1915-1916
BELOW SIDHNAI DAM.



Photo, Zinco. March, 1930. — No. 6080-31-1500

WATER CONSUMPTION DIAGRAM OF THE LOWER CHENAB CANAL FOR 1915-1916.

Note - The shaded portion shows the quantity of water consumed.



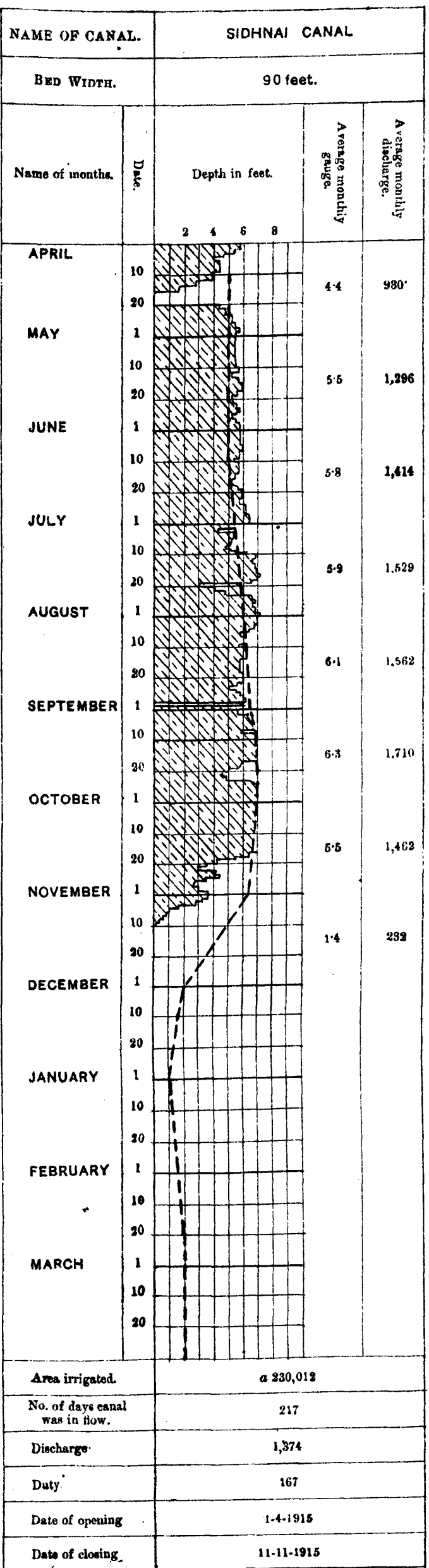
No. 35. Annexure VII to written evidence of Mr. C. G. May,
Executive Engineer, Project Division, Lower Chenab
Canal, Punjab.

DIAGRAM SHOWING THE DURATION AND AMOUNT OF SUPPLY

IN THE

SIDHNAI CANAL.

FOR 1915-16.

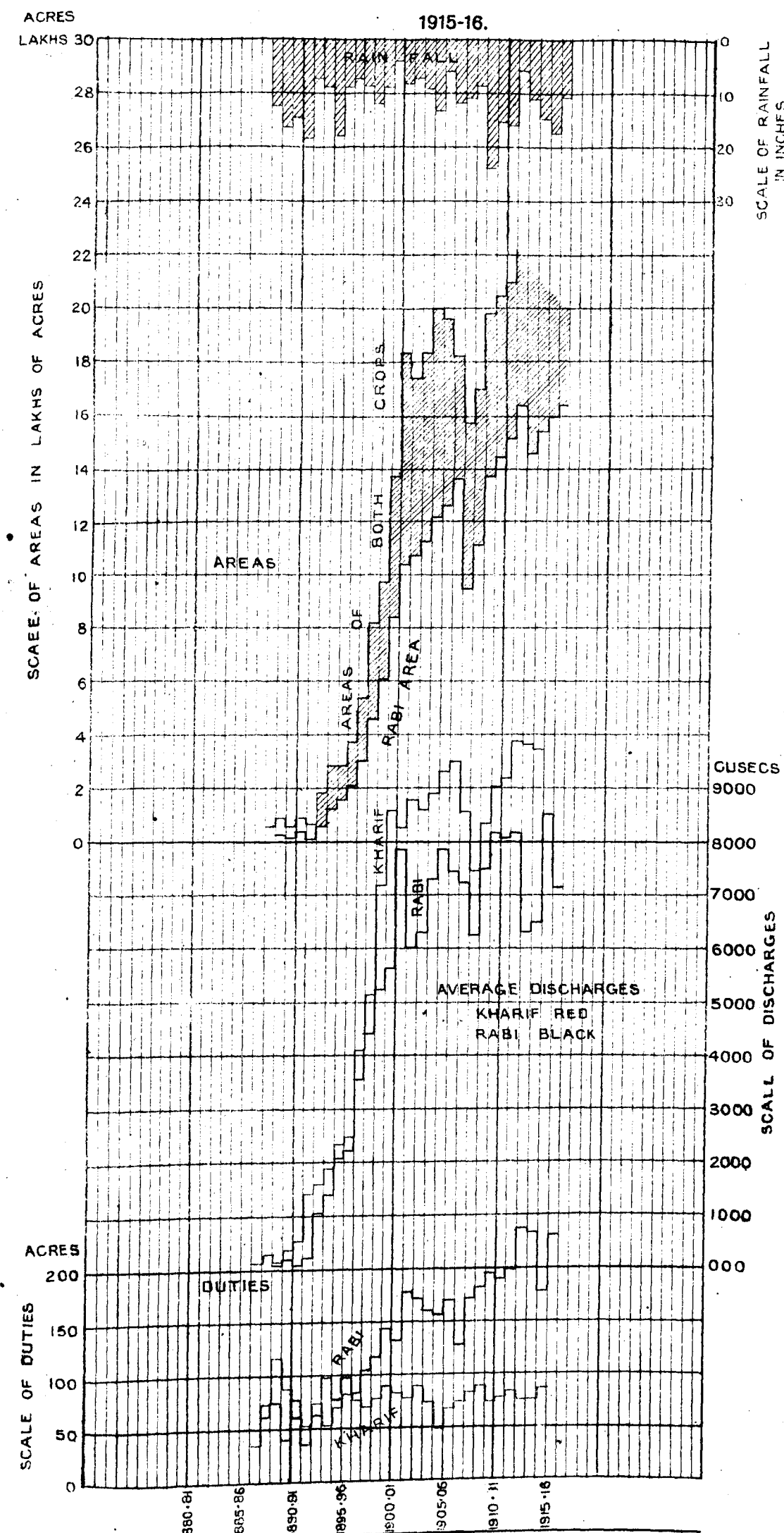


N.B.—The thick dotted lines showing the height and duration of supply in a few weeks year
a. Contains 4,018 + 20,376 said to have been remitted on account of shortness of supply.

Photo. Zanco, February, 1920.—No. 6080-33, 1500

LOWER CHENAB CANAL

WORKING RECORD



B. N.—The intercepts in the red area show the Kharif acreage each year.

The discharges are measured at canal head, and give averages
The duties are derived from these areas and discharges.

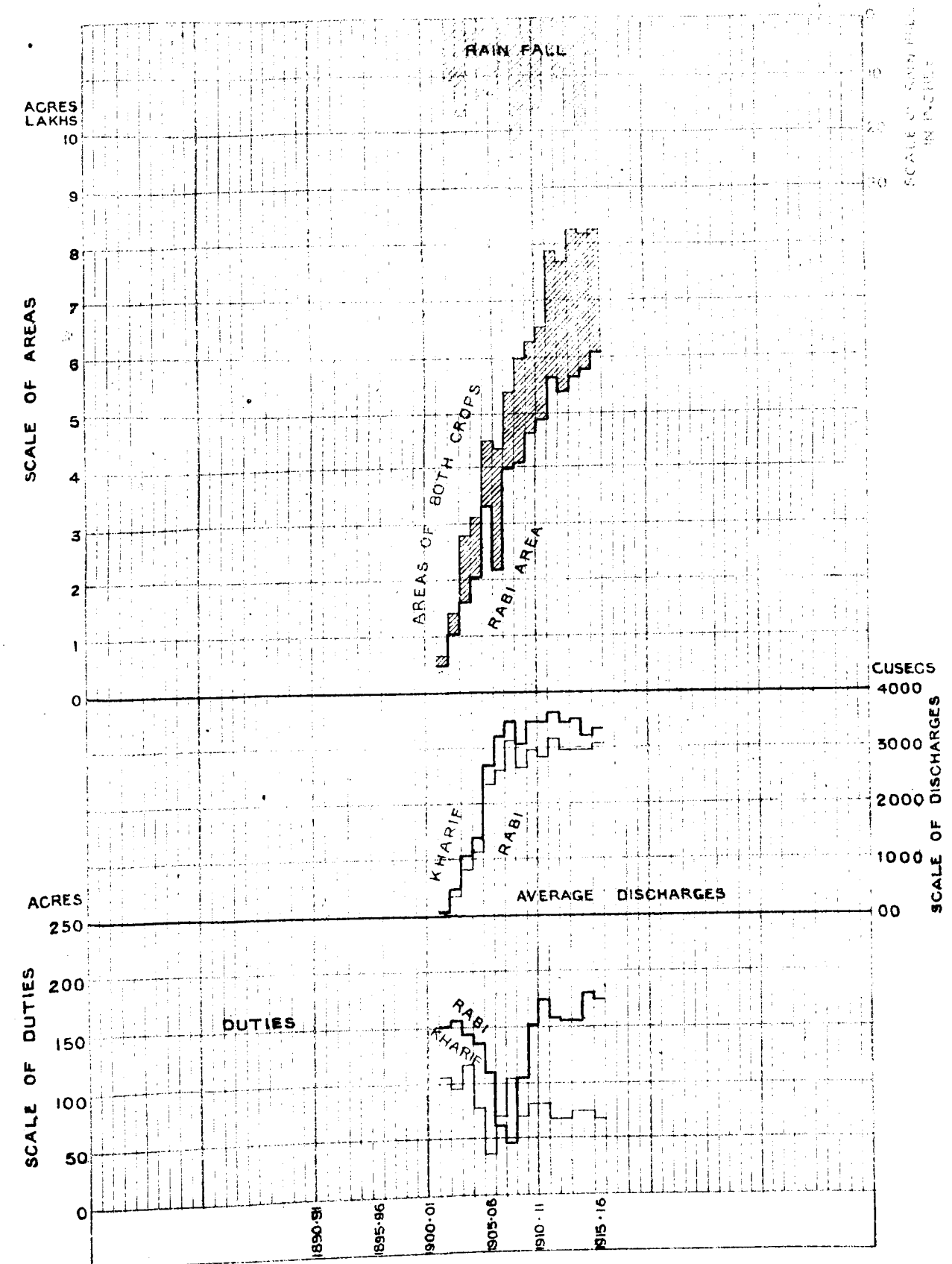
The Rabi winter supply is comparatively high and reliable on
this canal.

No. 37. Annexure IX to written evidence of Mr. C. G. May,
Executive Engineer, Project Division, Lower Chenab
Canal, Punjab.

LOWER JHELUM CANAL

WORKING RECORD

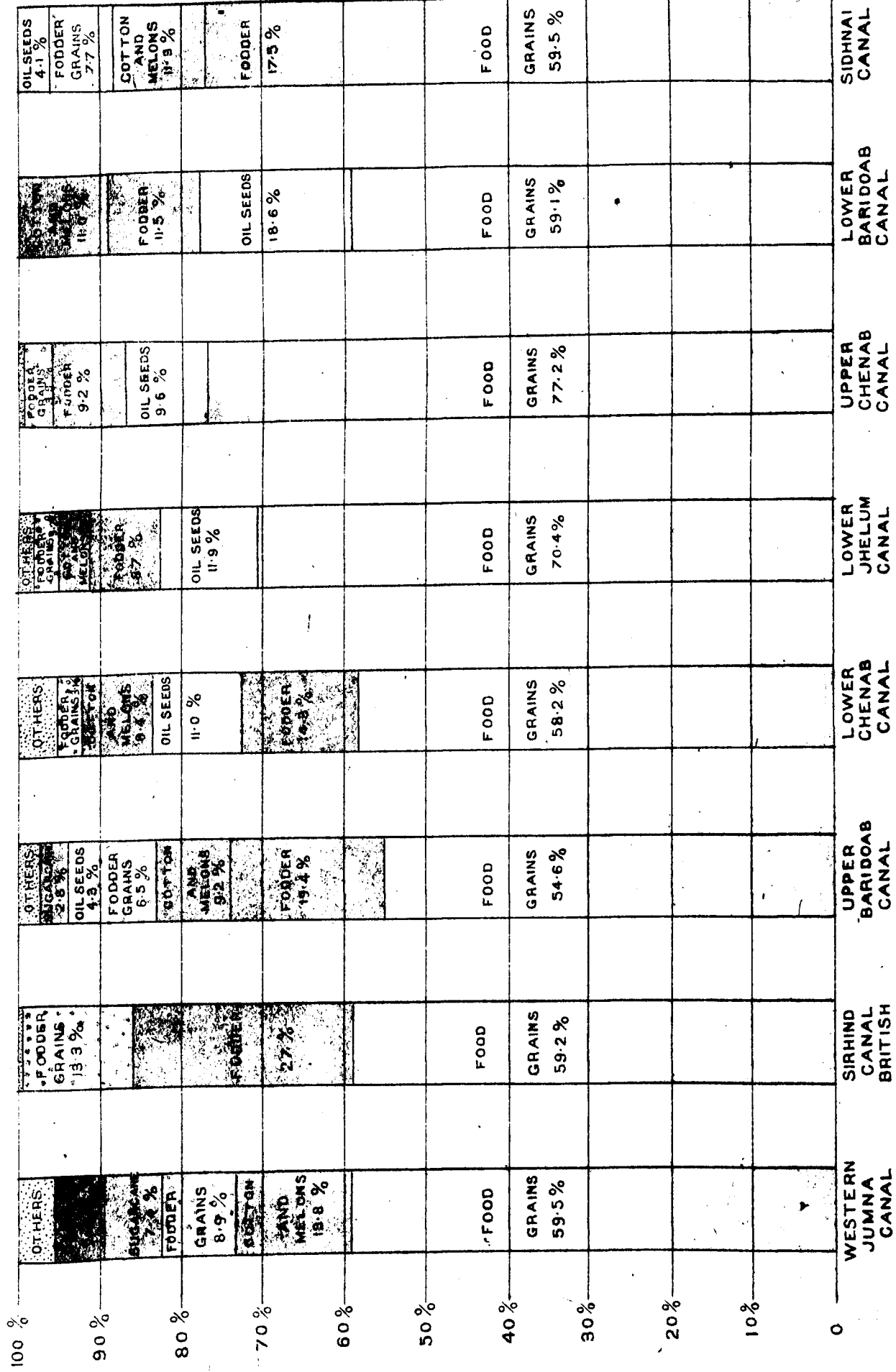
1915-16.



N. B.—The intercepts in red area give the Kharif irrigation each year. The discharges are measured at mile 14 of the main canal and give averages for each crop. The duties are derived from these areas and discharges.

No. 38. Annexure X to written evidence of Mr. C. G. May,
Executive Engineer, Project Division, Lower Chenab
Canal, Punjab.

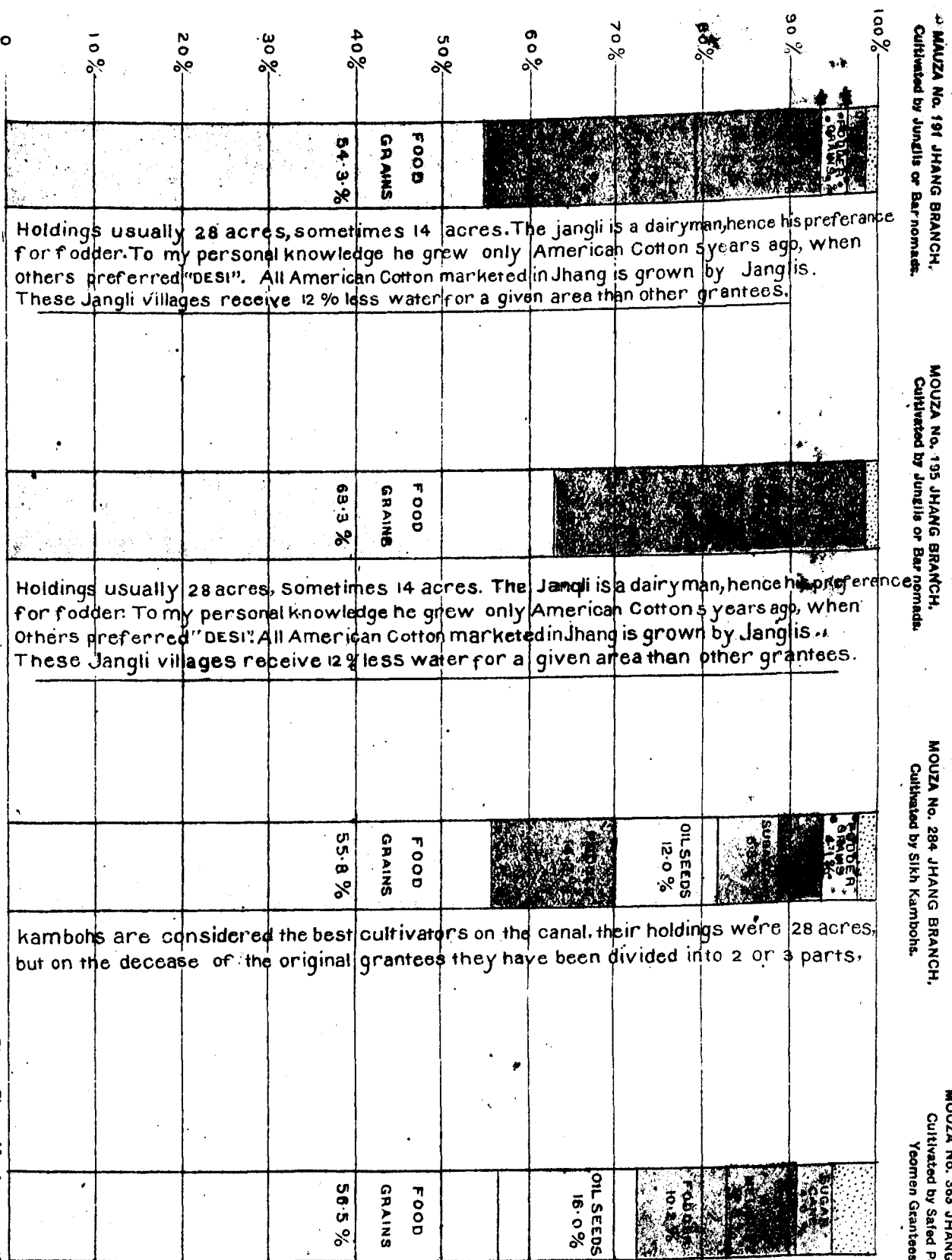
DIAGRAM COMPARING THE PERCENTAGES OF THE CHIEF CROPS IRRIGATED BY
VARIOUS CANALS IN THE PUNJAB DURING THE YEAR 1915-16.



NOTE:- Melon and Cotton areas have been grouped together because the former is only in extremely rare cases grown apart from cotton-

Executive Engineer, Project Division, Lower Chenab
Canal, Puniab.

DIAGRAM COMPARING THE PERCENTAGES OF THE CHIEF CROPS IRRIGATED IN VILLAGES
CULTIVATED BY DIFFERENT CLASSES OF CULTIVATORS DURING THE YEAR 1915-16.



NOTE:- Melon and cotton areas have been grouped together because is only in extremely rare cases grown apart from cotton.

LOWER CHENAB CANAL

PLAN ILLUSTRATING ROTATION PRACTISED IN CERTAIN DEFINITE SQUARES.

MAUZA N^o 191
SQUARE N^o 50
SULTANPAKHRA DY
BAR NOMAD

KHARIF 1914

TOTAL REVENUE ASSESSED 40-9-6
WATER RATE 40-2-0

RABI 1914-15

WHEAT	WHEAT	WHEAT	WHEAT	WHEAT	WHEAT

TOTAL REVENUE ASSESSED 71-7-0
WATER RATE 81-5-0

KHARIF 1915

TOTAL REVENUE ASSESSED 38-14-0
WATER RATE 46-5-0

RABI 1915-16

WHEAT	WHEAT	WHEAT	WHEAT	WHEAT	WHEAT

TOTAL REVENUE ASSESSED 74-12-3
WATER RATE 80-14-0

KHARIF 1916

TOTAL REVENUE ASSESSED 36-0-9
WATER RATE 35-1-0

RABI 1916-17

WHEAT	WHEAT	WHEAT	WHEAT	WHEAT	WHEAT

TOTAL REVENUE ASSESSED 66-13-6
WATER RATE 71-12-0

MAUZA N^o 284
SQUARE N^o 17
GHAPNI DY
KAMBOH SIKS ABADKAR
(AMRITSAR)

TOTAL REVENUE ASSESSED 26-3-9
WATER RATE 33-2-0

WHEAT	WHEAT	WHEAT	WHEAT	WHEAT	WHEAT

TOTAL REVENUE ASSESSED 80-14-3
WATER RATE 85-3-0

TOTAL REVENUE ASSESSED 26-11-0
WATER RATE 33-9-0

GRAM	WHEAT	WHEAT	WHEAT	WHEAT	WHEAT

TOTAL REVENUE ASSESSED 66-12-6
WATER RATE 75-0-0

TOTAL REVENUE ASSESSED 29-11-6
WATER RATE 38-14-0

WHEAT	RAPE	RAPE	WHEAT	WHEAT	WHEAT

TOTAL REVENUE ASSESSED 82-7-6
WATER RATE 90-0-0

MAUZA N^o 363
SQUARE N^o 44
GOJRA DY

YEOMAN (THIS HOLDING INCLUDES 4 OTHER SQUARES)

TOTAL REVENUE ASSESSED 100-13-10
WATER RATE 85-7-0

RAPE	RAPE	WHEAT	WHEAT	WHEAT	WHEAT

TOTAL REVENUE ASSESSED 126-5-6
WATER RATE 96-0-0

TOTAL REVENUE ASSESSED 126-5-6
WATER RATE 96-0-0

WHEAT	WHEAT	RAPE	RAPE	GRAM	GRAM

TOTAL REVENUE ASSESSED 126-5-6
WATER RATE 96-0-0

TOTAL REVENUE ASSESSED 126-5-6
WATER RATE 96-0-0

RAPE	GRAM	WHEAT	WHEAT	RAPE	RAPE

TOTAL REVENUE ASSESSED 126-5-6
WATER RATE 96-0-0

MAUZA N^o 363
SQUARE N^o 34
GOJRA DY
YEOMAN (DITTO)

SUGAR-CANE	COTTON	COTTON	COTTON	COTTON	COTTON

TOTAL REVENUE ASSESSED 65-11-6
WATER RATE 52-11-0

WHEAT	WHEAT	WHEAT	WHEAT	WHEAT	WHEAT

TOTAL REVENUE ASSESSED 87-2-0
WATER RATE 70-0-0

GUARA	GUARA	GUARA	GUARA	GUARA	GUARA

TOTAL REVENUE ASSESSED 72-6-6
WATER RATE 47-4-0

WHEAT	WHEAT	WHEAT	WHEAT	WHEAT	WHEAT

TOTAL REVENUE ASSESSED 71-6-6
WATER RATE 56-8-0

COTTON	MILLETS	MILLETS	MILLETS	MILLETS	MILLETS

TOTAL REVENUE ASSESSED 97-8-0
WATER RATE 74-8-0

WHEAT	WHEAT	WHEAT	WHEAT	WHEAT	WHEAT

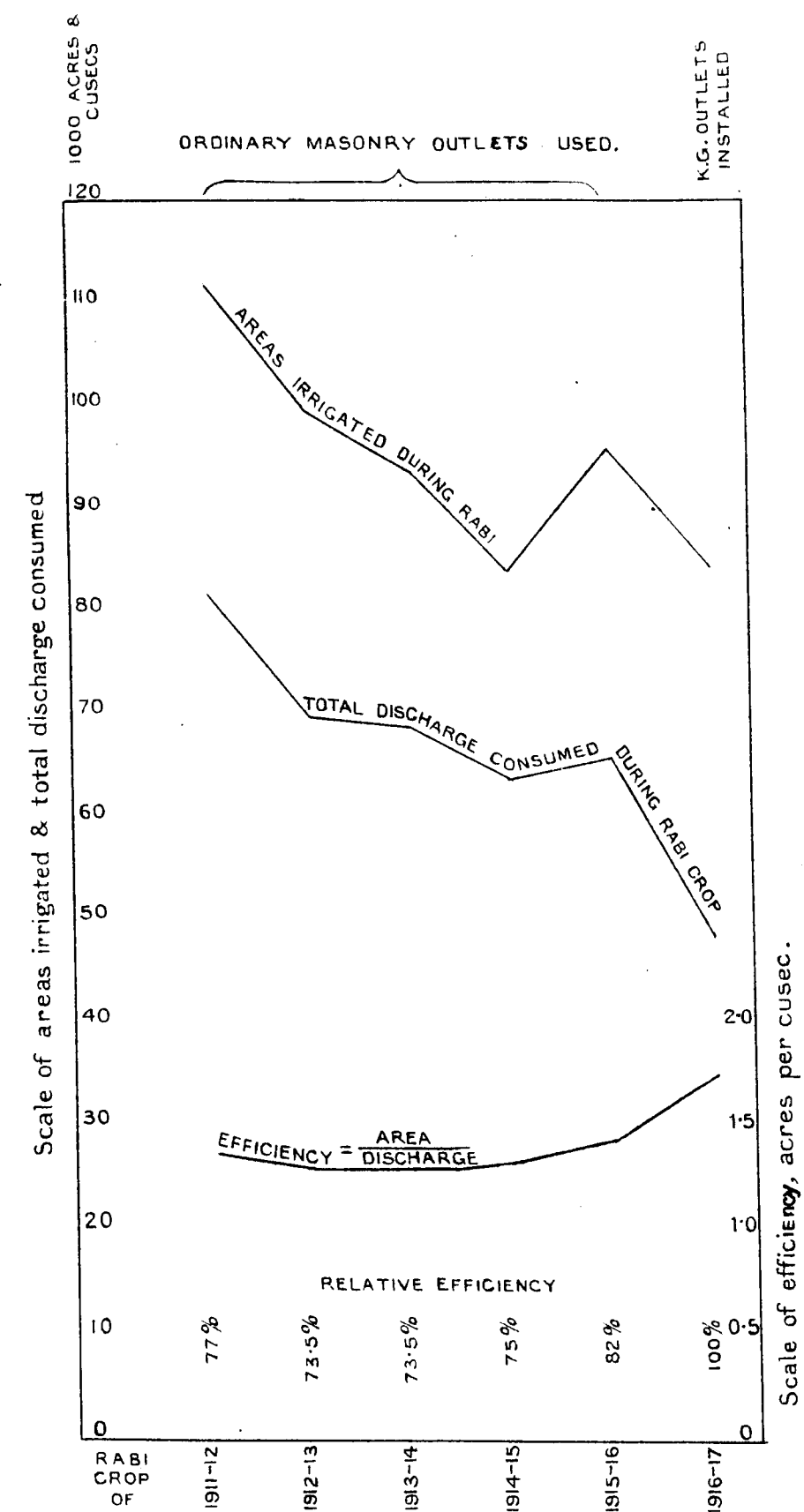
TOTAL REVENUE ASSESSED 57-0-8
WATER RATE 47-4-0

No. 41. Annexure II to oral evidence of Mr. C. G. May,
Executive Engineer, Project Division, Lower Chenab
Canal, Punjab.

LOWER CHENAB CANAL

HAFIZABAD DIVISION

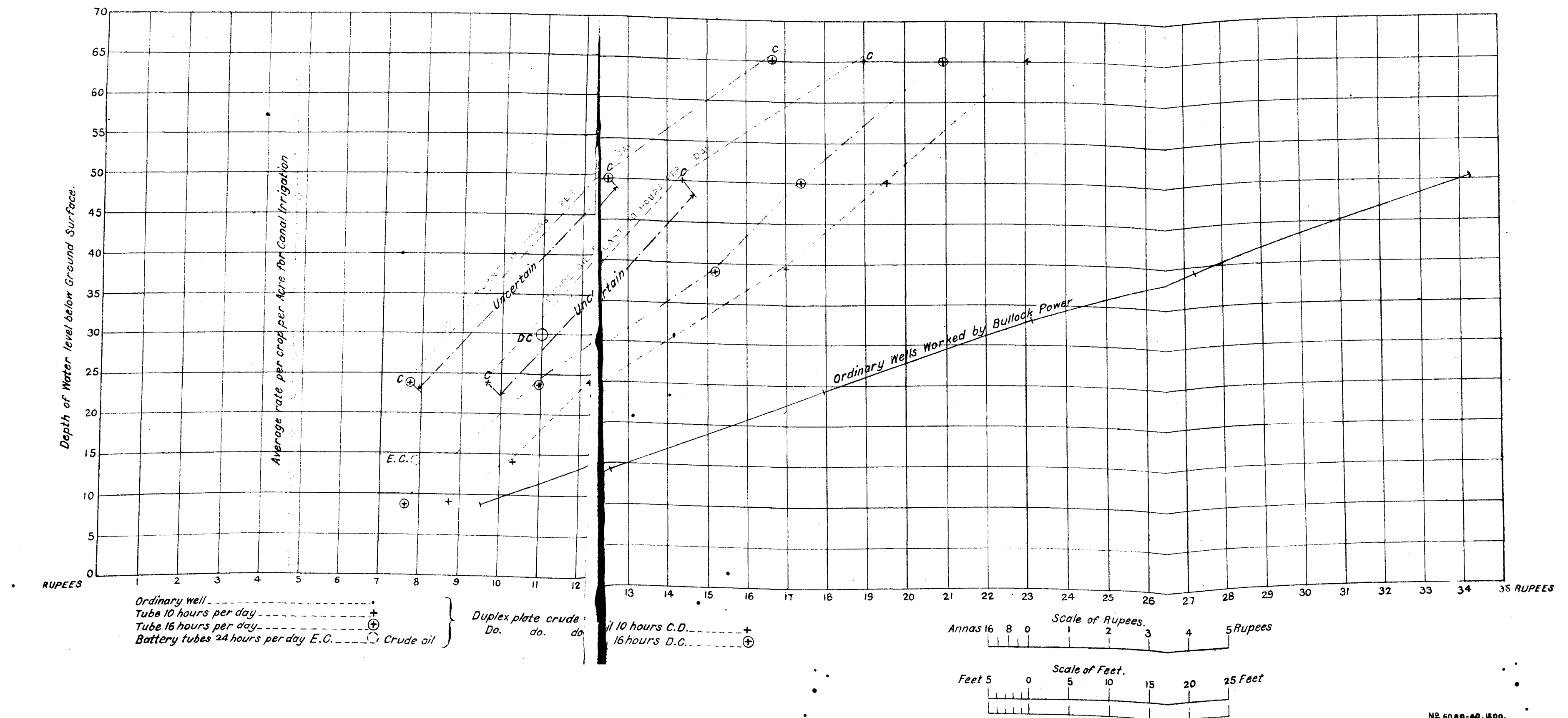
Diagram illustrating efficiency attained by using
Kennedy gauge outlets.



C. R. MAY,
Executive Engineer,
Project Division Lower Chenab Canal,
3rd January, 1918.

No. 42. Annexure I to evidence of Mr. T. A. Miller Brownlie,
Agricultural Engineer, Punjab.

DIAGRAM SHOWING
COMPARATIVE COSTS PER ACRE PER CROP FOR IRRIGATION BY ORDINARY
WELLS AND BY TUBE WELLS; THE LATTER WHEN WORKED BY REFINED
OIL AND ALSO BY CRUDE OIL UNDER VARIOUS HEADS.



No. 43. Annexure I to evidence of Mr. A. B. Timms, Executive Engineer, Jamrao Canals, Northern District, Sind.

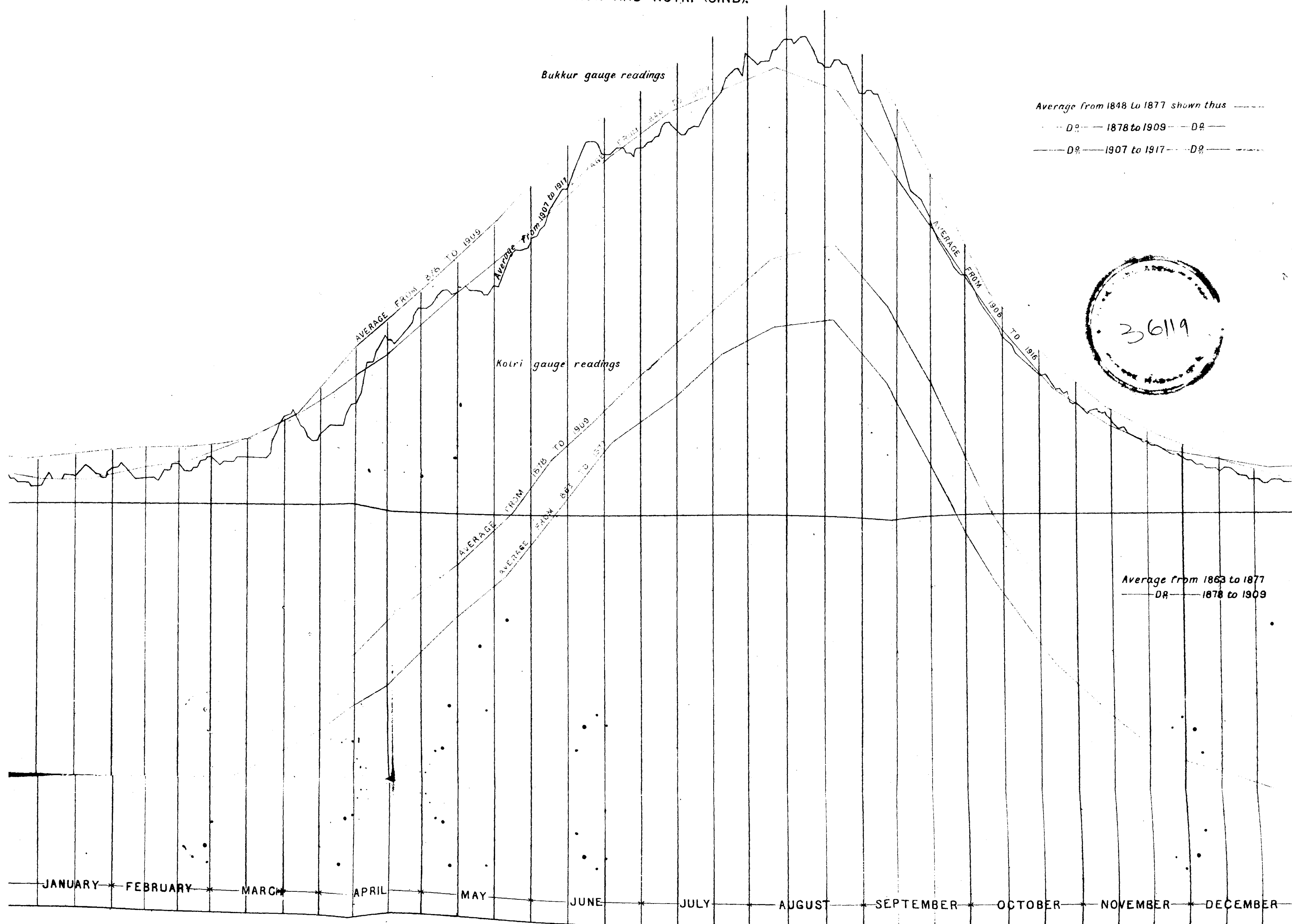
HYDROGRAPHS

OF

THE INDUS

AT

BUKKUR AND KOTRI (SIND).



A. S. TIMMS,
Executive Engineer,
Northern District Jamrao Canal.
MEC 87 41.500.