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United States
Department of the Interior
Bureau of Reclamation, *Washington, D. C.*

ABBAY BASIN
HYDROLOGIC SUMMARY
1962

Ethiopia-United States
Cooperative Program for Water Resources

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1962 HYDROLOGIC SUMMARY

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Received AUG 14 '63

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1962 HYDROLOGIC SUMMARY

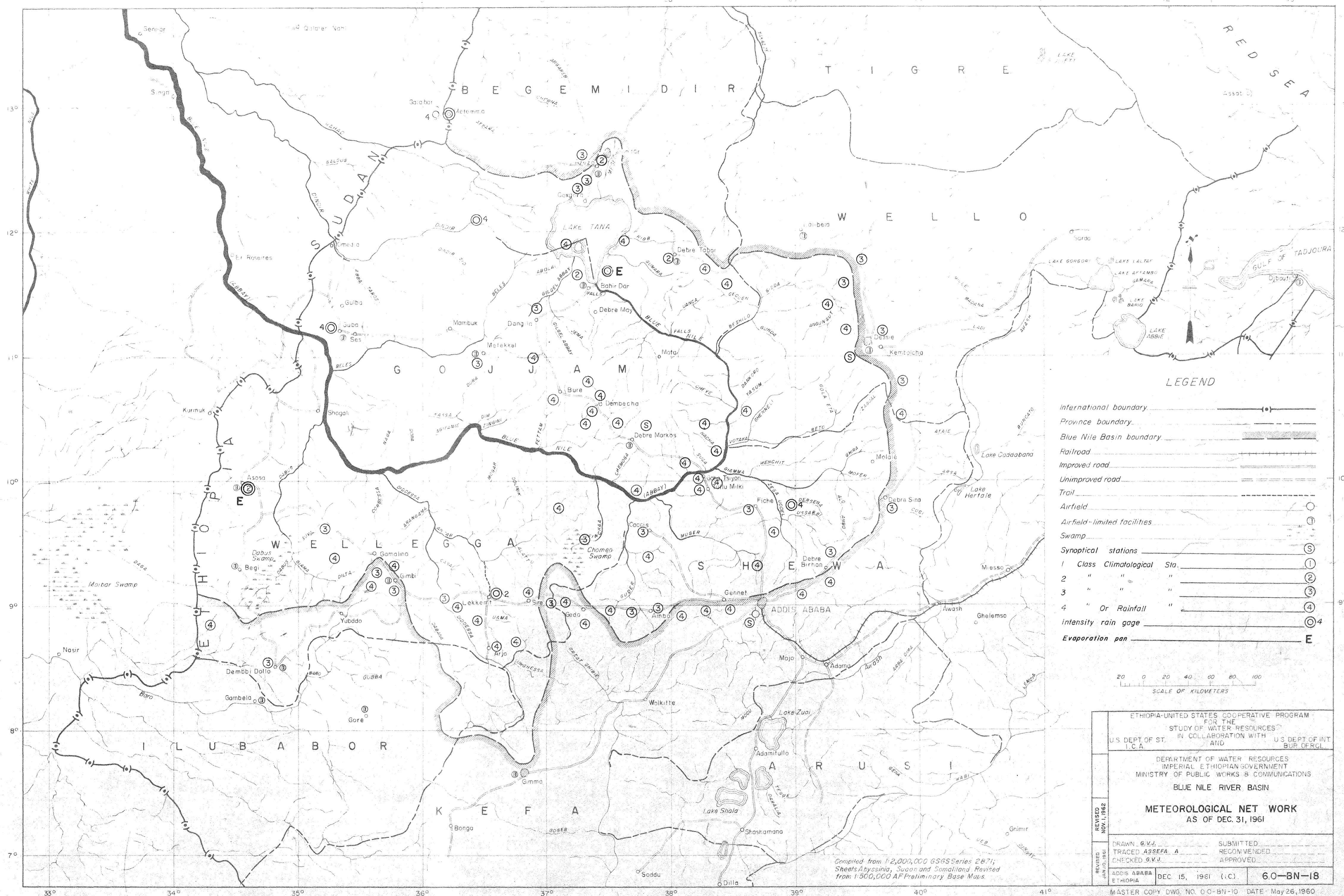
Foreword

It is possible that in the future the Imperial Ethiopian Government will wish to issue annual hydrologic reports presenting data collected throughout the nation. For the present, only climatic data were available from outside the Abbay Basin.

Since the 1961 report, more measurements have been taken on those rivers that had very limited stream data in 1961. These measurements have helped to define rating curves; and, therefore, more reliable records are now presented. River flows have been added in this report which were omitted from the 1961 report due to lack of adequate data.

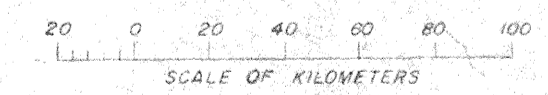
Previous climatic data were collected largely by the Climatic Institute, Civil Aeronautics Department of the Imperial Ethiopian Government, with some assistance in the Abbay Basin from the Ethiopia-United States Cooperative Program for the Study of Water Resources. All other data were collected by the Hydrology Branch of the Water Studies Project, Water Resources Department, under the cooperative program.

No additional quality of water samples have been taken or analyzed since the 1961 Hydrologic Summary report. The 1960 and 1961 data were considered adequate for present needs. Some sediment samples were taken, but they were not analyzed due to some administrative difficulties.



LEGEND

- International boundary ————|———
- Province boundary ————|———
- Blue Nile Basin boundary ————|———
- Railroad ————|———
- Improved road ————|———
- Unimproved road ————|———
- Trail ————|———
- Airfield ○
- Airfield-limited facilities ○
- Swamp ————|———
- Synoptical stations ————|———
- 1 Class Climatological Sta. ○
- 2 " " " " ○
- 3 " " " " ○
- 4 " Or Rainfall " ○
- Intensity rain gage ○
- Evaporation pan ————|———



ETHIOPIA-UNITED STATES COOPERATIVE PROGRAM FOR THE STUDY OF WATER RESOURCES IN COLLABORATION WITH U.S. DEPT. OF ST. I.C.A. AND U.S. DEPT. OF INT. BUR. OF RCL		
DEPARTMENT OF WATER RESOURCES IMPERIAL ETHIOPIAN GOVERNMENT MINISTRY OF PUBLIC WORKS & COMMUNICATIONS		
BLUE NILE RIVER BASIN		
METEOROLOGICAL NET WORK AS OF DEC. 31, 1961		
REVISED JAN. 10, 1961	DRAWN G.V.J. TRACED ASSEFA A CHECKED G.V.J.	SUBMITTED RECOMMENDED APPROVED
ADDIS ABABA ETHIOPIA	DEC 15, 1961 (I.C.)	6.0-BN-18

Compiled from 1:2,000,000 GS/GS Series 2871; Sheets Abyssinia, Suao and Somaliland Revised from 1:500,000 AF Preliminary Base Maps.

MASTER COPY DWG. NO. 0-0-BN-10 DATE May 26, 1960

Figure-1.1

Chapter 1

Weather Data

Weather stations as shown in Figure 1-1 are nominally equipped as follows:

First Class: Maximum and minimum thermometer, dry and wet bulb thermometer, thermometer on barometer and barometer, thermograph and hydrograph, intensity and standard rain gage, aneroid barometer and solar thermometer blank tank, solar thermometer silver tank and ground thermometer, evaporation pan and anemometer, sunshine record, wind and cloud observation, water temperature.

Second Class: Maximum and minimum thermometer, dry and wet bulb thermometer, evaporation pan and anemometer, intensity and standard rain gage.

Third Class: Maximum and minimum thermometer, and standard rain gage.

Fourth Class: Standard rain gage.

Figures 1.1 through 1.15 compare the 1961 monthly precipitation and temperature to long-time averages of the monthly values. No new record was available for Galabat, therefore excluded.

Tables 1.16 through 1.67 compare the 1962 monthly precipitation and monthly average daily, monthly minimum daily, and monthly maximum daily temperatures to long-time averages of the monthly, monthly average daily, monthly minimum daily, and monthly maximum daily values. In the 1962 Hydrologic Summary, more stations have been added which were omitted from the 1961 report.

Tables 1.70 and 1.71 compare the 1960, 1961, and 1962 monthly evaporation to the three-year averages of the monthly values. Three more stations have been added to the 1962 report.

Correstion:

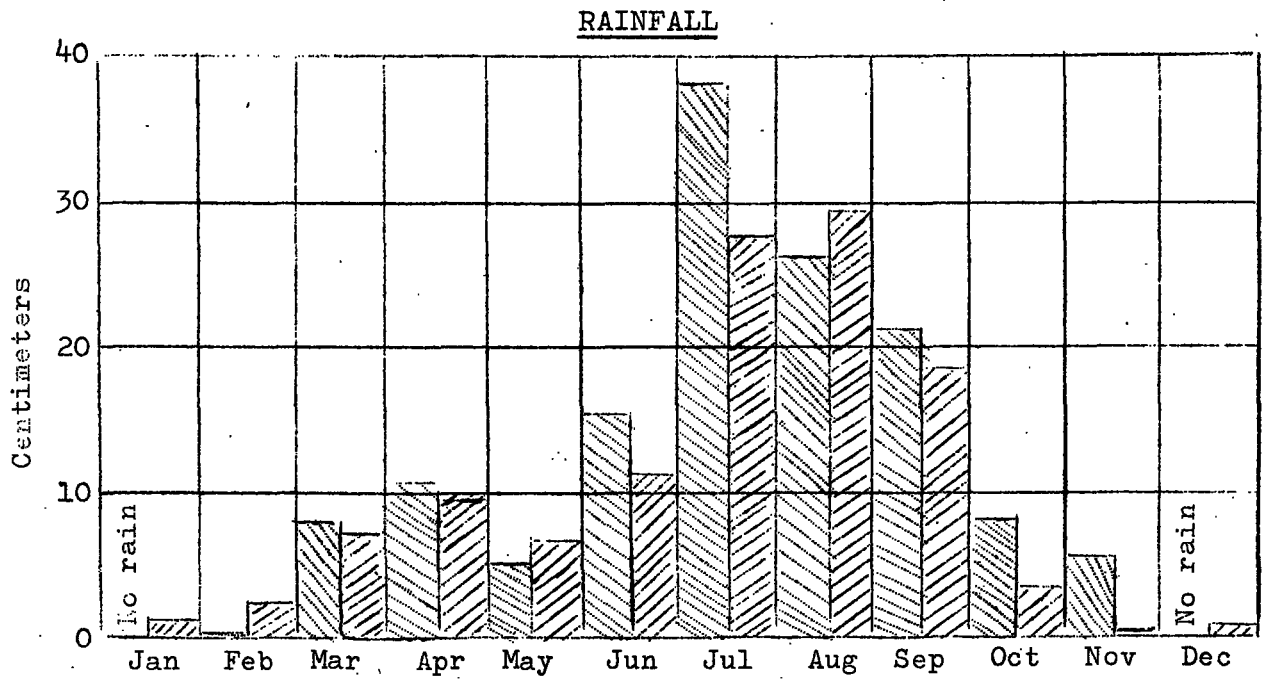
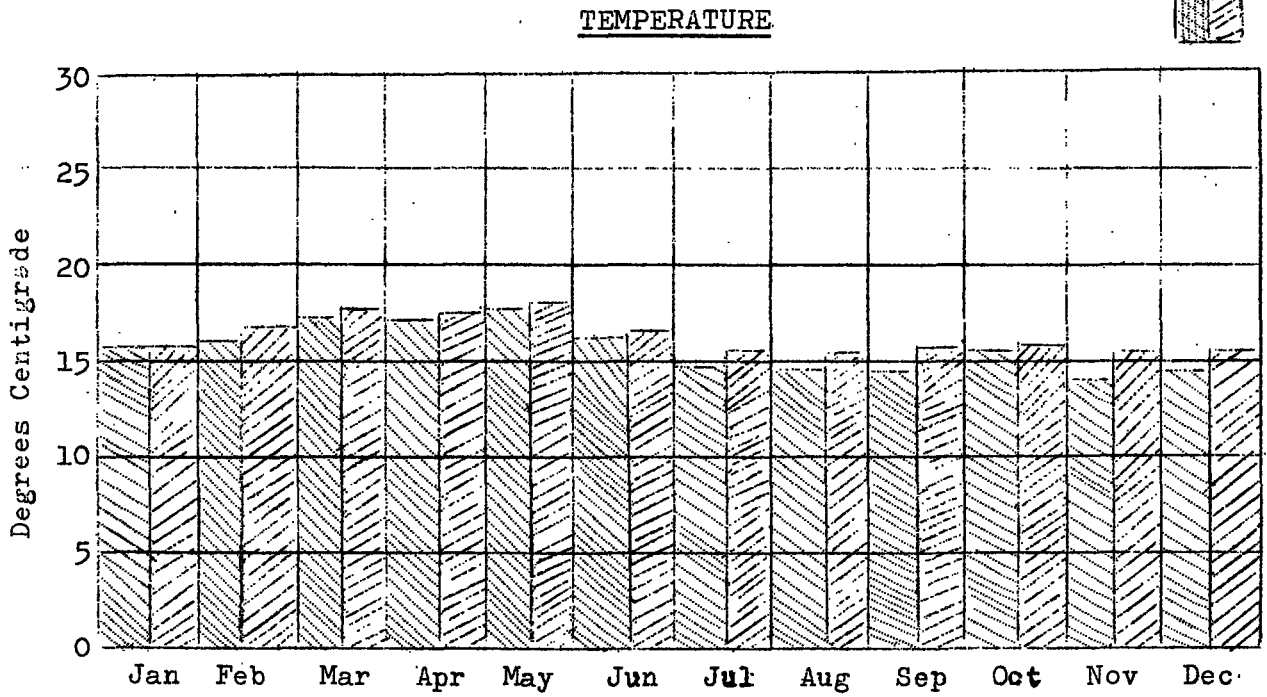
Tables 1.17 and 1.18 of the 1961 Hydrologic Summary should have read "centimeters" instead of "inches." These have been corrected and are repeated in the 1962 Hydrologic Summary as Tables 1.68 and 1.69.

WATER RESOURCES DEPARTMENT
HYDROLOGIC SERVICE

Figure 1.2

Climatological Data at Addis Ababa
Latitude N 09°02'
Longitude E 38°45' Elevation 2,408 m

1961
Avg. over
Record



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HYDROLOGIC SERVICE

Figure 1.3

Climatological Data at Ambo Agricultural College

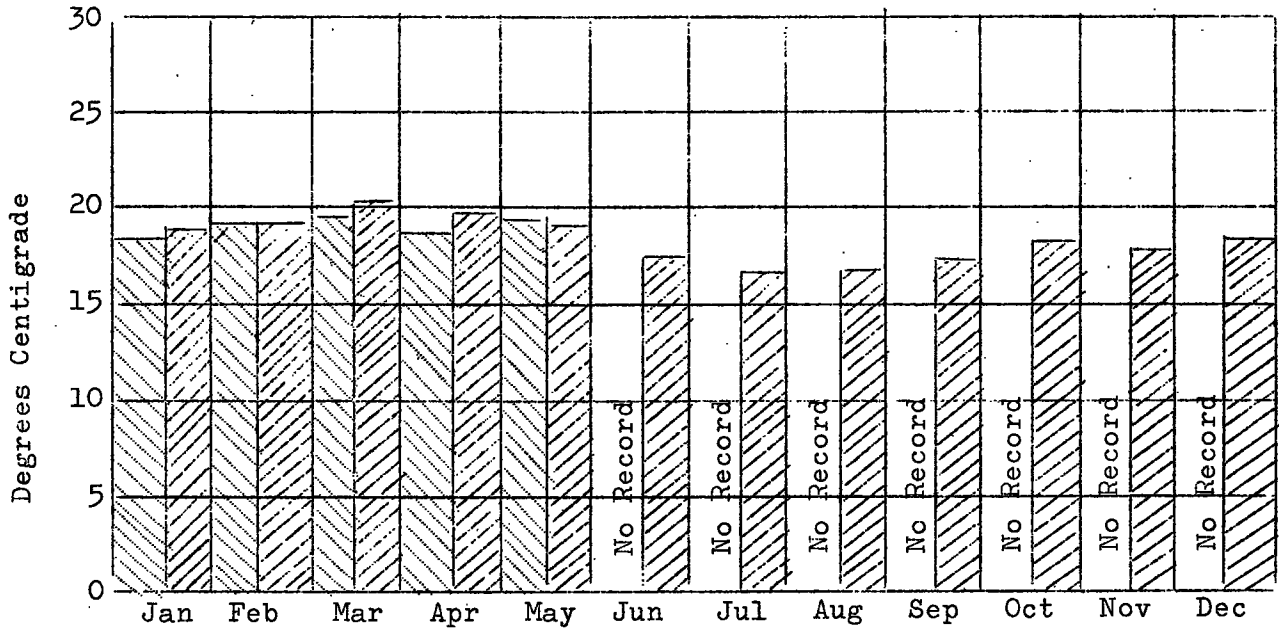
Latitude N 08°58'

Longitude E 37°50'

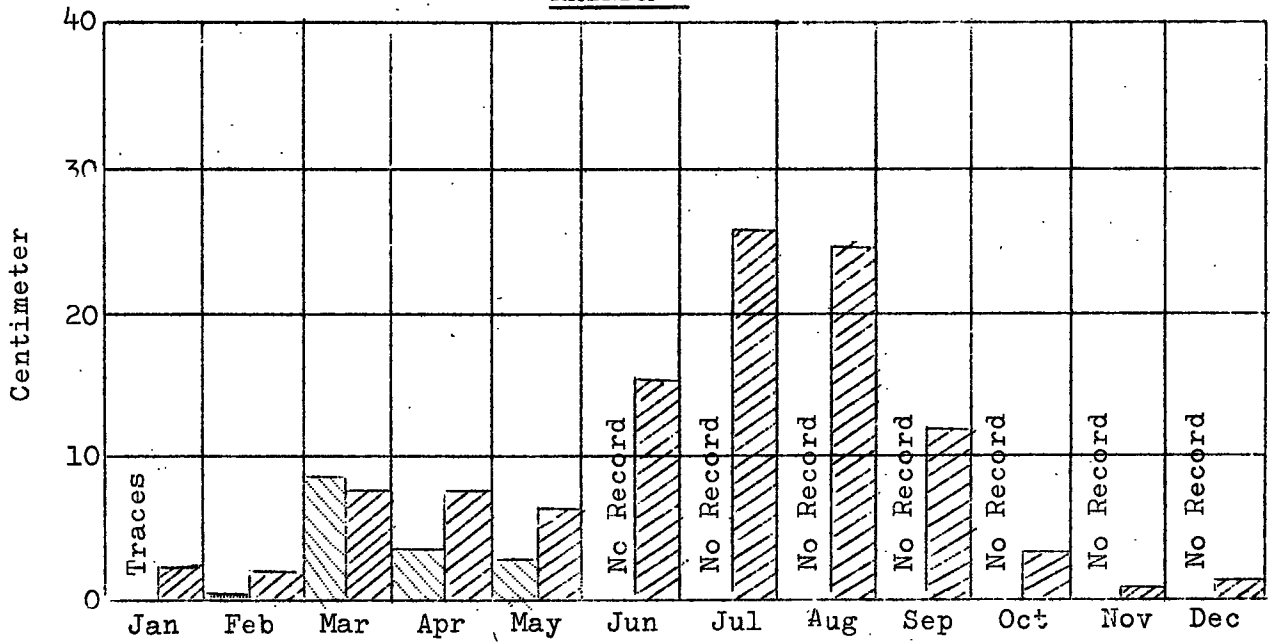
Elevation 2,130 m

1961
Avg. over Record

TEMPERATURE



RAINFALL



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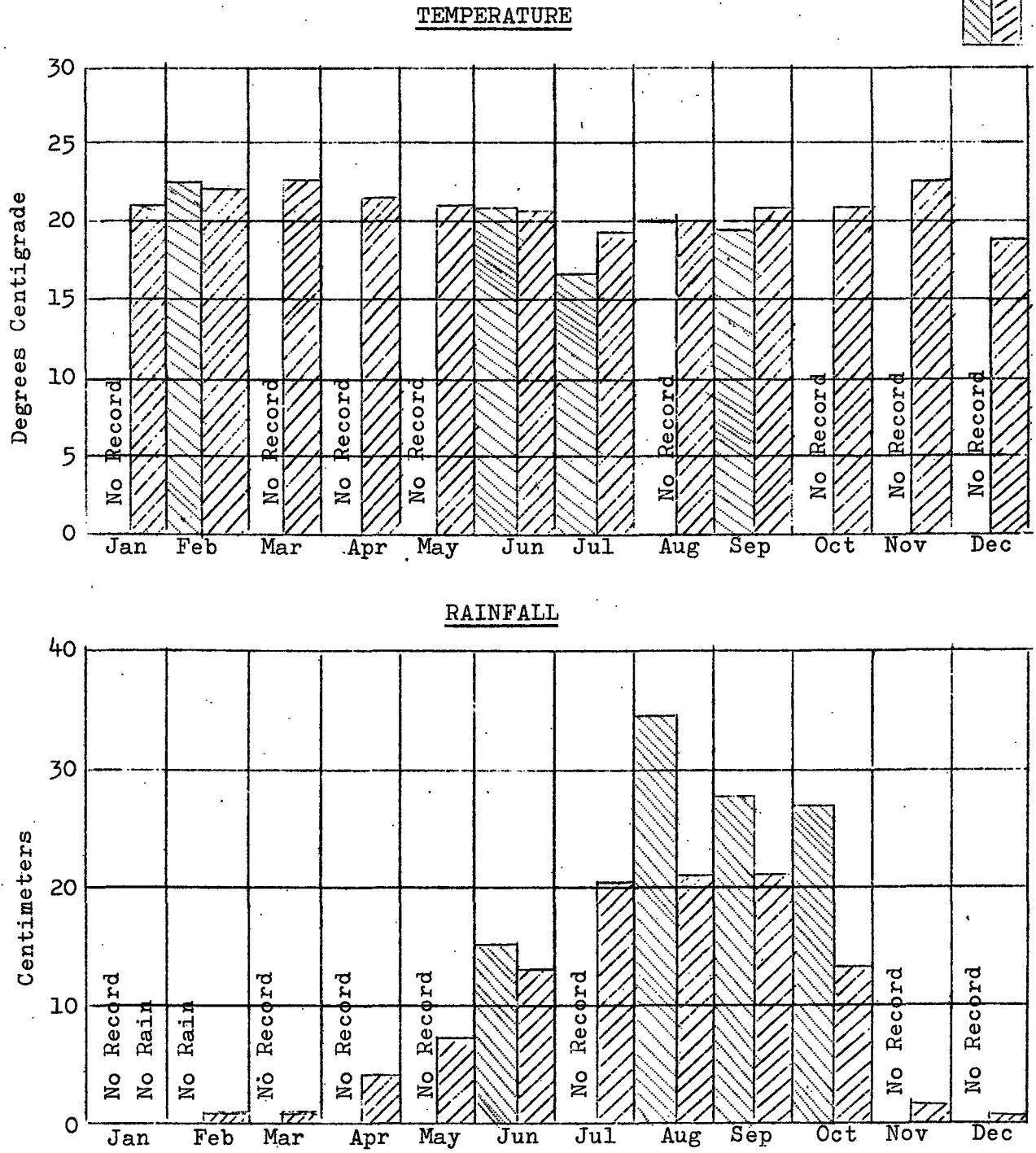
Figure 1.4

Climatological Data at Asosa

Latitude N 10°30'

Longitude E 34°05' Elevation 1,665 m

1961
Avg. over Record



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Figure 1.5

Climatological Data at Bahir Dar

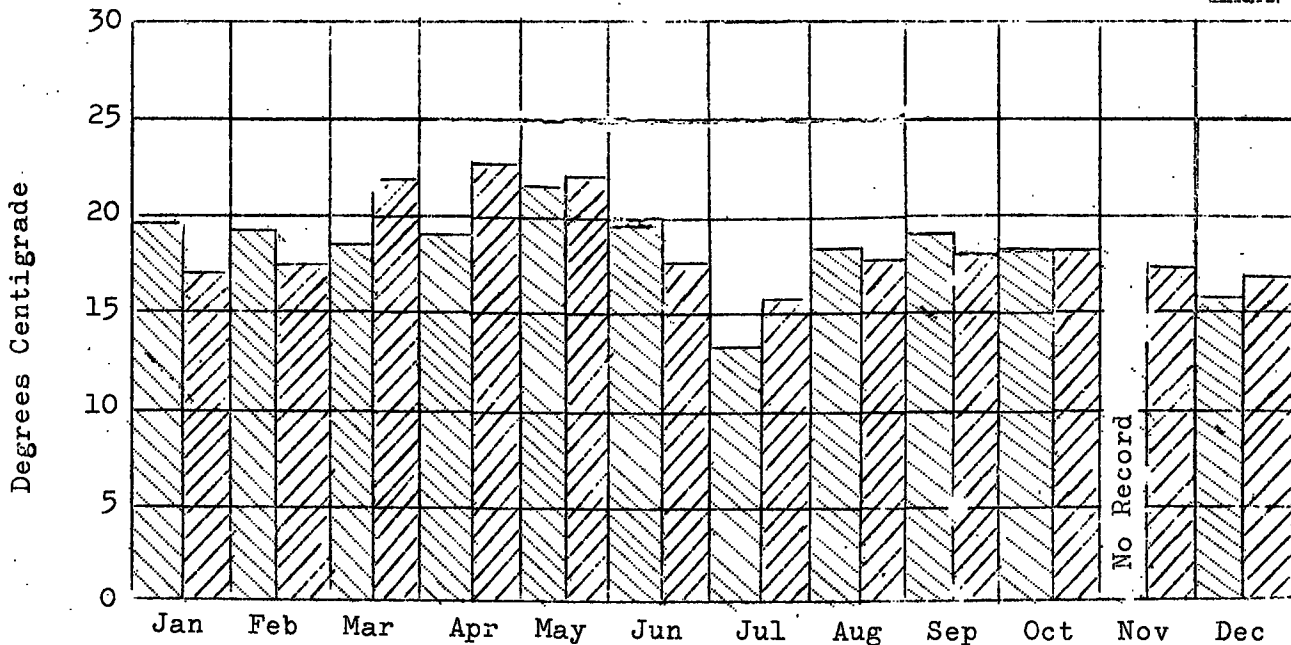
Latitude N 11°36'

Longitude E 37°24' Elevation 1,802 m

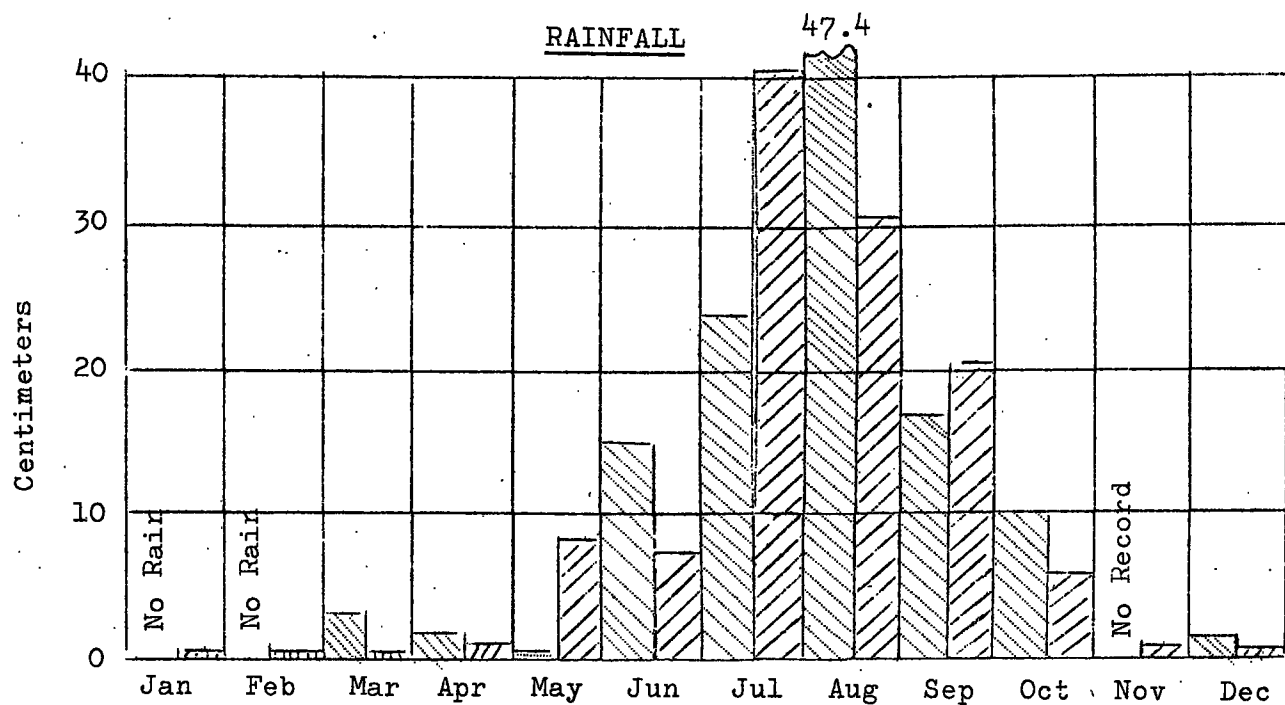
1961
Avg. over Record



TEMPERATURE



RAINFALL

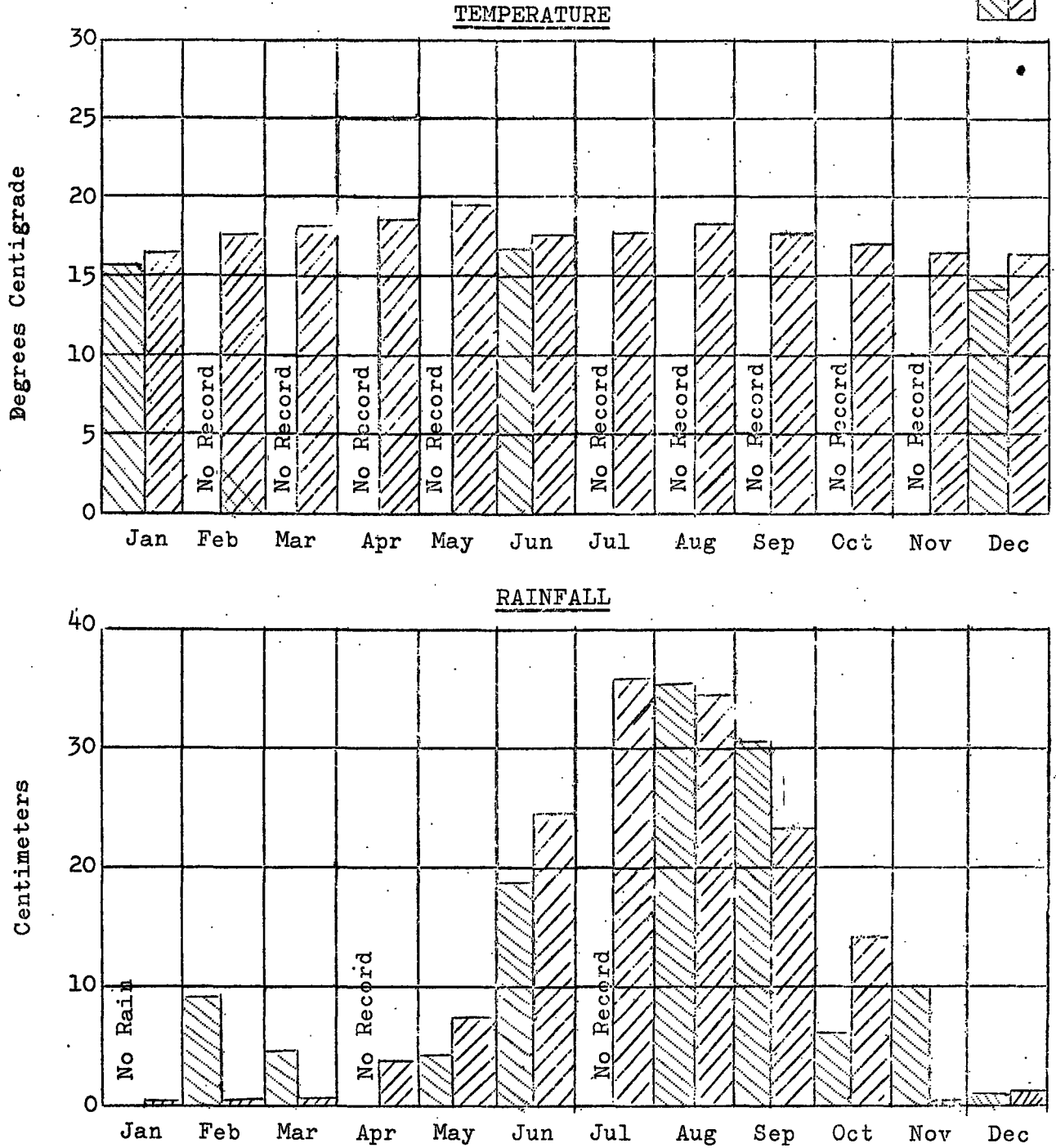


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Figure 1.6

Climatological Data at Dangila
Latitude N 11°18'
Longitude E 35°54' Elevation 2,507 m

1961
Avg. over Record



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HYDROLOGIC SERVICE

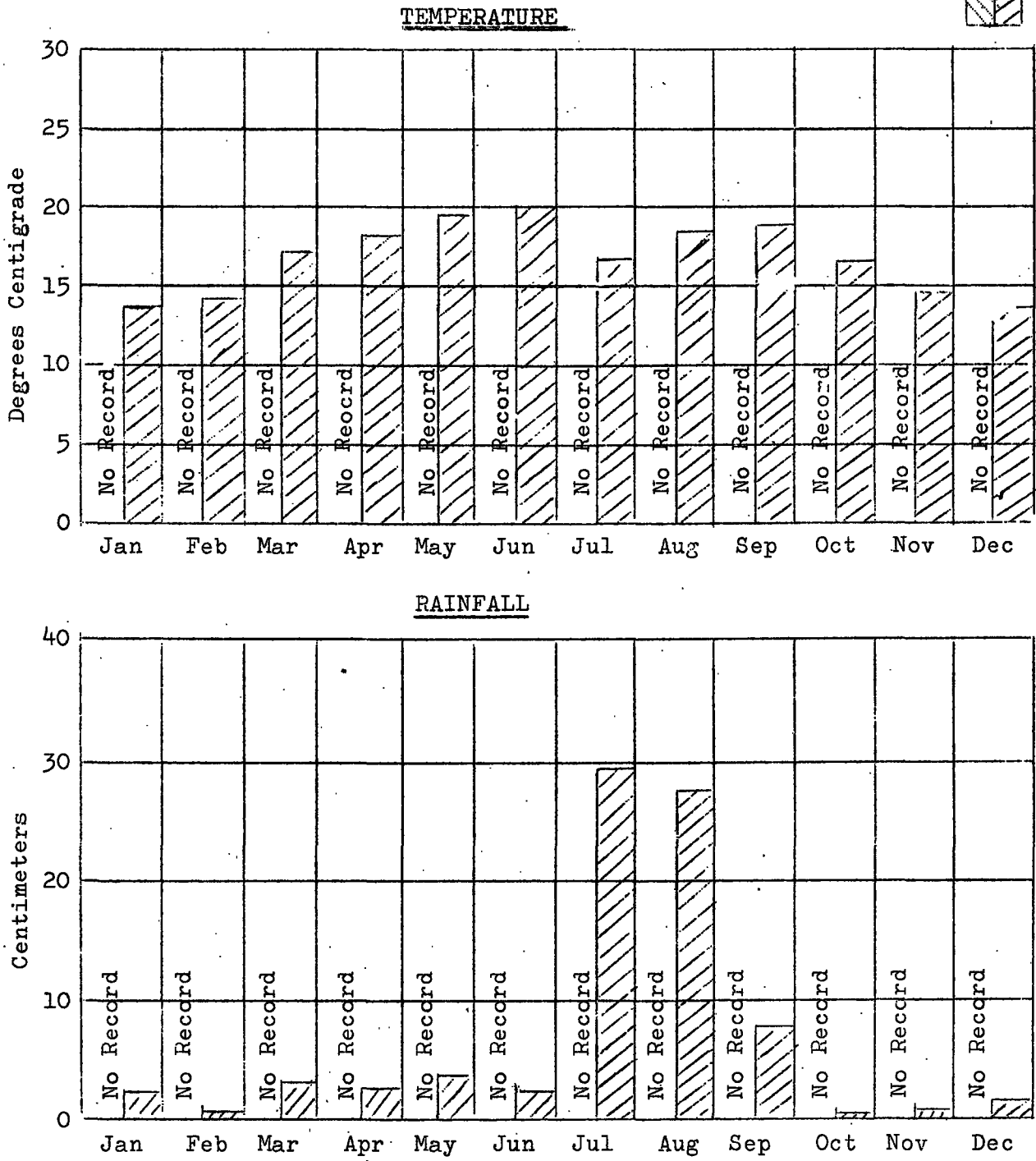
Figure 1.7

Climatological Data at Debre Birhan

Latitude N 09°40'

Longitude E 39°45' Elevation 2,930 m

1961
Avg. over Record



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Figure 1.8

Climatological Data at Debre Markos

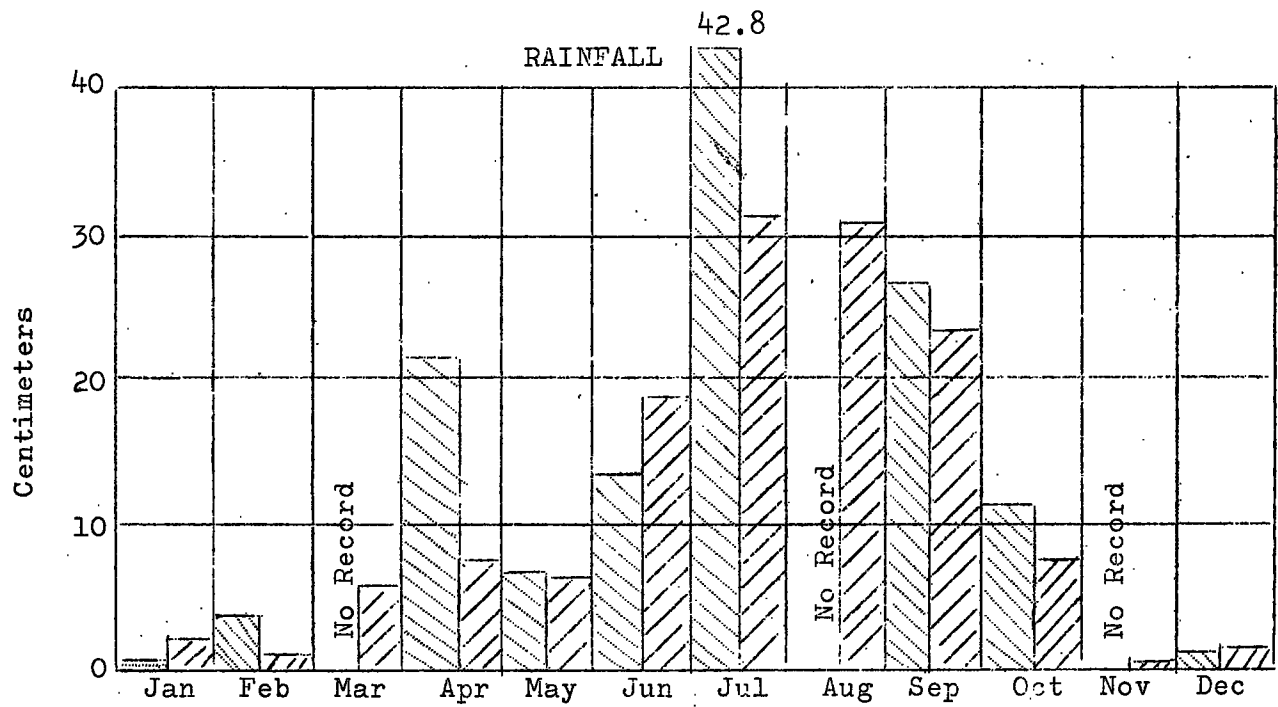
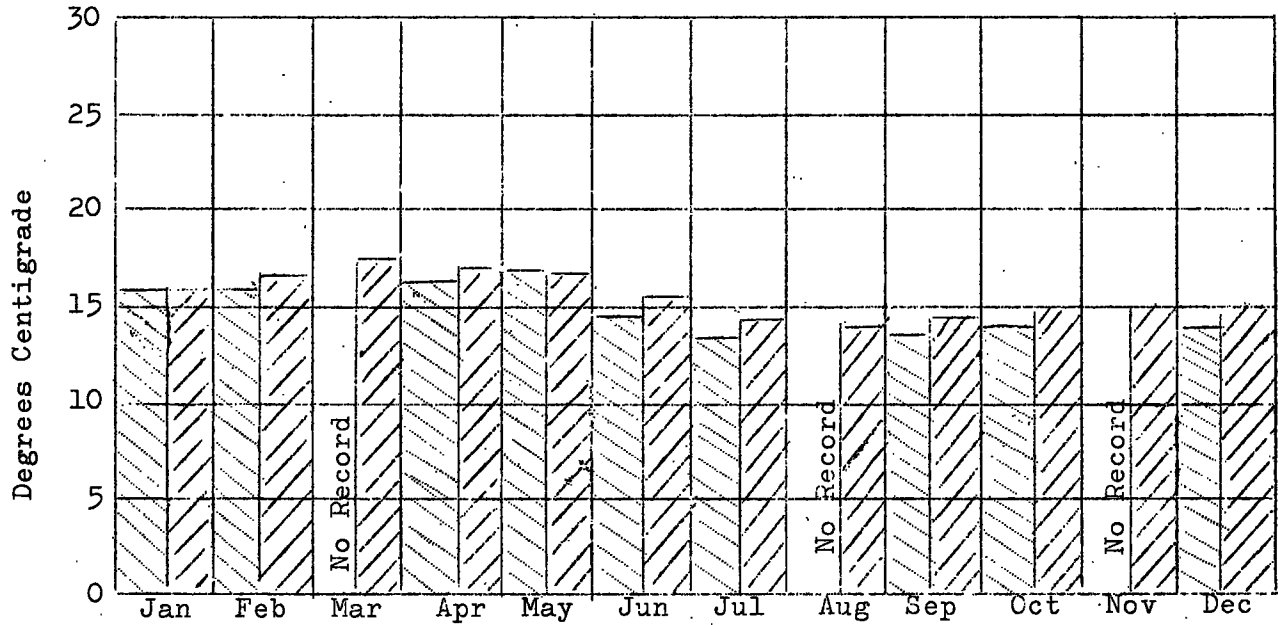
Latitude N 18°16'

Elevation 2,313 m

Longitude E 37°19'

1961
Avg. over Record

TEMPERATURE



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Figure 1.9

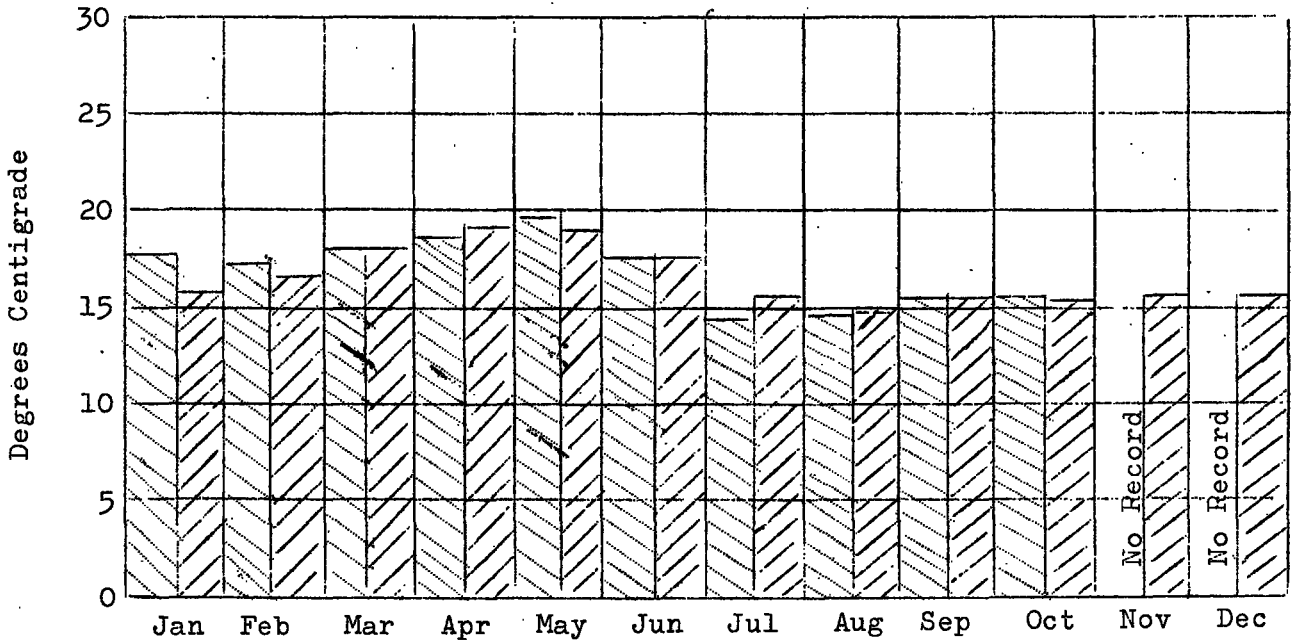
Climatological Data at Debre Tabor

Latitude N 11°51'

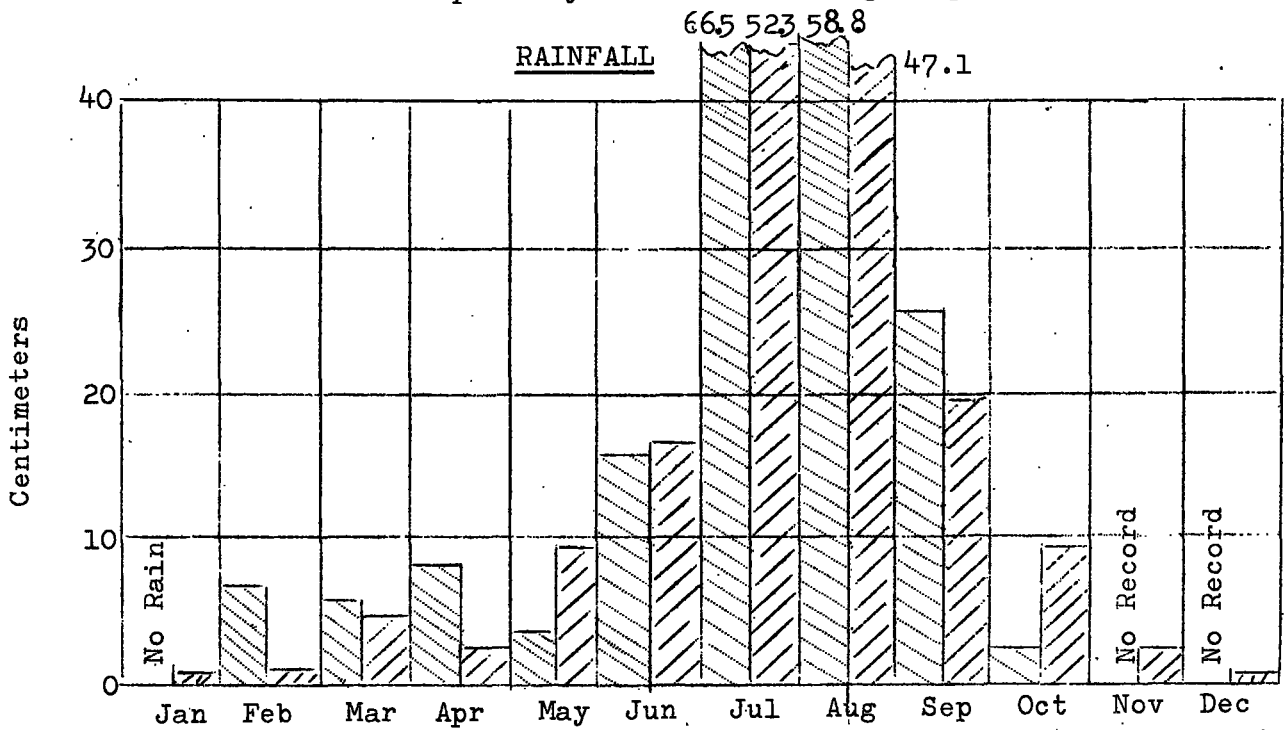
Longitude E 38°05' Elevation 2,945 m

1961
Avg. over Record

TEMPERATURE



RAINFALL



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Figure 1.10

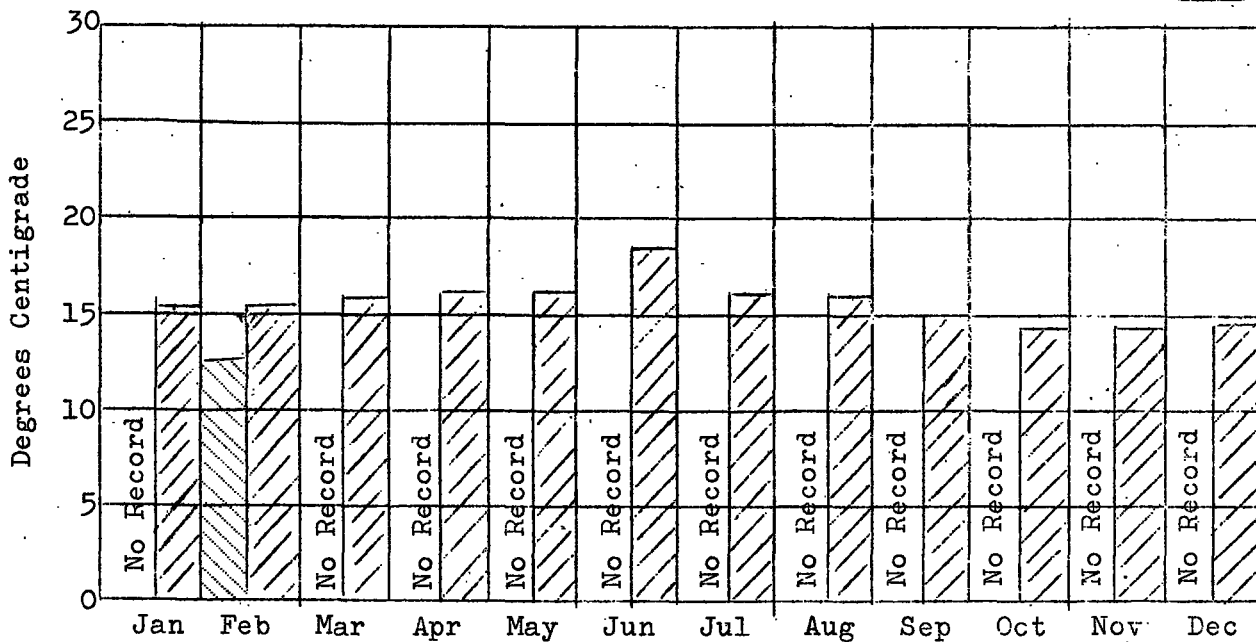
Climatological Data at Fiche

Latitude N 09°48'

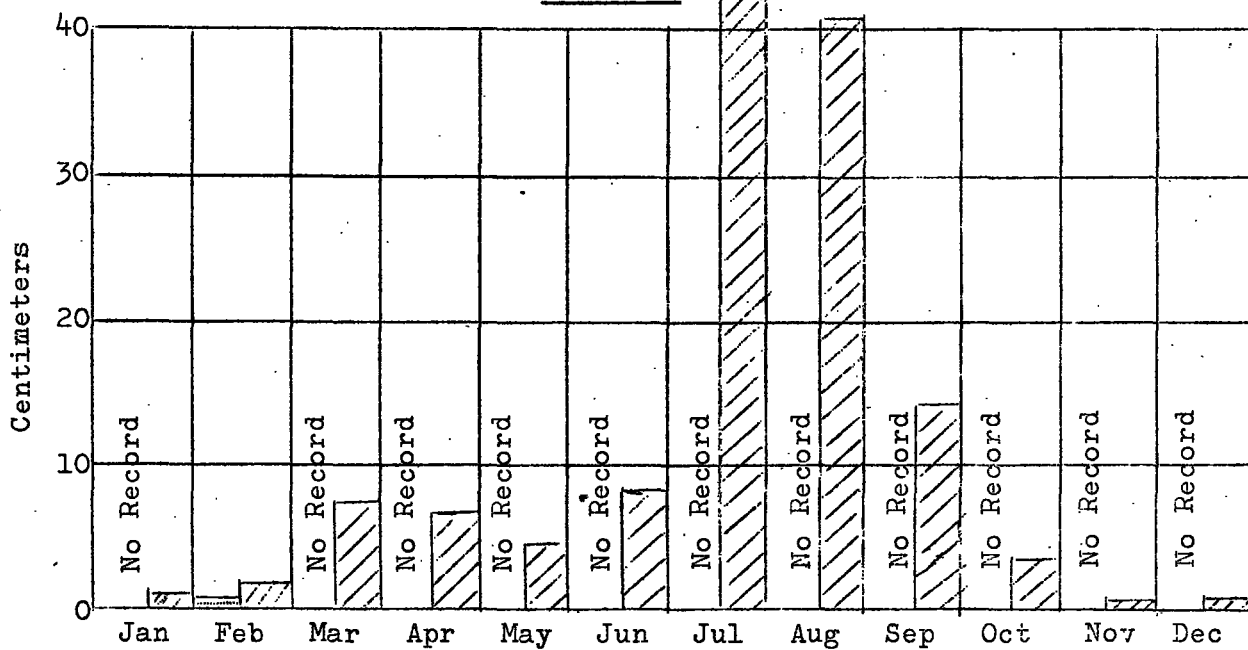
Longitude E 38°45' Elevation 2,820 m

1961
AVG. over Record

TEMPERATURE



RAINFALL



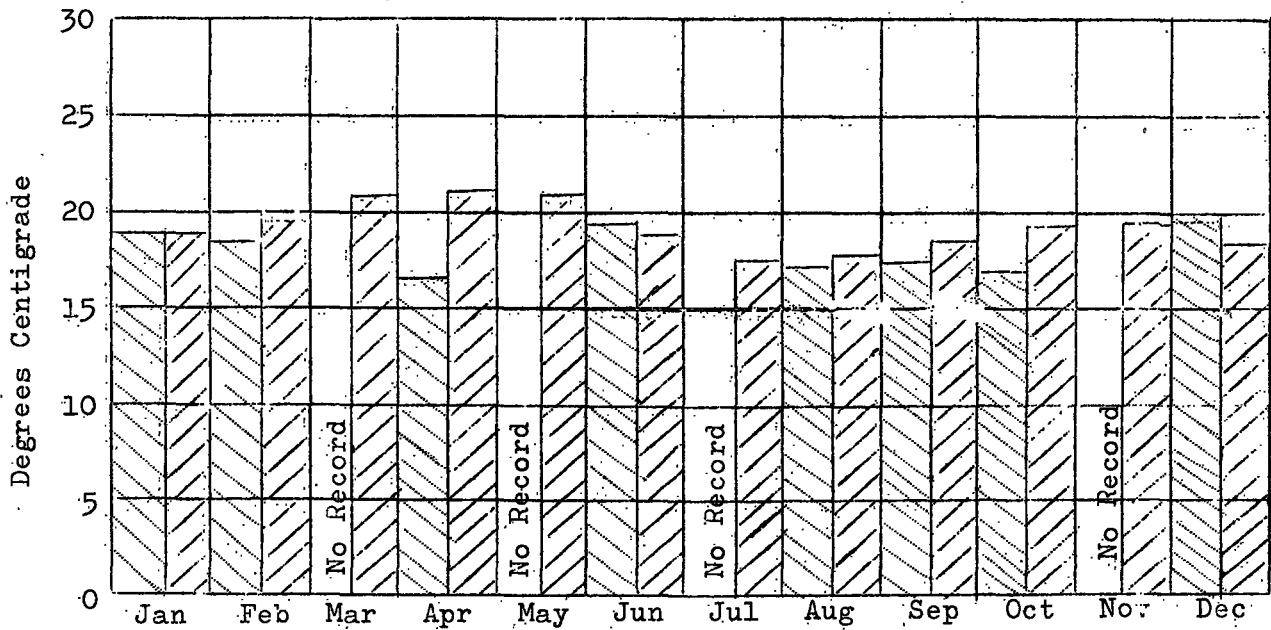
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HYDROLOGIC SERVICE

Figure 1.11

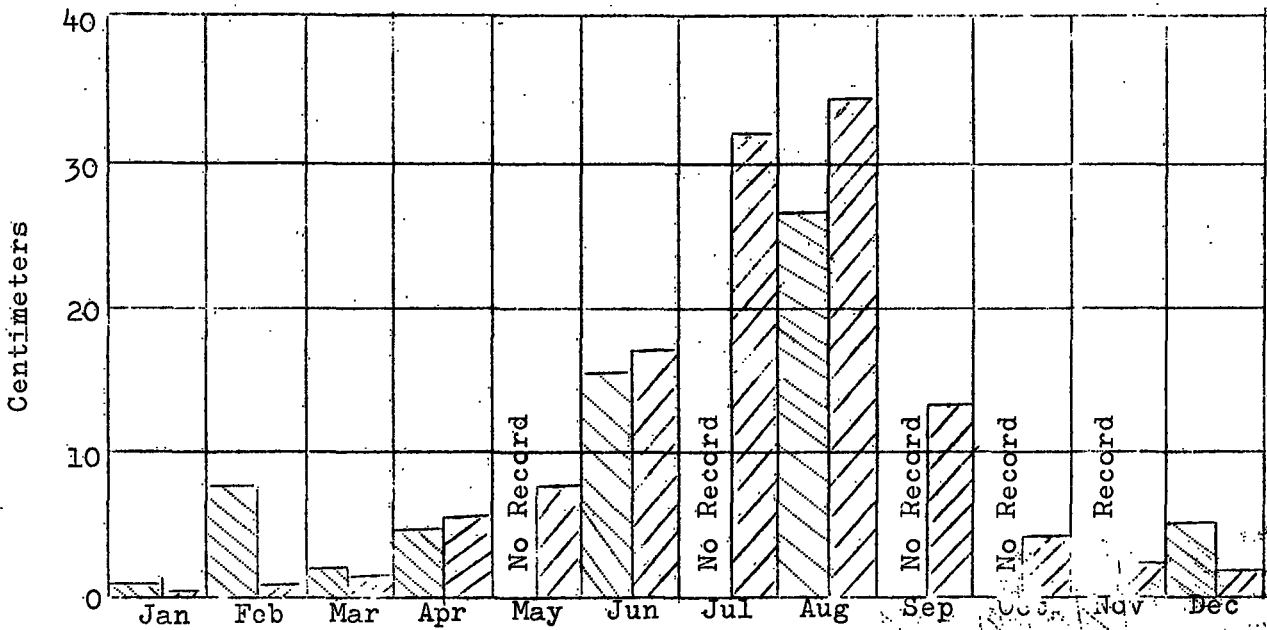
Climatological Data at Gondar
Latitude N 12°35'
Longitude E 37°28' Elevation 2,121 m

1961
AVG. over Record

TEMPERATURE



RAINFALL



WATER RESOURCES DEPARTMENT
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Figure 1.12

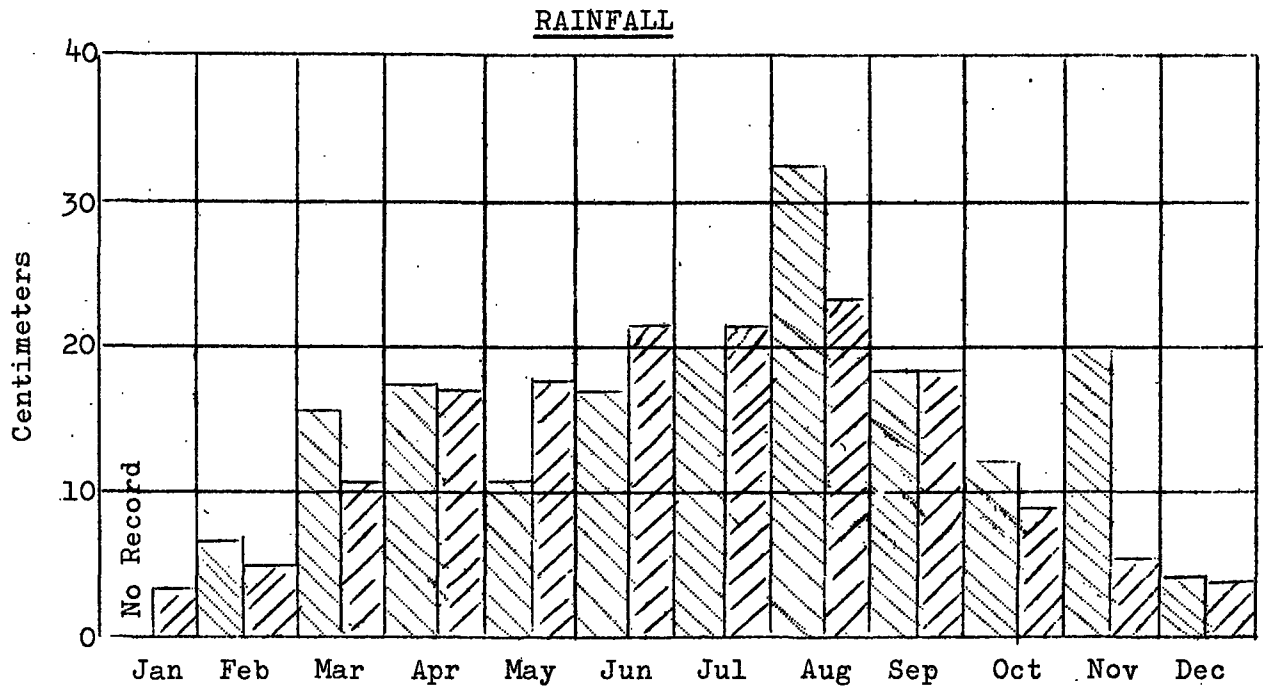
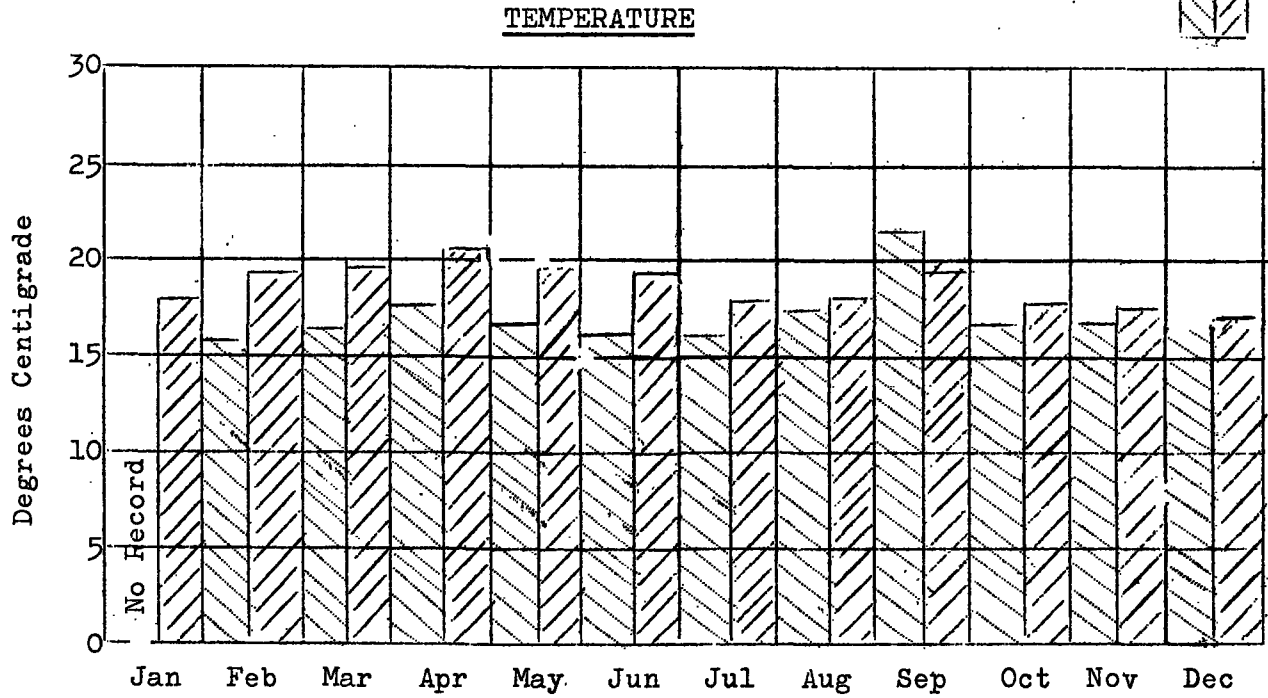
Climatological Data at Jima Agricultural College

Latitude N 07°29'

Elevation 1,740 m

Longitude E 36°50'

1961
Avg. over Record



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Figure 1.13

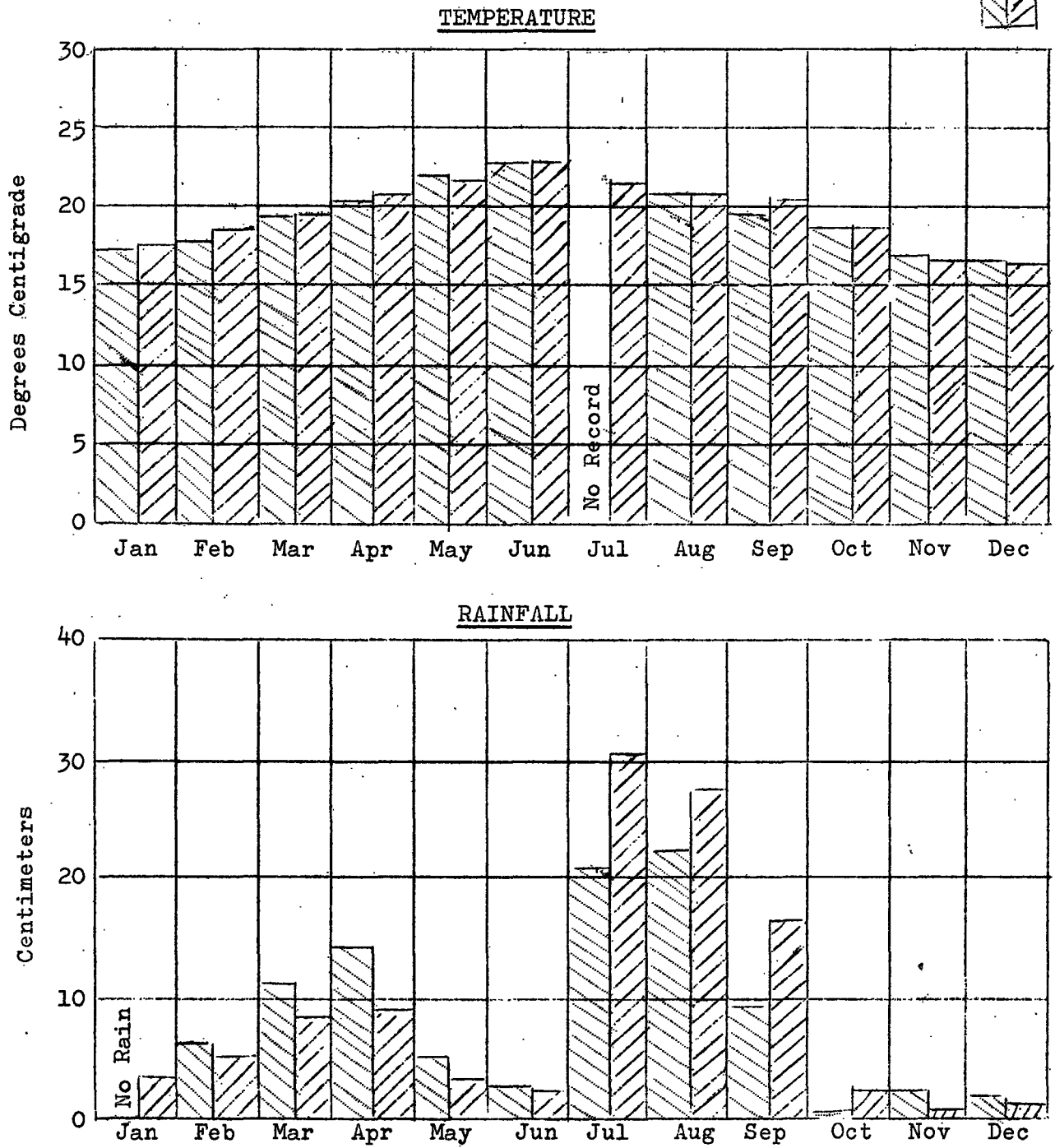
Climatological Data at Kembalcha (Dessie)

Latitude N 11°04'

Elevation 1,903 m

Longitude E 39°58'

1961
AVG. over Record



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HYDROLOGIC SERVICE

Figure 1.14

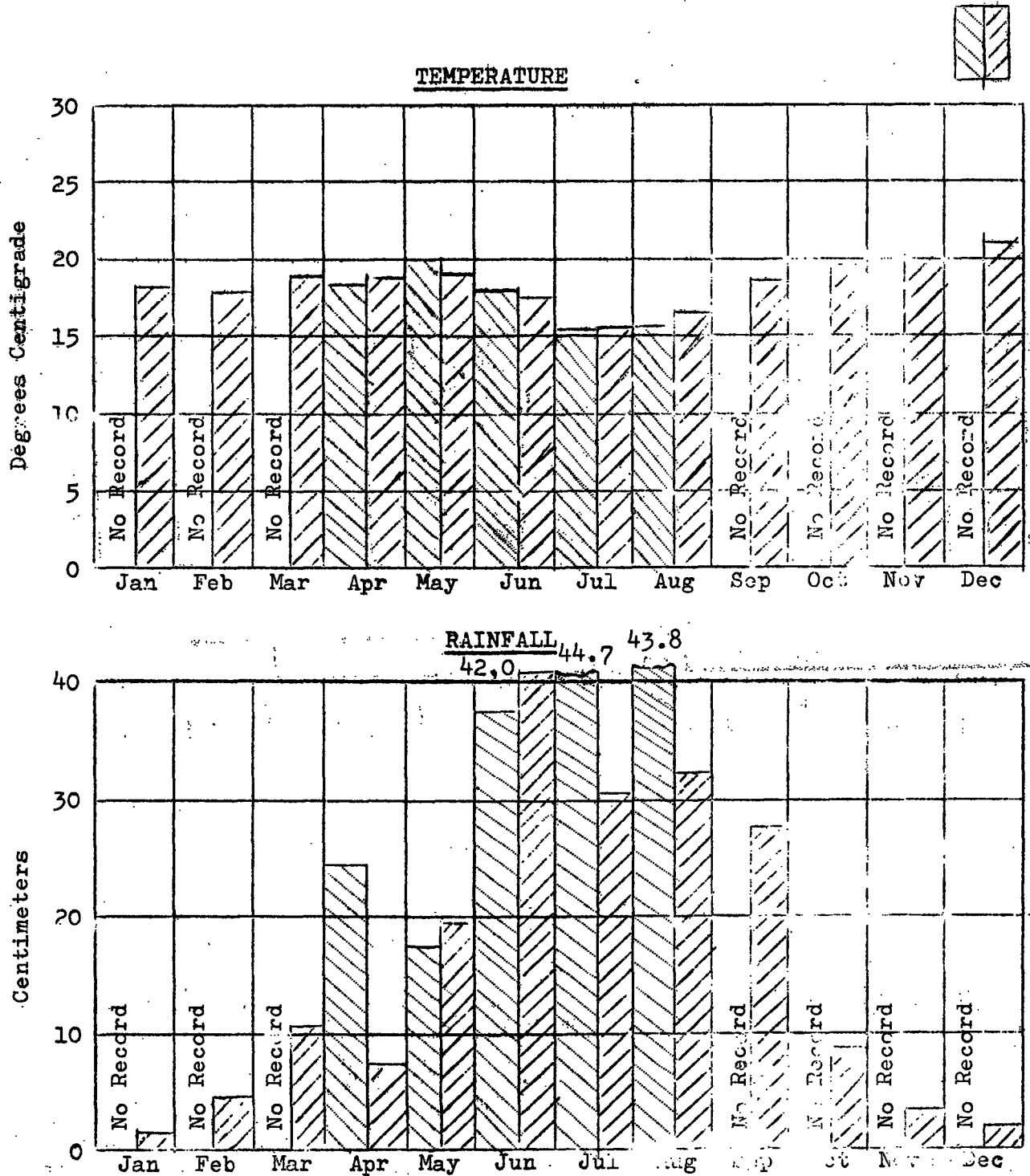
Climatological Data at Lekkerent

Latitude N 09°05'

Elevation 2,005 m

Longitude E 36°33'

1961
Avg. over Record



WATER RESOURCES DEPARTMENT
HYDROLOGIC SERVICE

Figure 1.15

Climatological Data at Nejo

Latitude N 09°28'

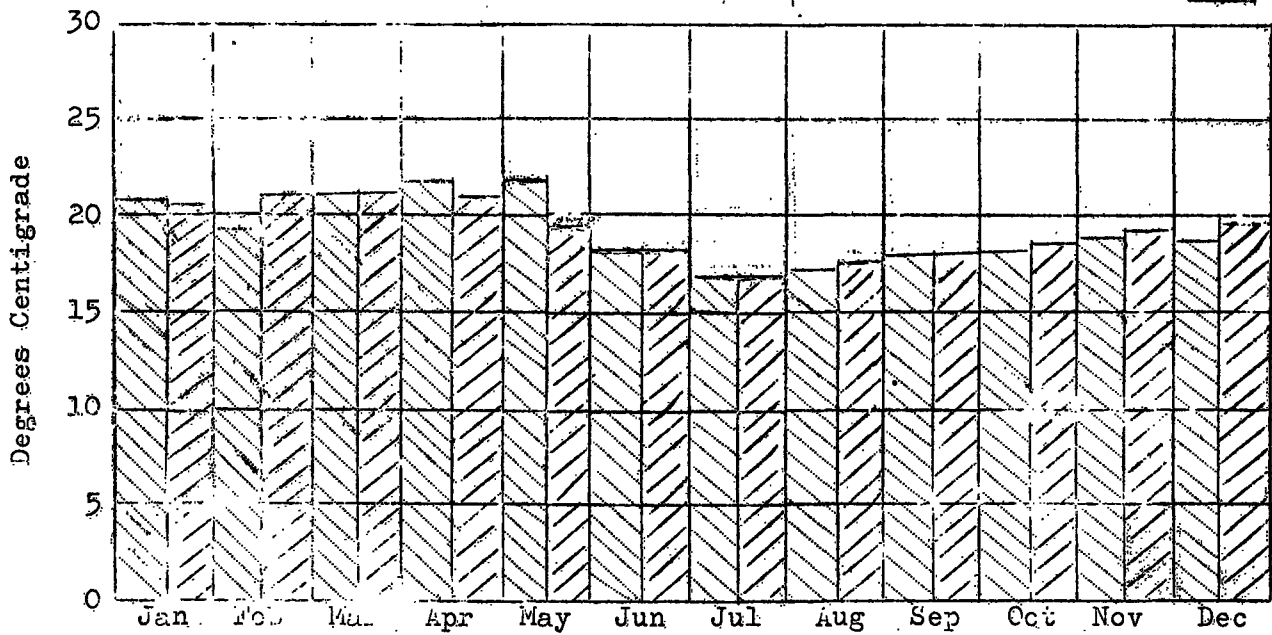
Elevation 1,900 m

Longitude E 35°30'

1961
AVG. ever Record



TEMPERATURE



RAINFALL

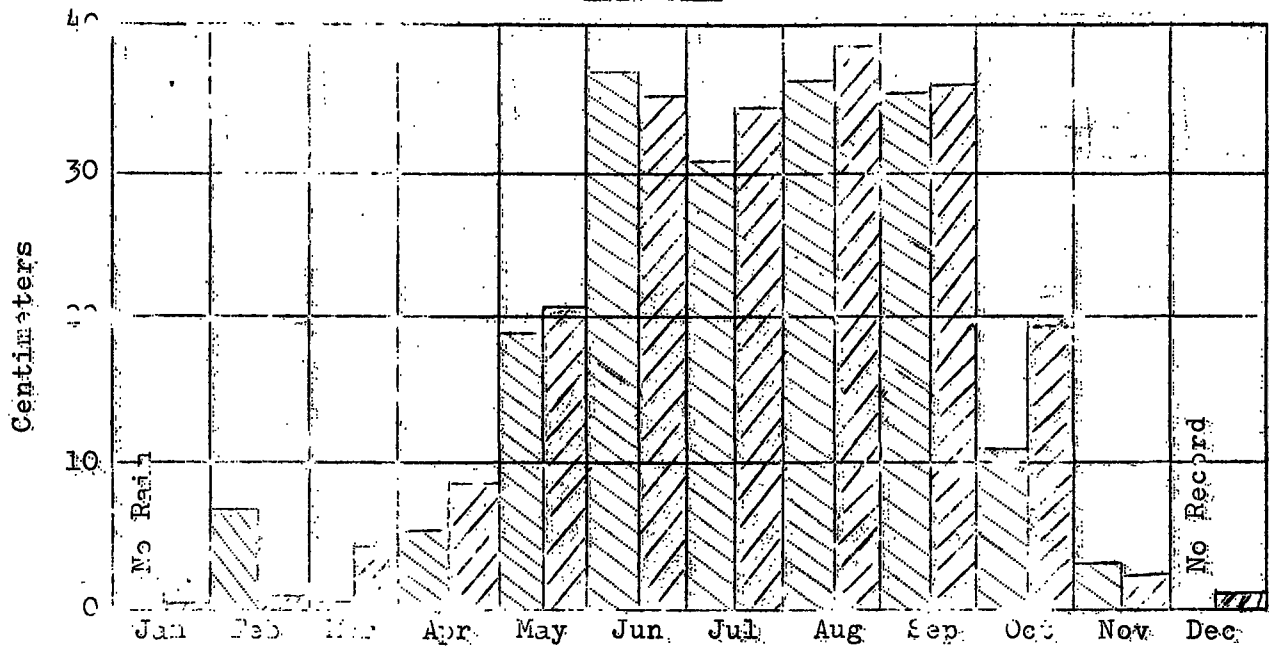


Table 1.16

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
Addis Ababa														
1951	0.9	3.6	130.4	40.2	81.1	69.3	200.1	208.3	120.1	70.4	1.5	7.6	933.5	
1952	11.8	0.4	29.6	157.4	27.8	77.7	292.6	260.7	179.0	44.0	0.0	0.0	1,081.0	
1953	0.0	57.3	1.3	146.9	15.1	90.4	233.9	178.8	127.2	3.2	0.0	62.3	916.4	
1954	0.0	1.6	60.4	38.0	75.9	115.8	246.6	308.5	252.5	62.1	0.1	3.0	1,164.5	
1955	78.0	5.8	18.9	107.4	37.6	163.6	263.7	334.1	213.5	7.5	0.0	46.4	1,276.5	
1956	27.1	19.2	38.8	96.3	6.2	123.9	141.2	219.9	191.1	143.2	17.7	2.2	1,026.8	
1957	0.1	86.4	247.7	204.5	101.5	133.2	222.1	249.1	60.2	10.8	1.9	0.0	1,317.5	
1958	75.7	24.9	55.9	53.6	12.5	104.9	404.8	316.7	173.5	54.3	0.0	32.4	1,309.2	
1959	42.9	24.9	17.3	45.3	176.8	82.5	194.8	300.2	238.4	9.0	0.0	11.1	1,143.2	
1960	4.3	23.1	86.3	49.9	67.3	93.6	191.9	282.0	182.3	2.2	12.2	6.1	1,001.2	
1961	0.0	3.6	79.7	109.8	51.1	153.7	380.8	261.9	215.3	80.6	58.9	0.0	1,395.4	
Total	240.8	250.8	766.3	1049.3	652.9	1206.6	2772.5	2920.2	1953.1	487.3	92.3	171.1	12,565.2	
Average	21.9	22.8	69.7	95.4	59.4	109.9	252.0	265.5	177.6	44.3	8.4	15.6	1,142.5	
1962	0.0	0.0	138.8	32.3	14.0	50.8	226.7	309.1	232.4	16.2	19.6	15.8	1,055.7	
Total	240.8	250.8	905.1	1081.6	666.9	1259.4	2999.2	3229.3	2185.5	503.5	111.9	186.9		
Average*	20.1	20.9	75.4	90.1	55.6	105.0	249.9	269.1	182.1	42.0	9.3	15.7	1,135.2	

TABLE 1.17

Temperature at <u>Addis Ababa</u> in degrees Centigrade											Elevation <u>2,408</u> meters				
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL	Average	
<u>Average of Daily Maxima</u>															
1946	25.2	28.3	27.8	27.5	28.5	23.9	22.8	22.0	23.5	25.6	26.0	27.2	308.3	25.7	
1947	27.1	25.7	25.9	26.0	26.9	28.4	23.3	23.7	23.4	25.2	26.2	25.7	307.5	25.6	
1948	23.7	24.8	25.0	24.6	24.1	20.4	19.3	18.8	20.4	20.8	23.0	23.2	268.1	22.3	
1949	25.0	26.0	25.9	25.7	22.9	20.9	17.9	20.2	20.2	24.6	23.2	22.2	274.7	22.9	
1950	24.3	25.1	26.5	25.0	25.8	22.7	19.4	19.5	21.0	23.3	23.7	23.4	279.7	23.3	
1951	24.4	25.3	24.5	24.2	24.3	23.5	20.7	20.1	22.3	22.3	23.3	23.6	278.5	23.2	
1952	24.9	26.0	26.7	22.7	25.4	23.6	20.4	19.8	21.5	22.6	23.3	23.7	280.6	23.4	
1953	24.8	25.0	25.8	23.5	25.7	23.5	19.1	20.3	21.5	24.5	24.1	23.0	280.8	23.4	
1954	24.3	26.0	25.1	25.9	25.5	22.2	19.1	19.3	19.5	22.2	23.0	23.5	275.6	23.0	
1955	22.6	24.5	25.9	25.2	25.0	22.6	20.4	20.0	20.9	22.7	23.2	22.9	275.9	23.0	
1956	22.3	24.9	26.4	23.5	25.3	22.8	19.9	19.6	21.0	20.9	22.2	23.2	272.0	22.7	
1957	24.3	23.4	22.5	23.3	23.9	23.7	21.1	20.1	23.1	24.4	24.2	24.3	278.8	23.2	
1958	24.3	23.5	26.7	25.7	28.2	23.0	19.3	20.0	21.2	22.7	23.7	23.7	282.0	23.5	
1959	23.8	25.6	26.2	26.8	25.4	24.0	20.4	19.5	21.2	23.1	24.1	23.9	264.0	23.7	
1960	23.7	25.8	24.5	25.5	24.2	23.9	20.3	20.9	21.0	23.3	24.0	23.7	280.8	23.4	
1961	25.1	25.2	25.7	23.8	25.6	23.3	19.9	19.8	20.6	22.6	21.7	23.1	275.9	23.0	
Total	389.8	405.1	410.6	398.9	406.7	372.4	323.3	323.6	342.3	370.8	379.4	380.3	4,503.2	375.3	
Average	24.3	25.3	25.6	24.9	25.4	23.3	20.2	20.2	21.4	23.2	23.7	23.8	280.2	23.5	
1962	25.0	26.0	24.8	25.7	26.2	24.7	20.4	20.4	21.8	21.4	22.9	22.1	281.4	23.4	
Total	414.8	431.1	435.4	424.6	432.9	397.1	343.7	344.0	364.1	392.2	402.3	402.4	4,784.6	398.7	
Average	24.4	25.4	25.6	25.0	25.5	23.4	20.2	20.2	21.4	23.1	23.7	23.1	281.0	23.4	

TABLE 1.18

Temperature at <u>Addis Ababa</u> in degrees Centigrade											Elevation <u>2,408</u> meters			
YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT.	OCT.	NOV	DEC	TOTAL	Average
<u>Average Daily Temperature</u>														
1946	16.4	18.2	17.9	17.9	19.3	16.6	16.2	16.1	17.2	17.8	16.5	16.6	206.7	17.2
1947	17.2	17.7	18.2	17.7	18.7	19.3	16.6	16.7	16.7	16.9	17.4	16.7	209.8	17.5
1948	14.9	16.9	17.1	17.5	17.3	15.6	14.8	14.2	15.3	14.9	14.4	14.8	187.7	15.6
1949	16.5	16.9	18.2	17.8	16.8	15.3	14.1	16.1	15.3	16.7	15.5	15.3	194.5	16.2
1950	15.6	17.2	19.0	18.4	18.5	16.7	15.3	15.2	15.8	15.7	15.2	15.6	198.2	16.5
1951	15.6	17.5	18.4	18.2	18.4	17.4	16.2	16.0	17.1	16.9	16.6	16.6	204.9	17.1
1952	15.6	17.4	18.8	17.0	18.2	16.9	15.4	15.2	15.7	15.3	14.7	15.4	195.6	16.3
1953	15.8	17.1	18.1	17.6	18.5	17.2	15.1	15.4	14.5	16.0	15.2	15.1	195.6	16.3
1954	14.7	17.4	17.9	18.2	18.2	16.6	15.0	14.6	14.3	14.8	14.7	14.8	191.2	15.9
1955	15.7	16.7	17.8	17.6	17.5	15.8	14.8	14.7	14.6	14.7	14.6	14.5	189.0	15.8
1956	14.6	15.4	17.8	16.4	17.4	16.0	14.9	14.6	15.5	14.7	13.5	13.9	184.7	15.4
1957	15.4	15.7	16.1	16.6	16.8	16.3	15.4	14.6	15.9	15.8	15.8	14.7	189.1	15.8
1958	16.8	16.3	18.3	18.2	19.5	16.7	14.9	15.1	15.5	15.2	14.6	15.4	196.5	16.4
1959	15.9	16.9	17.9	18.8	17.9	16.9	15.4	14.8	15.4	15.8	15.3	15.0	196.0	16.3
1960	14.8	16.9	17.1	17.5	17.4	16.8	15.2	15.4	15.2	15.3	15.3	15.6	192.5	16.0
1961	18.8	17.1	17.7	17.4	18.8	16.6	14.8	14.6	15.1	15.4	13.9	14.2	194.4	16.2
Total	254.3	271.3	286.3	282.8	289.2	266.7	244.1	243.3	249.1	251.9	243.2	244.2	3,126.4	260.5
Average	15.9	17.0	17.9	17.7	18.1	16.7	15.3	15.2	15.5	15.7	15.2	15.3	195.5	16.3
1962	14.9	15.9	16.8	17.7	17.2	16.9	15.3	14.8	14.6	13.9	13.3	14.2	185.5	15.5
Total	269.2	286.2	303.1	300.5	306.4	283.6	259.4	258.1	263.7	265.8	256.5	258.4	3,311.9	276.0
Average	15.8	16.8	17.8	17.7	18.0	16.7	15.3	15.2	15.5	15.6	15.1	15.2	194.7	16.2

TABLE 1.19

Temperature at <u>Addis Ababa</u> in degrees Centigrade										Elevation <u>2,408</u> meters				
		MAX	AF	MAY	JUN	JULY	AUG	SEPT						
<u>Average of Daily Minima</u>														
1946	7.5	8.1	8.1	8.2	10.0	9.2	9.6	10.2	10.8	10.0	7.0	6.0	104.7	8.7
1947	7.3	9.7	10.4	9.3	10.5	9.9	9.9	9.6	9.9	8.7	8.6	7.6	111.4	9.3
1948	6.0	9.1	9.1	10.3	10.5	10.7	10.2	9.5	10.2	8.9	5.7	6.4	106.6	8.9
1949	7.1	7.8	10.5	9.8	10.1	9.6	10.3	11.0	10.4	8.8	7.9	8.4	111.7	9.3
1950	6.9	9.3	11.6	11.7	11.2	10.6	11.2	10.9	10.6	8.0	6.6	7.7	116.3	9.7
1951	6.7	9.7	12.3	11.9	12.4	11.2	11.6	11.9	11.9	11.5	9.8	9.5	130.4	10.9
1952	6.3	8.8	10.8	11.3	11.0	10.3	10.4	10.5	9.8	7.9	6.0	7.0	110.1	9.2
1953	6.8	6.2	10.4	11.7	11.2	10.8	11.0	10.5	7.5	7.5	6.3	7.2	110.1	9.2
1954	5.0	8.7	10.6	10.5	10.9	10.9	10.9	9.9	9.1	7.3	6.3	6.0	106.1	8.8
1955	6.8	6.9	9.7	9.9	9.9	9.0	9.1	9.3	8.3	6.6	5.9	6.1	101.5	6.5
1956	6.8	5.9	9.2	9.2	9.5	9.2	9.1	9.5	9.9	8.5	4.7	4.7	96.2	8.0
1957	5.5	7.9	9.6	9.8	9.7	8.0	9.6	9.7	8.8	7.2	6.9	5.0	57.7	8.1
1958	9.2	9.1	9.8	10.4	10.7	10.4	10.6	10.1	9.8	7.6	5.5	7.1	110.3	9.2
1959	6.0	8.1	9.7	10.7	10.5	9.8	10.4	10.0	9.6	8.5	6.4	6.1	107.8	9.0
1960	5.8	7.9	9.7	9.5	10.5	9.6	10.1	9.9	9.4	7.3	6.5	7.4	103.6	8.6
1961	6.5	6.7	9.0	10.1	9.9	8.9	9.5	9.3	8.7	6.7	6.2	5.4	96.9	8.1
Total	110.2	134.9	160.5	164.3	168.5	158.1	163.5	161.8	154.7	131.0	106.3	107.6	1,721.4	143.5
Average	6.9	8.4	10.0	10.3	10.5	9.9	10.2	10.1	9.7	8.2	6.6	6.7	107.5	9.0
1962	4.7	5.5	8.8	9.6	8.0	9.3	10.1	9.1	8.1	6.5	3.6	6.7	90.0	7.5
Total	114.9	140.4	169.3	173.9	176.5	167.4	173.6	170.9	162.8	137.5	109.9	114.3	1,811.4	151.0
Average	6.8	8.3	10.0	10.2	10.4	9.8	10.2	10.1	9.6	8.1	6.5	6.7	106.7	8.9

Table 1.20

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
Ambo Agricultural School														
1951	0.0	52.0	109.0	42.5	72.0	200.5	200.0	199.0	187.0	48.0	2.0	31.0	1,063.0	
1952	0.0	15.0	40.5	116.0	64.0	129.3	211.2						576.0	
1954	0.0	12.5	79.4	51.0	33.4	141.7	241.1	245.4	152.9	19.5	1.0	3.5	981.4	
1955	60.9	4.9	25.3	66.7	44.0	174.7	352.6	229.7	148.0	17.2	3.1	8.8	1,135.9	
1956	11.2	8.9	43.4	92.5	66.5	161.2	173.7	286.2	125.1	158.8	2.2	7.4	1,137.1	
1957	0.6	46.6	196.3	101.9	99.9	99.1	315.3	185.2	82.2	0.0	0.8	8.5	1,136.4	
1958	49.5	0.0	109.4	101.2	19.3	195.8	245.4	187.3	74.3	29.6	0.0	33.0	1,044.8	
1959	58.0	21.9	40.5	46.4	78.9	119.8	231.8	304.2	122.8	47.7	29.7	18.5	1,120.2	
1960	4.1	60.4	62.8	90.9	106.4	167.9	250.4	271.1	140.6	1.1	0.0	8.3	1,164.0	
1961	0.1	6.9	84.3	38.5	30.1								159.9	
Total	184.4	229.1	790.9	747.6	614.5	1390.0	2221.5	1908.1	952.9	321.9	38.8	119.0	9,518.7	
Average	18.4	22.9	79.1	74.8	61.4	154.4	246.8	238.5	119.1	40.2	4.8	14.9	1,075.3	
1962	No record													

TABLE 1.2
 Ambo Agricultural School
 in Degrees Centigrade
 Elevation 2,130 meters

<u>Average Daily Temperature</u>														
1954	18.0	20.3	20.4	20.5	19.8	17.6	16.8	16.7	16.5	17.2	17.6	17.9	219.3	18.3
1955	18.8	19.5	20.3	20.2	19.4	17.7	16.5	16.7	17.1	17.6	17.8	18.0	219.6	18.3
1956	18.3	19.5	21.1	19.9	19.2	17.4	16.4	16.5	17.3	17.1	16.2	17.5	216.4	18.0
1957	18.8	18.8	18.2	19.2	19.2	17.8	16.8	16.7	17.6	19.2	19.5	18.9	220.7	18.4
1958	20.1	18.5	21.2	20.9					19.2	18.9				
1959	20.6													
1960	18.4	19.8	19.9	20.3	19.2	17.6	16.9	17.1	16.3	18.2	18.2			
1961	18.3	19.2	19.8	18.8	19.4									
Total	151.5	135.6	140.9	139.8	116.2	88.1	83.4	83.7	104.0	106.2	89.3	72.3	1,312.8	
Average	18.9	19.4	20.1	20.0	19.4	17.6	16.7	16.7	17.3	18.0	17.9	18.1	220.1	18.4

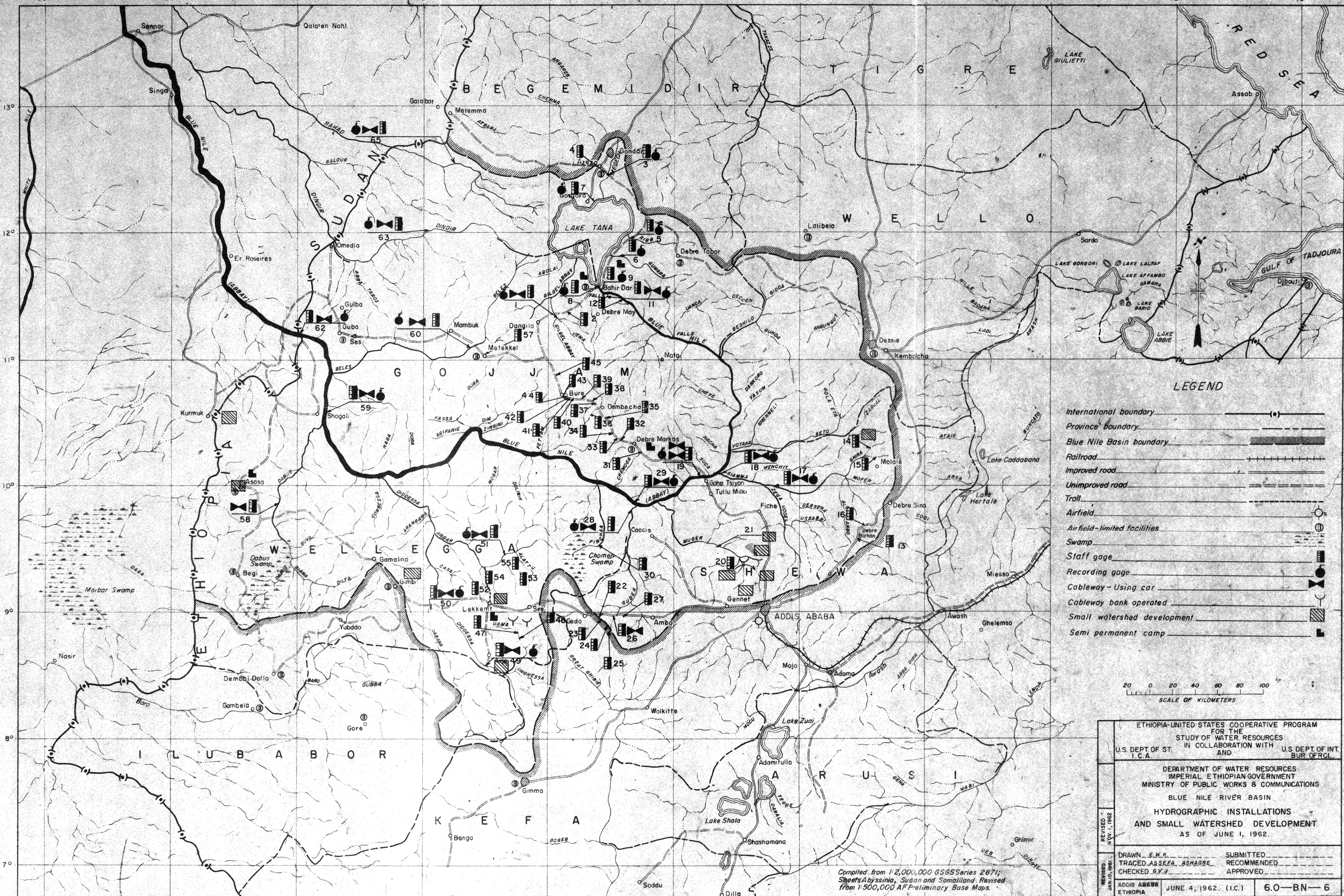
<u>Average of Daily Maxima</u>														
1954	26.7	27.9	27.4	28.1	27.3	23.3	21.7	21.6	22.1	24.3	25.2	25.8	301.4	25.1
1955	25.6	28.2	28.9	27.4	27.0	24.1	21.2	21.2	22.5	24.8	25.2	24.8	300.9	25.1
1956	25.6	27.8	28.7	26.2	26.5	25.4	20.6	21.1	23.1	22.9	23.5	25.4	294.8	24.6
1957	27.7	26.2	24.1	25.8	26.3	24.8	21.9	21.7	24.2	26.9	27.0	26.7	303.3	25.3
1958	27.0	26.9	29.0	28.3					26.0	27.7	27.6	27.5		
1959	29.0	30.1												
1960		27.7	21.9		26.5	24.4	22.2	22.3	22.4					
1961	26.5	26.9	27.5	26.0	28.8									
Total	186.1	221.7	187.5	161.8	162.4	120.0	107.6	107.9	140.3	126.0	128.5	130.2		
Average	26.2	27.7	26.8	26.0	26.1	20.0	18.5	21.6	23.4	25.5	25.7	26.0	303.0	25.3

TABLE 1.72

Ambo Agricultural School 17 degrees Centigrade
 Elevation _____ meters

Average of Daily Minima

1954	9.3	12.7	13.4	12.9	12.3	11.8	11.9	11.7	10.9	10.0	9.9	10.0	136.8	11.4
1955	11.9	10.8	11.6	13.0	11.8	11.3	11.8	12.2	11.6	10.4	10.4	11.1	137.9	11.5
1956	10.9	11.1	13.5	13.5	11.8	11.3	12.1	11.9	11.5	11.3	8.8	9.5	137.2	11.4
1957	9.8	11.4	12.2	12.5	12.0	10.7	11.6	11.7	11.0	11.5	11.9	11.1	137.4	11.5
1958	13.2	10.0	13.4	13.5		12.4	13.0	12.5	12.4	10.0				
1959	12.1		12.8	12.9	12.5	11.3	12.3	12.2	11.4	11.3	9.6	10.1		
1960	10.0	11.6	11.9	11.7	11.9	10.7	11.6	11.8	10.2	10.5	9.4			
1961	10.0	11.5	12.0	11.5	10.0									
Total	87.2	79.3	100.8	101.5	82.3	79.5	84.3	84.0	79.0	75.0	60.0	51.8		
Average	10.9	11.3	12.6	12.7	11.8	11.4	12.0	12.0	11.3	10.7	10.0	10.4	137.1	11.4



LEGEND

- International boundary
- Province boundary
- Blue Nile Basin boundary
- Railroad
- Improved road
- Unimproved road
- Trail
- Airfield
- Airfield-limited facilities
- Swamp
- Staff gage
- Recording gage
- Cableway - Using car
- Cableway bank operated
- Small watershed development
- Semi permanent camp

20 0 20 40 60 80 100
SCALE OF KILOMETERS

ETHIOPIA-UNITED STATES COOPERATIVE PROGRAM FOR THE STUDY OF WATER RESOURCES U.S. DEPT OF ST IN COLLABORATION WITH U.S. DEPT OF INT I.C.A. AND BUR OF RCL		
DEPARTMENT OF WATER RESOURCES IMPERIAL ETHIOPIAN GOVERNMENT MINISTRY OF PUBLIC WORKS & COMMUNICATIONS BLUE NILE RIVER BASIN HYDROGRAPHIC INSTALLATIONS AND SMALL WATERSHED DEVELOPMENT AS OF JUNE 1, 1962.		
REVISIONS NOV 1, 1962	DRAWN E.W.K. TRACED AS SEFA ASHABRE CHECKED R.V.V.	SUBMITTED RECOMMENDED APPROVED
ADDIS ABABA ETHIOPIA	JUNE 4, 1962. (I.C.)	6.0-BN-6

Compiled from 1:2,000,000 GSGS Series 2871,
Sheets Abyssinia, Sudan and Somaliland. Revised
from 1:500,000 AFP Preliminary Base Maps.

MASTER COPY DWG. NO. 0-0-BN-10 DATE: May 26, 1960

Figure 2.1

TABLE 1.25

Temperature at Anosa		in degrees Centigrade								Elevation 1,665 ^a meters		Average		
<u>Average Daily Temperature</u>														
1959					21.2	20.6	20.4	20.8						
1960	22.6			23.2	22.4	20.9	19.1	20.0	20.2	20.5	21.4			
1961		22.4				20.7	16.8		19.5					
Total	22.6	22.4		23.2	22.4	62.8	56.5	20.0	60.1	20.8	20.5	21.4		
Average	22.6	22.4	^b /23.0	23.2	22.4	20.9	18.8	20.0	20.0	20.8	20.5	21.4	256.0	21.3
1962	23.8	24.1	23.4	21.5	19.6	17.2	16.9	17.7	18.7					
Total	22.6	46.2	24.1	46.6	43.9	82.4	73.7	36.9	77.8	59.5	20.5	21.4	555.6	46.3
Average	22.6	23.1	24.1	23.3	22.0	20.6	18.4	18.4	19.4	19.8	20.5	21.4	253.6	21.1
<u>Average of Daily Maxima</u>														
1959					27.6	26.3	26.4	27.0						
1960	31.1	30.0		29.4	27.9	26.2	22.8	24.5	25.7	26.5	28.6	30.0		
1961		29.4				26.1	18.9		24.8					
Total	31.1	59.4		29.4	27.9	79.9	68.0	24.5	76.9	53.5	28.6	30.0		
Average	31.1	25.7	^e /29.6	29.4	27.9	26.6	22.7	24.5	25.6	26.7	28.6	30.0	332.4	27.7
1962		31.9	31.8	31.0	30.0	26.9	24.0	24.3	25.4	26.9				
Total	31.1	61.3	31.8	60.4	57.9	106.8	92.0	48.8	102.3	80.4	28.6	30.0	731.4	60.9
Average	31.1	20.4	21.8	30.2	28.9	26.7	23.0	24.4	25.6	26.8	28.6	30.0	327.5	27.3
<u>Average of Daily Minima</u>														
1959					14.8	14.5	14.4	14.6						
1960	14.0			16.9	16.8	15.6	15.3	15.5	14.7	13.3	12.4	12.8		
1961		15.3				15.5	14.6		14.2					
Total	14.0	15.3		16.9	16.8	45.9	44.4	15.5	43.3	27.9	12.4	12.8		
Average	14.0	15.3	^e /16.4	16.9	16.8	15.3	14.8	15.5	14.4	14.0	12.4	12.8	178.6	14.9
1962		15.4	16.6	15.8	13.0	12.5	10.3	9.0	10.5	10.5				
Total	14.0	30.7	16.6	32.7	29.8	58.4	54.7	24.5	53.8	38.4	12.4	12.8	378.8	31.6
Average	14.0	15.4	16.5	16.4	14.3	14.6	13.7	12.2	13.4	12.8	12.4	12.8	169.2	14.1

^a/ 1803 bench mark

^b/ Estimated from partial data

Table 1.26

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
Bahir Dar														
1955	0.0	0.0	11.5	35.0	68.1	7.0	384.0	337.0	70.1	0.0	0.0	0.0	912.7	
1957			55.0	143.5									198.5	
1958					25.0	190.0	523.0	170.0					908.0	
1959					0.0	70.0	34.5	201.7	208.0	80.4	77.8	15.9	688.3	
1960	0.0	8.5	2.4	0.0	110.0	0.0	366.3	261.9	243.0	0.0	0.0	0.0	992.1	
1961	0.0	0.0	32.5	18.6	3.9	150.4	238.4	473.9	165.7	99.9		18.7	1,202.0	
Total	0.0	8.5	101.4	197.1	207.0	417.4	1546.2	1444.5	686.8	180.3	77.8	34.6	4,901.6	
Average	0.0	2.8	25.4	49.3	41.4	83.5	309.2	288.9	171.7	45.1	25.9	8.6	1,091.8	
1962	0.9	0.0	0.0	1.0	106.1	115.5	387.7	11.1						
Total	0.9	8.5	101.4	198.1	353.1	532.9	1933.9	1455.6	686.8	180.3	77.8	34.6		
Average	0.2	2.1	20.3	39.6	58.8	88.8	322.3	242.6	171.7	45.1	25.9	8.6	1,026.0	85.5

TABLE 1.27

Temperature at <u>Rohir Dar</u> in degrees Centigrade											Elevation <u>1,802</u> meters			
YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL	Average
<u>Average Daily Temperature</u>														
1959							18.9	18.6	18.5	18.6			17.5	
1960	e/ 17.6						e/ 18.5			18.7				
1961		19.1	18.4		21.6	19.8		18.2	18.3	18.6				
Total	17.6	19.1	18.4		21.6	19.8	37.4	36.8	36.8	55.9			17.5	
Average	17.6	19.1	18.4	20.0	21.6	19.8	18.7	18.4	18.4	18.6	17.8	17.5	225.9	18.8
1962	14.9	17.0			18.4	18.0	17.1	18.5	18.6	18.8	17.1	16.8		
Total	32.5	36.1	18.4		40.0	37.8	54.5	55.3	55.4	74.7	17.1	34.3		
Average	16.2	18.0	18.4		20.0	18.9	18.2	18.4	18.5	18.7	17.1	17.2		
<u>Average of Daily Maxima</u>														
1959							23.9	e/ 23.9	24.7	24.8			26.2	
1960	26.4	29.7		e/ 30.2			24.0	e/ 24.0		26.0				
1961		28.7	29.9		29.7	26.6		22.1	23.7	25.0			24.4	
Total	26.4	58.4	29.9	30.2	29.7	26.6	47.9	70.0	48.4	75.8			50.6	
Average	26.4	29.2	29.9	30.2	29.7	26.6	23.9	23.3	24.2	25.3	25.3	25.3	319.3	26.6
1962	22.7	27.1	28.8	25.9	26.0	24.1	21.8	25.8	24.2	27.7	24.9	25.6		
Total	49.1	56.8	28.8	56.1	26.0	24.1	69.7	95.8	72.6	83.5	24.9	76.2	663.6	55.3
Average	24.6	28.4	28.8	28.0	26.0	24.1	23.2	24.0	24.2	20.9	24.9	25.4	302.5	25.2
<u>Average of Daily Minima</u>														
1959							13.9	13.2	12.2	12.3			8.7	
1960	8.9						13.0			11.4				
1961		9.5	6.9		13.4	13.0		14.2	12.9	12.2				
Total	8.9	9.5	6.9		13.4	13.0	26.9	27.4	25.1	35.9			8.7	
Average	8.9	9.5	6.9	9.8	13.4	13.0	13.4	13.7	12.5	12.0	10.3	8.7	132.1	11.0
1962	7.1	7.3			10.8	12.4	15.2	11.1	13.0	9.6	9.6	7.8		
Total	16.0	16.8	6.9		24.2	25.4	42.1	38.5	38.1	45.5	9.6	16.5		
Average	8.0	8.4	3.4		12.1	12.7	14.0	12.8	12.7	11.4	9.6	8.2		

e/ Estimated from partial data

Table 1-28

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	MEAN
D-Engle														
1955								293.5	215.5	44.0	60.6	36.0	649.6	
1956	0.0	0.0	0.0	62.0	57.0	263.0	322.0	263.0	241.0	215.0	0.0	0.0	1,423.0	
1957					78.5	250.0	299.5	369.0	157.0	59.0	3.0	0.0	1,216.5	
1958										79.5	36.0	31.8	147.3	
1959	0.0	16.5	0.0	53.5	91.7	161.7	356.0	269.5	237.5	223.7	13.0	2.0	1,425.1	
1960	3.0	10.0	22.5	13.7	91.0	301.0	459.5	476.0	206.0	67.0	0.0	62.0	1,711.7	
1961	0.0	80.0			45.0	186.5		356.0	306.0	62.0	100.0	19.0	1,164.5	
Total	3.0	116.5	22.5	129.2	363.2	1162.7	1437.0	2027.0	1363.0	750.2	212.6	150.8	7,737.7	
Average	0.8	29.1	7.5	43.1	72.6	232.5	359.2	337.8	227.2	107.2	30.4	21.5	1,460.9	
1962	0.0		0.0		53.0	164.0	362.0	36.0						
Total	3.0	116.5	22.5	129.2	416.2	1326.2	1799.0	2063.0	1363.0	750.2	212.6	150.8		
Average	0.6	29.1	5.6	43.1	69.6	221.0	359.8	294.7	227.2	107.2	30.4	21.5	1,409.8	117.4

TABLE 1.29

Temperature at Dangila in degrees Centigrade Elevation 2,107^a meters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
					<u>AVERAGE OF DAILY MAXIMA</u>									
1954									27.1	30.2		32.0		
1955	33.8	35.6	35.6	33.2	32.7	29.5	29.0	29.3	29.7	30.4	31.9	31.9	382.6	31.9
1956	33.2	30.6	30.7	30.1	29.6	26.2	24.8	25.1	26.9	26.5	27.9	27.2	337.8	28.2
1957								24.3	25.7	27.5	27.9			
1958														
1959	29.0	29.6		27.9		23.3			22.8	23.1	23.7	24.1		
1960	^{e/} 25.1		27.0	27.4		24.2	22.6	23.8	23.4	23.7	24.2	25.0		
1961	26.7					23.4						22.7		
1962	18.5	26.8	23.1	26.2	25.7		21.5	20.8						
				!										
Total	165.3	122.6	116.4	144.8	88.0	126.6	97.9	113.3	155.6	161.4	135.6	162.9	1590.4	132.5
Average	27.6	30.8	29.1	29.0	29.3	25.3	24.5	22.7	25.9	26.9	27.1	27.2	325.4	27.1

^{a/} C&GS bench mark

^{e/} Estimated from partial data

TABLE 1.30

Temperature at Dangila in degrees Centigrade Elevation 2,107^{a/} meters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Yearly Average
1954					<u>Average of Daily Minima</u>				14.7	7.3	13.2	3.0		
1955	4.5	4.9	6.5	7.8	11.0	10.0	8.8	9.5	9.4	7.6	6.6	4.0	90.6	7.6
1956	1.1	4.1	2.4	3.5	7.0	9.9	11.0	10.0	9.8	8.9	3.7	4.5	75.9	6.3
1957								11.3	10.0	7.6	6.1			
1958														
1959	2.5	3.4		9.5		9.4			10.1	8.6	5.6	5.5		
1960	3.2		5.9	8.6		8.5	10.0	9.9	9.1	6.9	5.7	5.4		
1961	5.0					10.0						5.3		
1962	2.0	4.5	5.5	13.9	7.9	16.0	11.0	10.7						
Total	18.3	16.9	20.3	43.3	25.9	211.8	40.9	51.4	63.1	46.9	40.9	27.7	607.4	50.6
Average	3.0	4.2	5.1	8.7	8.6	35.3	10.2	10.3	10.5	7.8	6.8	4.6	115.1	9.6

a/ CGGS bench mark

e/ Estimated from partial data

TABLE 1.31

Temperature at Dangila in degrees Centigrade Elevation 2,107^a meters

YEAR	JAN.	FEB. ^a	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	PERIOD MEAN
<u>Average Daily Temperature</u>														
1954									20.9	18.7	17.4	18.5		
1955	19.1	20.2	21.0	20.5	21.9	19.7	18.9	19.4	19.2	19.0	18.8	17.9	235.6	19.6
1956	16.5	17.2	16.5	16.8	18.8	18.1	18.0	17.6	18.4	17.7	15.8	15.9	207.3	17.3
1957								17.8	17.9	17.0	17.0			
1959	15.6	16.5		18.7		16.4			16.4	15.9	14.7	14.8		
1960	14.2		16.4	18.0		16.4	16.3	16.8	16.3	15.3	15.0	15.2		
1961	15.9					16.7						14.0		
Total	81.3	53.9	53.9	74.0	40.7	87.3	53.2	71.6	109.1	103.6	98.7	96.3		
Average	16.3	18.0	18.0	18.5	20.3	17.5	17.7	17.9	18.2	17.3	16.4	16.1	212.2	17.7
1962	10.8	15.6	14.3	20.2	16.9		16.3	15.9						
Total	92.1	69.5	68.2	94.2	57.6	87.3	69.5	87.5	109.1	103.6	98.7	96.3	1,033.7	86.1
Average	15.4	17.4	17.0	18.8	19.2	17.5	17.6	17.1	18.2	17.3	16.4	16.0	207.9	17.3
^a C&GS bench mark														
^e Estimated from partial data														

Table 1.32

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	PERCENT MEAN
Debre Birhan														
1954					29.9	96.7	520.4	300.0	154.0	31.7	0.0	0.0	1,132.7	
1955	32.0	0.0	49.2	83.2	49.9	97.5	294.0						605.8	
1956							279.9	249.0	31.0	118.0	11.0	0.0	688.9	
1957	2.0	38.0	159.0	50.0	44.0	35.0	287.0	82.0					697.0	
1958	18.6	13.6	18.5	34.6	27.0	45.6	292.5	232.6	79.5	2.3	0.0	0.0	764.8	
1959	49.9	10.5	29.7	28.0	44.5	16.0	254.4	209.5	72.3	3.0	19.5	24.0	761.3	
1960	0.0	0.0	46.0	19.0	38.0	12.0	333.0	367.1	83.1				898.2	
Total	102.5	62.1	303.4	214.8	233.3	302.8	2261.2	1440.2	419.9	150.0	30.5	24.0	5,448.7	
Average	20.5	12.4	60.5	43.0	38.9	50.5	323.0	240.0	84.0	38.8	7.6	6.0	925.2	
1962	No record													

TABLE 1.33

Temperature at Debre Birhan in degrees Centigrade Elevation 2,840 meters

Average Daily Temperature

1957											16.3	13.4		
1958		15.1	16.5	16.5	17.8	17.9	15.0	15.6	16.0	17.7	17.0	14.9		
1959		12.8	16.4	19.0	21.8	20.9	14.9	18.0	17.0	14.3	12.9	11.9		
1960	14.7	14.9		19.0	19.6	21.3	19.5	20.9	23.1					
Total	14.7	42.8	32.9	54.5	59.2	60.1	49.4	54.5	56.1	32.0	46.2	40.2		
Average	14.7	14.3	16.4	18.2	19.7	20.0	16.5	18.2	18.7	16.0	15.4	13.4	201.5	16.8

Average of Daily Maxima

1957											22.1	19.4		
1958		19.6	21.6	21.8	23.3	23.4	18.6	20.3	21.1	21.8	21.4	20.6		
1959		18.9	23.2	25.9	27.2	26.8	19.3	24.8	24.1	20.3	17.9	15.9		
1960	20.6	20.3		25.7	25.1	28.8	26.4	25.0	27.9					
Total	20.6	58.8	44.8	73.4	75.6	79.0	64.3	70.1	73.1	42.1	61.4	55.9		
Average	20.6	19.6	22.4	24.5	25.2	26.3	21.4	23.4	24.4	21.0	20.5	18.6	267.9	22.3

Average of Daily Minima

1957											10.4	7.3		
1958		10.6	11.5	11.2	12.2	12.4	11.3	10.9	10.9	13.5	12.6	9.1		
1959		5.9	9.5	15.0	16.3	15.0	10.5	11.1	9.8	8.2	7.8	7.9		
1960	8.7	9.3		12.3	14.0	13.8	12.6	16.7	18.2					
Total	8.7	25.8	21.0	38.5	42.5	41.2	34.4	38.7	38.9	21.7	30.8	24.3		
Average	8.7	8.6	10.5	12.8	14.2	13.7	11.5	12.9	13.0	10.9	10.3	8.1	135.2	11.5

Table 1.34

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent of MEAN
Debre Markos														
1954	0.0	2.5	35.3	19.0	33.0	231.9	150.1	297.5	254.6	49.3	0.0	0.0	1,073.2	
1955	94.0	18.4	60.4	98.5	40.0	130.4	312.3	258.2	243.0	24.4	10.3	46.7	1,337.1	
1956	0.0	0.0	23.0	111.9	85.5	182.0	272.2	350.6	276.6	172.5	3.5	9.5	1,478.3	
1957	0.0	9.6	197.0	102.0	74.4	152.5	261.8	254.2	123.1	17.0	8.3	6.0	1,205.9	
1958	37.3	18.2	15.5	135.2	34.9	278.8	452.0	380.0	227.9	131.3	7.0	46.6	1,764.7	
1959	21.6	0.0	36.5	41.2	34.6	160.0	311.1	310.1	202.9	118.4	7.0	2.2	1,245.6	
1960	11.2	74.4	31.3	31.1	129.1	155.0	460.8	379.5	229.4	22.8	17.0	25.0	1,557.6	
1961	2.3	38.1		214.6	65.9	135.0	427.9		266.1	115.8		19.2	1,284.9	
Total	166.4	161.2	399.0	753.5	497.3	1425.6	2648.2	2221.6	1823.6	651.5	53.1	146.2	10,947.3	
Average	20.8	20.2	57.0	94.2	62.2	178.2	331.0	317.4	228.0	81.4	7.6	18.3	1,416.3	
1962	0.0	0.0	89.1	20.1	135.3	134.2	976.1	406.6	164.3	71.5	23.5	0.4	2,021.1	
Total	166.4	161.2	488.1	773.6	632.7	1559.8	3624.3	2628.2	1987.9	723.0	76.6	146.6		
Average	18.5	17.9	61.0	86.6	70.3	173.3	402.7	325.4	220.9	80.3	9.5	16.3	1,482.7	

TABLE 135

Debre Markos 17 degrees Centigrade Elevation 2,313 meters

Average Daily Temperature

1954	16.3	17.9	17.9			15.1	14.6	14.9	15.2	14.3	14.7	14.4		
1955	15.1	16.0	17.1	16.5	16.4	14.8	14.0	14.1	14.6	14.8	15.0	14.9	183.3	15.3
1956	14.9	16.9	18.3	16.8	16.3	14.2	13.4	13.5	14.0	14.7	13.6	14.8	181.4	15.1
1957	15.3	16.1	16.1	16.4	16.6	15.0	14.6	14.1	15.3	15.9	16.5	16.0	167.9	15.2
1958	17.0	17.1	18.9	18.4	18.4	14.9	14.7	14.6	14.9	16.8	15.1	15.5	196.3	16.4
1959	15.9	16.6	17.9			14.1	14.2	13.9	14.5	14.9	14.7	14.9		
1960	15.0	16.6	16.1	17.1	16.3	14.7	13.5	14.3	14.0	14.5	15.1	14.7	181.9	15.2
1961	15.8	15.9		16.1	16.8	14.7	13.1		13.3	13.5	13.7			
Total	125.3	133.1	122.3	101.3	100.8	117.5	112.1	99.4	115.8	119.4	118.4	118.9		
Average	15.7	16.6	17.5	16.9	16.6	14.7	14.0	14.2	14.5	14.9	15.0	14.9	185.7	15.5
1962	13.0	15.2	15.6	16.9	15.5	13.5	13.0	12.5	12.8	12.7	13.5	13.7	167.9	
Total	138.3	148.3	137.9	118.2	116.3	131.0	125.1	111.9	128.6	132.1	131.9	118.9		
Average	15.4	16.5	17.2	16.9	16.6	14.6	13.9	13.9	14.3	14.7	14.7	14.3	183.0	15.2

TABLE 1.36

Temperature at Debre Markos in degrees Centigrade

Elevation 2,313 meters

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL	MEAN
<u>Average of Daily Maxima</u>														
1954	24.5	25.5	24.7	25.6	25.0	19.9	18.9	19.5	20.9	20.5	22.3	22.4	269.7	22.5
1955	22.2	23.8	24.8	23.3	23.2	20.4	18.4	18.2	19.6	21.2	22.2	21.9	259.2	21.6
1956	22.8	25.4	25.0	22.7	22.5	19.8	17.2	17.3	19.3	19.6	20.9	22.6	255.1	21.3
1957	24.1	23.7	21.6	22.7	23.1	20.7	18.7	18.0	21.2	22.6	23.8	24.3	264.5	22.0
1958	24.8	24.8	26.4	24.8	25.3	19.8	17.5	10.4	19.7	20.5	22.7	22.7	267.8	22.3
1959	23.5	24.9	25.6		24.2	21.6	18.2	17.9	19.6	20.9	22.5	23.7		
1960	23.7	24.6	24.5	25.3	22.9	21.2	18.0	19.1	19.7	21.5	23.4	22.6	266.5	22.2
1961	24.8	24.2		23.1	24.4	21.2	17.8		19.3	20.7		21.6		
Total	190.4	196.9	172.6	167.5	190.6	164.6	145.1	128.4	159.3	167.5	157.8	181.8		
Average	23.8	24.6	24.7	23.9	23.8	20.6	18.1	18.3	19.9	20.9	22.5	22.7	263.8	22.0
1962	22.3	24.8	23.8	26.0	23.1	20.6	18.6	17.7	19.5	20.8	21.7	22.8		
Total	212.7	221.7	196.4	193.5	213.7	185.2	163.7	146.1	178.8	188.3	179.5	204.6		
Average	23.6	24.6	21.8	24.2	23.7	20.6	18.2	18.3	19.9	20.9	22.4	22.7	260.9	21.7
<u>Average of Daily Minima</u>														
1954	8.1	10.3	11.1			10.2	10.2	10.2	9.4	8.0	7.0	6.4		
1955	7.9	8.2	9.4	9.6	9.5	9.2	9.6	9.9	9.6	8.4	7.7	7.9	106.9	8.9
1956	6.7	8.4	10.8	11.0	10.1	8.9	9.7	9.6	8.5	9.0	6.5	6.9	106.1	8.8
1957	6.5	8.4	10.5	10.1	10.1	9.5	10.4	10.1	9.3	9.2	9.1	7.6	110.8	9.2
1958	9.2	9.3	11.5	11.9	11.6	10.1	10.9	10.8	10.2		7.5	8.3		
1959	8.0	8.2	10.2			6.6	10.1	9.8	9.4	8.9	6.8	6.1		
1960	6.3	6.5	8.4	8.9	9.6	8.2	9.0	9.4	8.2	7.5	6.7	6.8	97.5	8.1
1961	6.7	7.6		9.1	9.1	8.2	8.3		7.3	6.3		5.8		
Total	59.4	68.5	71.9	60.6	60.0	70.9	78.2	69.8	71.9	57.3	51.3	55.8		
Average	7.4	8.6	10.3	10.1	10.0	8.9	9.8	10.0	9.0	8.2	7.3	7.0	106.6	8.9
1962	3.7	5.2	7.6	7.8	8.0	6.4	7.4	7.2	6.0	4.6	5.2	4.5		
Total	63.1	74.1	79.5	68.4	68.0	77.3	85.6	77.0	77.9	61.9	56.5	60.3		
Average	7.0	8.2	9.9	9.8	5.7	8.6	9.5	9.6	8.7	7.7	7.1	6.7	102.5	8.6

Table 1.37

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	PERCENT MEAN
Dobre Tabar														
1951					63.4		513.1	451.1	126.3		63.0	22.6	1,229.5	
1952	0.0	0.2	25.4	56.2	40.7	247.2	350.4	446.1	142.8	13.8	0.0	45.0	1,367.8	
1953	0.0	41.2	4.6	114.4	92.9	191.4	538.7	570.6	280.8	34.2	0.0	50.5	1,919.3	
1954						220.0	499.5	519.5	195.0				1,434.0	
1956						189.5	588.5	460.3	253.0	237.5	35.0	6.5	1,770.3	
1957	0.0	4.0	127.5	22.0	121.5	162.6	463.5	507.0	70.0	59.0	18.0	0.0	1,555.1	
1958	11.5	0.0	24.0	37.5	92.5	278.5	604.3	468.0	158.5	72.0	43.0	21.5	1,816.3	
1959	0.0	11.5	32.5	68.0	74.5	86.0	493.5	520.0	300.0	98.0	27.5	11.0	1,722.5	
1960	39.0	32.0	30.0	3.0	162.0	91.5	466.5	401.0	206.0	10.5	0.0	0.0	1,446.5	
1961	0.0	63.5	58.5	80.0	33.0	159.0	665.0	588.5	258.5	27.5			1,935.5	
Total	50.5	152.4	302.5	381.1	685.5	1625.7	5183.0	4932.1	1990.9	557.5	186.5	147.1	16,194.8	
Average	7.2	21.8	43.2	54.4	85.7	180.6	518.3	493.2	199.1	69.7	23.5	18.4	1,714.9	
1962	No record													

TABLE 1.38^a

Temperature at Debre Tabor in degrees Centigrade Elevation 2,945 meters

YEAR	JAN	FEB	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
<u>Average Daily Temperature</u>														
1956						17.8	15.6	15.2	16.3	15.4	15.2	14.6		
1957	15.1	15.8	16.7	18.2	18.3	17.2	16.5	15.3	15.7	14.8	15.8	15.0	194.4	16.2
1958	15.9	16.5	19.0	18.7	19.2	16.9	16.2	16.0	16.3	15.4	16.0	15.6	201.7	16.8
1959	15.6	16.8	16.3	19.0	18.5	18.2	14.3	13.2	13.9	15.1	15.2	15.3	193.4	16.1
1960	15.0	16.8	17.6	19.5	18.5	17.9	16.5	14.6	16.0			16.3		
1961	17.6	17.0	17.9	18.4	19.6	17.6	14.0	14.3	15.5	15.5				
Total	79.2	82.9	89.5	93.8	94.1	105.6	93.1	88.6	93.7	76.2	62.2	76.8		
Average	15.8	16.6	17.9	18.8	18.8	17.6	15.5	14.8	15.6	15.2	15.6	15.4	192.6	16.5
1962	No record													
<u>Average of Daily Maxima</u>														
1956						* 26.1	21.5	20.8	23.5	22.6	24.0	23.7		
1957	25.1	25.9	25.5	28.3	28.2	27.0	25.8	23.5	24.9	23.7	24.8	24.9	307.6	25.6
1958	25.4	27.0	29.8	29.1	30.3	25.7	23.2	23.6	24.9	23.9	25.7	25.0	313.6	26.1
1959	25.1	26.8	28.5	28.5	28.3	28.5	22.5	22.5	23.5	24.2	25.3	25.2	308.9	25.7
1960	25.3	26.7	28.5	31.1	28.2	28.4	25.0	25.1	24.7			26.5		
1961	28.5	27.2	28.2	28.0	29.8	26.5	19.5	20.1	23.8	25.0				
Total	129.4	133.6	140.5	145.0	144.8	162.2	137.5	135.6	145.3	119.4	99.8	125.3		
Average	25.9	26.7	28.1	29.0	29.0	27.0	22.9	22.6	24.2	23.9	25.0	25.1	309.4	25.8

TABLE 1.39

Temperature at Debre Tabor in degrees Centigrade Elevation 2,945 meters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Precip. MEAN
Average of Daily Minima														
1956						9.5	9.6	9.6	9.1	8.1	6.4	5.5		
1957	5.1	5.7	7.8	8.0	8.4	7.4	7.1	7.1	6.5	5.8	6.8	5.1	80.8	6.7
1958	6.4	5.9	8.1	8.2	8.0	8.1	9.0	8.3	7.6	6.9	6.3	6.1	88.9	7.4
1959	6.1	6.7	8.1	9.1	8.7	7.8	6.1	3.9	4.3	6.0	5.0	5.3	77.1	6.4
1960	4.6	6.8	6.7	7.9	8.7	7.4	7.9	8.1	7.3	6.1	5.9	5.9	83.3	6.9
1961	6.6	6.8	7.5	8.7	9.4	8.3	8.5	8.5	7.1	5.9				
Total	28.8	31.9	38.2	41.9	43.2	48.5	48.2	45.5	41.9	38.8	30.4	27.9		
Average	5.8	6.4	7.6	8.4	8.6	8.1	8.0	7.6	7.0	6.5	6.1	5.6	85.7	7.1

Table 1.40

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
Fiche														
1954	0.0	0.0	73.9	45.0	34.0	138.0	496.9	343.9	173.8	1.0	0.0	4.0	1,510.5	
1955	0.0	0.0	40.5	71.7	23.0	64.3	546.4	479.3	278.5	51.5	0.0	6.0	1,531.2	
1956	0.0	0.0	24.8	111.3	1.0	125.5	495.2	375.5	64.0	134.8	0.0	0.0	1,332.1	
1957	0.0	46.0	252.3	93.0	93.5	36.0	371.6	412.0	75.3	9.0	0.0	0.0	1,393.7	
1958	48.6	9.0	62.9	34.5	42.0	133.0	502.3	438.5	93.0	10.5	0.0	34.1	1,408.4	
1959	31.5	47.0	11.0	43.0	38.5	41.5	513.0	428.0	162.3	37.0	35.0	3.5	1,391.3	
1960	3.5	38.5	66.5	72.5	94.0	34.0	555.5	377.9	152.0	2.5	12.0	19.0	1,432.9	
1961		2.0											2.0	
Total	83.6	147.5	506.9	471.0	326.0	572.3	3480.9	2855.1	1003.9	246.3	47.0	66.6	9,807.1	
Average	11.9	18.4	72.4	67.3	46.6	81.8	497.3	407.9	143.4	35.2	6.7	9.5	1,398.4	
1962	No record													

TABLE 1.41

Temperature at	Fiche				in degrees Centigrade					Elevation <u>2,820</u>			meter	
	<u>Average Daily Temperature</u>													
1960	13.5	13.8	14.3	14.8	14.7	15.1	12.1	12.3	12.0	11.3	10.8	11.2	155.9	13.0
1961		12.5												
Total	13.5	26.3	14.3	14.8	14.7	15.1	12.1	12.3	12.0	11.3	10.8	11.2		
Average	13.5	13.2	14.3	14.8	14.7	15.1	12.1	12.3	12.0	11.3	10.8	11.2	155.3	12.9
1962	No record													
	<u>Average of Daily Maxima</u>													
1960	19.1	18.9	19.7	20.3	20.0	20.8	15.3	15.9	15.6	15.6	14.8	15.2	211.2	17.6
1961		17.4												
Total	19.1	36.3	19.7	20.3	20.0	20.8	15.3	15.9	15.6	15.6	14.8	15.2		
Average	19.1	18.1	19.7	20.3	20.0	20.8	15.3	15.9	15.6	15.6	14.8	15.2	210.4	17.5
	<u>Average of Daily Minima</u>													
1960	7.8	8.6	8.8	9.2	9.3	9.3	8.9	8.6	8.4	6.9	6.7	7.1	99.6	8.3
1961		7.7												
Total	7.8	16.3	8.8	9.2	9.3	9.3	8.9	8.6	8.4	6.9	6.7	7.1		
Average	7.8	8.2	8.8	9.2	9.3	9.3	8.9	8.6	8.4	6.9	6.7	7.1	99.2	8.3

Table 1.42

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
<u>Galabat, Sudan</u>														
<u>18 years</u>														
<u>average</u>	0.0	1.0	3.1	9.9	62.0	149.1	199.9	245.1	160.0	43.9	3.8	0.0	877.8	
<u>Total</u>														
<u>Average</u>	0.0	1.0	3.1	9.9	62.0	149.1	199.9	245.1	160.0	43.9	3.8	0.0	877.8	

* This data is copied from a book, Climate & Man

1-23-52
1-11-52
Bureau of Reclamation

RAIN 1.43

Temperature at Galabat, Sudan

in degrees Centigrade

Elevation 263 meters

263

meters

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL	PERCENT

25.7

24.8

23.6

22.7

From Climate and Rain, p. 683.

Table 1.44

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	PERCENT MEAN
Gimbi														
1954	0.0	0.0	36.2	42.7	284.3	331.0	285.0	374.1	439.3	81.4	11.2	18.7	4,903.9	
1955	53.6	0.0	35.2	168.6	257.9	388.0	322.5	430.0	349.3	116.7	11.1	0.0	2,132.9	
1956	15.2		78.8	47.9			364.3	435.7	459.1	340.1			1,741.1	
1959					267.5	278.1	297.5	368.7	315.0				1,526.8	
1960			11.0	129.0	198.5	525.9	370.2	388.0	430.4				2,053.0	
1961						321.5	379.6	437.5	593.7	169.5			1,901.8	
Total	68.8	0.0	161.2	388.2	1008.2	1844.5	2019.1	2434.0	2586.8	707.7	22.3	18.7	11,239.5	
Average	22.9	0.0	40.3	97.0	252.0	368.9	336.5	405.7	431.1	176.9	11.2	9.4	2,151.9	

TABLE 1.45

Temperature at Gimbi in degrees Centigrade Elevation 1,988 meters

<u>Average Daily Temperature</u>														
1954		23.8	23.7	22.3	20.6	19.0	19.9	20.1	20.0	21.4	20.7			
1955	23.2	23.8	23.7	21.7	21.4	20.4	17.8	18.4	18.9	20.5	21.0			
Total	23.2	23.8	47.5	45.4	43.7	41.0	36.8	38.3	39.0	40.5	42.4	20.7		
Average	23.2	23.8	23.2	22.7	21.8	20.5	18.4	19.1	19.5	20.2	21.2	20.7	254.8	21.2

<u>Average of Daily Maxima</u>														
1954		34.1	33.5	31.5	28.8	26.6	27.5	26.7	29.0	30.7	29.6			
1955	30.0	33.6	33.5	30.3	30.2	26.9	23.2	24.3	25.1	26.1	28.9			
1959				26.2	23.9	21.3	22.0	22.5	23.7					
1960		28.6	30.3	26.3	23.8	24.0	24.5	25.0						
Total	30.0	33.6	96.2	94.1	114.2	105.4	95.1	98.3	101.3	80.8	59.6	29.6		
Average	30.0	33.6	32.1	31.4	28.6	26.3	23.6	24.6	25.3	26.9	29.8	29.6	342.0	28.5
1962	No record													

<u>Average of Daily Minima</u>														
1954		13.5	13.9	13.0	12.3	11.3	12.3	11.5	11.5	12.0	11.8			
1955	16.4	13.9	13.9	13.1	12.5	11.6	12.4	12.5	12.7	12.8	13.1			
Total	16.4	13.9	27.4	27.0	25.5	24.1	23.7	24.8	24.2	24.3	25.1	11.8		
Average	16.4	13.9	13.7	13.5	12.7	12.1	11.8	12.4	12.1	12.1	12.5	11.8	155.0	12.9

Table 1.46

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
Gondar														
1952						132.6	225.8	367.4	50.4	37.2	3.2	7.6	824.2	
1953	0.0	52.7	1.5	53.4	110.2	162.3	316.1	461.8	126.4	26.7	3.7	24.3	1,339.1	
1954	0.0	19.3	1.9	22.4	15.6	242.7	421.0	402.0	261.6	3.6	9.5	10.0	1,409.8	
1955	5.0	10.7	24.2	68.7	44.5	223.0	370.9	331.3	149.6	0.0	90.8	23.5	1,342.2	
1956	0.0	0.0	11.4	102.3	15.7	145.1	352.8	280.9	109.6	87.8	10.2	0.0	1,115.8	
1957	4.7	8.1	60.4	1.0	105.8	215.5	235.2	294.0	50.5	38.1	58.1	6.5	1,077.9	
1958	1.2	17.5	1.8	46.4	105.2	122.1	298.7	360.4	86.5	112.2	111.5	71.2	1,334.7	
1959	4.3	0.4	15.4	91.8	98.1	208.2	332.8	344.7	198.6	59.6	14.2	3.0	1,371.1	
1960						97.4		267.3	106.6	4.3	20.1	33.5	529.2	
1961	9.7							263.6					273.3	
Total	24.9	108.7	116.6	386.0	495.3	1548.9	2553.3	3373.4	1139.8	369.5	321.3	179.6	10,012.3	
Average	3.1	15.5	16.6	55.1	70.8	172.1	319.2	337.3	126.6	41.0	35.7	20.0	1,213.0	
1962	No record													

TABLE 47

Temperature at	Gondar										in Degree Centigrade				Elevation		2,121 meters	
	<u>Average of Daily Maxima</u>																	
1953	29.1	29.5	30.3	28.8	28.4	24.5	20.9	22.7	24.4	27.0	27.9	25.9	319.4	26.6				
1954	29.3				23.5	20.5	20.3	22.7	25.9	26.9	26.9							
1955	28.9	29.4	28.0	28.0	24.8	21.9	21.7	23.7	27.3	25.4	25.5	25.9	310.5	25.9				
1956	26.2	29.0	30.0	27.7	28.7	24.1	21.1	21.0	23.9	24.4	36.0	26.5	308.6	25.2				
1957	27.7	27.6	26.4	29.8	27.7	24.7	22.9	22.4	25.2	27.2	27.5	27.6	316.7	26.4				
1958	27.6	28.2	30.9	29.4	29.0	24.2	21.9	22.9			26.4	26.2						
1959	26.9	28.5	29.7	29.1	28.1	25.8	20.9	21.7	23.4		26.2	26.7						
1960						26.2		22.8	24.9	26.2	26.7	26.9						
1961		25.6		20.0		25.5		21.3	22.6	23.8		24.6						
Total	195.7	197.8	175.3	192.8	190.2	217.4	149.7	201.2	197.6	180.9	213.1	210.3						
Average	28.0	28.3	29.2	27.5	27.2	24.2	21.4	22.4	24.7	25.6	26.6	26.3	311.6	26.0				
1962									21.6	24.3	24.6	25.8						
Total	195.7	197.8	175.3	192.8	190.2	217.4	149.7	201.2	219.2	205.2	247.7	236.1						
Average	28.0	28.3	29.2	27.5	27.2	24.2	21.4	22.4	24.4	25.6	27.5	26.2	311.9	26.0				

TABLE 1

Year	Gondar												Total	Average
	in degrees Centigrade												2,121	degrees
	<u>Average Daily Temperature</u>													
1953	20.1	21.2	22.3	21.6	21.6	18.9	17.1	17.7	18.5	19.6	19.7	17.8	236.1	19.7
1954	19.2	20.9				16.5	17.0	17.1	17.8	18.8	19.5	18.3		
1955	18.2	19.8	20.8	20.6	20.7	18.5	17.0	16.6	17.8	18.3	20.9	17.4	226.6	18.9
1956	16.6	20.0	21.6	21.0	21.0	18.6	17.0	16.8	18.1	18.4	18.3	18.8	226.2	18.9
1957	18.7	18.9	19.9	21.3	21.2	19.3	18.3	17.8	18.6	20.3	20.0	19.6	234.4	19.5
1958	19.7	19.7	23.2	22.5	22.2	19.0	17.7	17.7			16.8	18.3		
1959	18.7	20.1	21.9	22.4	21.6	19.8	17.3	17.5	18.1		16.8	18.2		
1960						19.8		16.5	18.9	19.1	18.2	18.3		
1961		18.5		16.2		19.4			17.0	16.6		19.5		
Total	131.2	159.1	129.7	146.1	128.3	171.8	121.4	137.7	144.8	131.1	152.2	166.2		
Average	18.7	19.9	21.6	20.9	21.4	19.0	17.3	17.2	18.1	18.7	19.0	18.5	230.3	19.2
1962									15.9	16.3	16.2	16.5		
Total	131.2	159.1	129.7	146.1	128.3	171.8	121.4	137.7	160.7	147.4	168.4	182.7		
Average	18.7	19.9	21.6	20.9	21.4	19.1	17.3	17.2	17.9	18.4	18.7	18.3	229.4	19.1

TABLE 1

Temperature at Gondar in degrees Centigrade Elevation 2,121 meters

	<u>Average of Daily Minima</u>													
1955	11.1	12.8	14.5	14.4	14.8	13.2	13.2	12.7	12.6	12.2	11.4	9.7	152.4	12.7
1954	9.9	12.4	13.7	14.2	14.3	13.4	13.3	13.3	12.8	11.7	12.0	9.6	150.6	12.6
1955	9.8	10.7	12.1	12.8	13.4	12.3	12.1	11.8	12.0	10.4	10.9	9.1	137.4	11.4
1956	7.1	11.8	13.2	14.2	13.3	13.0	12.9	12.5	12.3	12.3	10.6	11.0	144.2	12.0
1957	9.7	10.2	13.3	13.8	14.7	13.8	13.7	13.2	12.0	13.3	12.5	11.5	151.7	12.6
1958	11.8	11.2	15.4	15.9	15.4	13.8	13.9	13.1			11.1	10.4		
1959	10.4	11.7	14.0	15.6	15.0	13.7	13.5	13.3	12.8		11.2	10.7		
1960						13.3		10.2	12.9	11.9	9.7	9.6		
1961	11.3		12.8			13.3			11.4	9.3		14.3		
Total	69.8	92.1	96.0	113.7	100.9	119.8	92.6	100.1	98.8	81.1	89.4	95.9		
Average	10.0	11.5	13.7	14.2	14.4	13.3	13.2	12.5	12.4	11.6	11.2	10.7	148.7	12.4
1962									10.2	8.2	7.9	7.8		
Total	69.8	92.1	96.0	113.7	100.9	119.8	92.6	100.1	109.0	89.3	97.3	103.7		
Average	10.0	11.5	13.7	14.2	14.4	13.3	13.2	12.5	12.1	11.2	10.8	10.4	147.3	12.4

TABLE 1.50

Year	Order of Day	in degrees Centigrade	1950	meters
<u>Average Daily Temperature</u>				
1951		16.1 17.9 17.9 18.0		
<u>Average of Daily Maxima</u>				
1952	26.1	25.8, 23.7 23.5 23.9		
<u>Average of Daily Minima</u>				
1952		6.5 12.2 12.3 12.2		
<u>Precipitation</u>				
1952	21.0	216.5 124.7		

Table 1.51

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
Jima Agricultural School														
1955	21.7	20.0	83.8	142.3	141.5	334.5	339.0	279.0	202.0	49.0	30.0	106.0	1,798.8	
1956	21.0	12.0	107.0	316.0	142.0	229.0	163.0	263.0	222.0	29.0	19.0	18.0	1,541.0	
1957	5.0	52.0	137.5	171.1	244.5	221.0	197.6	216.0	91.5	95.1	40.5	1.5	1,473.3	
1959	57.0	111.5	74.0	87.2	158.0	136.5	211.9	125.8		203.8	18.7	41.0	1,225.4	
1960	14.3	41.1	93.9	109.7	250.5	182.9	177.1	193.3	200.3	30.7	15.3	30.0	1,339.1	
1961		63.8	154.1	170.5	103.3	167.2	196.7	327.7	180.0	113.2	200.0		1,676.5	
Total	169.0	300.4	650.3	996.8	1039.8	1271.1	1285.3	1404.8	895.8	520.8	323.5	196.5	9,054.1	
Average	33.8	50.1	108.4	166.1	173.3	211.8	214.2	234.1	179.2	86.8	53.9	39.3	1,551.0	
1962	0.0	0.0	91.0		167.0	222.9		311.0	215.7	45.0		75.0		
Total	169.0	300.4	741.3	996.1	1206.8	1494.0	1285.3	1715.8	1111.5	565.8	323.5	271.5		
Average	28.0	42.9	105.8	166.0	172.4	213.4	214.2	245.1	183.9	80.8	53.9	45.2	1,551.6	129.3

TABLE 1.52

Temperature at <u>Jima Agricultural School</u> in degrees Centigrade										Elevation <u> </u> meters				
YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	PERCENT MEAN
<u>Average of Daily Maxima</u>														
1954	28.9	29.5	28.6		27.2	24.6	21.6	22.4	23.3	24.6	26.3			
1955	25.5	26.8	28.7	26.5	25.7	25.0	22.9	21.6	23.0	24.7	25.6	24.8	300.8	25.1
1956	25.2	26.9	28.0	25.1	25.1	23.6	21.2	22.5	23.6	24.0	25.2	26.6	297.0	24.8
1957	28.5	27.0	24.9	25.4	25.6	24.1	22.9	22.8	25.0	26.2	26.5	26.9	305.8	25.5
1958	27.0	27.5							23.5	25.2	26.1	26.3		
1959	26.0	26.7	27.0	27.1	25.1	24.2	21.5	22.1	23.5	24.5	25.1	25.8	298.6	24.9
1960	26.4	26.9	26.5	26.6	24.6	23.1	17.8	19.7	19.6	20.4	21.2	21.3	274.1	22.8
1961		22.7	22.1	21.9	21.1	20.7	19.7	20.5	25.9	22.5	21.4	22.8		
Total	187.5	214.0	185.8	152.6	174.4	165.3	147.6	151.6	187.4	192.1	197.4	174.5		
Average	26.8	26.8	26.5	25.4	24.9	23.6	21.1	21.7	23.4	24.0	24.7	24.9	293.8	24.5
1962	25.4	27.3	25.5	26.3	24.6	23.6	21.9	21.7	22.6	26.3		27.2		
Total	212.9	241.3	211.3	178.9	199.0	188.9	169.5	173.3	210.0	218.4	197.4	201.7		
Average	26.6	26.8	26.4	25.6	24.9	23.6	21.2	21.7	23.3	24.3	21.9	25.2	291.5	24.3
<u>Average of Daily Minima</u>														
1954	7.3	11.9	15.0		14.6	14.4	14.2	14.2	13.7	9.6	8.7			
1955	11.2	14.9	16.5	15.3	15.0	15.9	14.9	14.1	14.7	13.1	13.4	13.5	172.5	14.4
1956	10.1	8.4	11.8	14.3	16.3	13.4	13.5	13.4	13.5	13.0	6.2	8.4	142.3	11.9
1957	9.3	12.0	13.7	13.7	12.7	13.6	13.9	13.8	12.5	10.6	10.7	7.4	144.4	12.0
1958	11.2	12.7							13.0	11.5	8.3	6.5		
1959	11.3	14.7	11.8	12.6	13.6	13.2	13.2	13.3	13.5	13.1	7.5	9.1	146.9	12.2
1960	9.2	11.1	12.7	13.3	13.8	11.0	11.8	11.6	11.8	9.8	7.4	7.7	131.2	10.9
1961		6.9	10.2	13.2	8.3	11.3	12.1	13.9	16.8	10.2	11.5	9.5		
Total	69.4	95.1	91.7	82.4	94.3	92.8	93.6	94.3	109.5	90.9	73.7	62.1		
Average	9.9	11.5	11.1	13.7	13.5	13.3	13.4	13.5	13.7	11.4	9.2	8.9	145.5	12.1
1962	7.6	6.2	11.3	11.8	12.4	12.1	11.9	11.7	11.9	7.3		7.8		
Total	77.5	104.3	103.0	94.3	106.7	104.9	105.5	106.0	121.4	98.2	73.7	69.9		
Average	9.6	11.3	11.9	13.5	13.3	13.1	13.2	13.3	13.5	10.9	8.2	8.8	141.6	11.3

TABLE 1.5

Year	Temperature at <u>Jima Agricultural School</u> in degrees Centigrade										Elevation <u> </u> meters			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<u>Average Daily Temperature</u>														
1954	15.1	20.7	21.8		20.9	19.5	17.9	18.3	18.5	17.1	17.2			
1955	18.4	20.9	22.6	20.9	20.3	20.5	18.9	17.9	18.9	18.9	19.5	19.2	236.9	19.7
1956	17.0	17.7	19.9	19.6	19.4	18.5	17.4	17.8	18.5	18.5	15.8	17.4	217.5	18.1
1957	18.9	19.7	19.3	19.5	19.1	18.9	18.4	18.3	18.8	18.5	18.5	17.2	225.1	18.8
1958	19.1	20.1							18.3	18.3	17.3	16.4		
1959	18.7	19.4	19.5	19.9	19.3	19.7	17.3	17.7	18.4	18.8	16.5	17.5	221.7	18.5
1960	17.8	19.0	19.6	20.0	19.2	17.1	14.8	15.7	15.7	15.1	14.3	14.5	202.8	16.9
1961		15.8	16.2	17.6	16.7	16.0	15.9	17.2	21.4	16.4	16.4	16.2		
Total	125.0	153.3	138.9	117.5	134.9	129.2	120.6	122.9	148.5	141.6	135.5	118.4		
Average	17.9	19.2	19.8	19.6	19.3	18.5	17.2	17.6	18.6	17.7	16.9	16.9	219.2	18.3
1962	16.5	16.8	18.4	19.1	18.5	17.9	17.0	16.7	17.3	16.8		17.5		
Total	141.5	170.1	157.3	136.6	153.4	147.1	137.6	139.6	165.8	158.4	135.5	135.9		
Average	17.7	18.9	19.7	19.5	19.2	18.4	17.2	17.4	18.4	17.6	16.9	17.0	217.9	18.2

Table 1.54

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
Kembolcha, near Dessie														
1952						39.0	326.6	375.8	117.3	46.4	0.0	0.0	905.1	
1953	3.2	59.6	4.0	170.0	35.3	28.1	432.9	252.6	247.1	1.8	0.0	52.8	1,287.4	
1954	0.0	72.5	80.7	73.0	26.4	62.4	377.6	298.5	186.5	16.5	7.0	8.6	1,209.7	
1955	101.2	3.1	44.3	108.6	20.6	0.0	396.7	287.3	192.3	0.0	0.0	29.0	1,183.1	
1956	28.8	7.0	29.5	143.2	0.0	0.0	163.4	274.1	147.0	73.5	15.0	0.0	881.1	
1957	6.7	104.7	264.9	95.1	56.6	23.0	237.2	346.9	108.1	3.0	24.4	0.0	1,270.6	
1958	93.1	39.7	120.3	67.3	68.0	38.4	251.1	237.2	74.6	77.3	1.8	30.6	1,099.4	
1959	25.5	106.5	43.6	27.8	0.0	41.0	303.0	304.1	176.7	33.3	2.4	15.0	1,078.9	
1960	23.3	18.4	82.0	17.3	48.6	2.5	252.9	188.5	151.4	16.0	25.2	8.3	834.4	
1961	0.0	61.0	114.8	142.5	51.0	28.6	214.2	227.5	97.5	6.5	28.0	22.5	994.1	
Total	281.8	472.5	783.7	844.8	306.5	263.0	2955.6	2792.5	1498.5	274.3	103.8	166.8	10,743.8	
Average	31.3	52.5	87.1	93.9	34.0	26.3	295.6	279.2	149.8	27.4	10.4	16.7	1,104.2	
1962	0.0	0.0	77.2	67.5	52.6	72.1	204.7	341.6	152.6	59.4	39.3	14.2	1,081.2	
Total	281.8	472.5	861.3	912.3	359.1	335.1	3160.3	3134.1	1651.1	333.7	143.1	181.0		
Average	28.2	47.2	86.1	91.2	35.9	30.5	287.3	284.9	150.1	30.3	13.0	16.5	1,101.2	

TABLE 1.55

Temperature at Kembolcha in degrees Centigrade Elevation 1,103 meters

	<u>Average of Daily Minima</u>												MEAN	
	1953	1954	1955	1956	1957	1958	1959	1960	1961	Total	Average	1962		Total
	7.6	9.9	11.3	12.6	11.3	13.3	12.0	11.9	11.6	16.6	7.8	9.2	137.1	11.4
	5.6	9.3	10.2	11.2	11.4	11.9	10.1	10.4	12.3	10.4	8.3	7.8	118.9	9.9
	11.9	9.6	11.7	13.5	14.4	14.6	12.9	13.1	13.5	11.1	9.6	11.0	147.5	12.3
	11.4	9.8	12.6	14.1	13.7	13.3	15.1	14.3	13.7	12.1	7.4	7.9	145.6	12.1
	9.7	11.1	13.7	14.0	13.7	15.7	14.7	14.3	13.6	13.1	10.0	8.7	152.3	12.7
	12.3	13.2	12.9		14.2	15.9	15.4	14.8	14.5	12.7	9.3	11.1		
	12.8	13.5	13.7	14.2		15.1	14.8	14.4	14.0	12.3	9.5	9.3		
	9.7	11.1	13.8	13.6	15.0	15.6	14.5	14.9	14.1	10.0	9.4	9.7	151.4	12.6
	8.9	10.0	12.3	14.0	14.2	14.7		14.3	12.6	10.4	10.3	10.1		
Total	89.9	97.7	112.4	107.2	107.9	130.3	109.5	122.4	119.9	110.7	61.8	84.8		
Average	10.0	10.8	12.5	13.4	13.5	14.5	13.7	13.6	13.3	12.3	9.1	9.4	146.1	12.2
1962	8.7	8.9	12.9	13.3	14.4	15.0	14.7	14.0	13.8	9.5	9.9	8.8		
Total	98.6	106.6	125.3	120.5	122.3	145.3	124.2	136.4	133.7	120.2	91.7	93.6		
Average	10.0	10.7	12.5	13.4	13.6	14.5	13.8	13.6	13.4	12.0	9.2	9.4	146.1	12.2

TABLE 1.56

Temperature at Kembolcha in degrees Centigrade Elevation 1,903 meters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
<u>Average Daily Temperature</u>														
1953	15.7	18.3	19.7	19.4	20.2	22.3	18.9	19.3	18.5	17.1	16.1	15.9	221.4	18.5
1954	15.6	18.2	18.9	20.1	20.8				18.4	17.1	15.9	15.0		
1955	17.0	17.0												
1956					21.5	21.4	21.0	19.7	19.5	17.6	14.9	15.8		
1957	17.5	17.4	19.0	19.8	20.5	23.1	21.7	20.3	20.0	19.6	17.1	16.4	232.4	19.4
1958	18.0	18.3	20.1		22.4	22.9	21.8	20.6	20.6	18.9	17.1	17.5		
1959	18.2	19.0	19.3	21.3				20.4	19.8	18.6	17.0	16.2		
1960	16.7	18.6	20.3	21.0	22.3	23.7	21.0	21.5	20.0	17.4	17.1	16.6	236.2	19.7
1961	17.1	17.6	19.4	20.2	21.7	22.6		20.4	19.1	18.2	16.6	16.4		
Total	135.8	144.4	136.7	121.8	149.4	136.0	104.4	142.2	155.9	144.5	131.8	129.8		
Average	17.0	18.0	19.5	20.3	21.3	22.7	20.9	20.3	19.5	18.1	16.5	16.2	230.3	19.2
1962	16.4	18.0	19.8	21.2	21.9	22.9	21.9	20.0	20.1	16.9	16.4	16.3		
Total	152.2	162.4	156.5	143.0	171.3	158.9	126.3	162.2	176.0	161.4	148.2	146.1		
Average	16.9	18.0	19.6	20.4	21.4	22.7	21.0	20.3	19.6	17.9	16.5	16.2	230.5	19.2

TABLE 1.57

Temperature at	<u>Kumbolcha</u>										Elevation <u>1,903</u> meters			
	in degrees Centigrade										TOTAL	MEAN		
	<u>Average of Daily Maxima</u>													
1953	23.8	26.6	28.1	26.1	29.3	31.3	25.8	26.7	25.4	25.5	24.9	25.5	316.0	26.3
1954	25.5	27.1	27.0	28.9	30.2	31.9	21.0	25.5	24.4	23.7	23.5	22.1	310.8	25.9
1955	22.1	24.1	26.8	25.1	27.2	29.2	26.3	24.6	23.6	23.4	23.0	22.0	297.4	24.8
1956					29.3	29.4	26.9	25.0	25.3	23.0	22.4	23.6		
1957	25.2	23.7	24.3	25.5	27.3	30.5	28.7	26.2	26.3	26.0	24.2	24.0	311.9	26.0
1958	23.6	23.4	27.2		30.5	29.9	28.1	26.4	26.6	25.1	24.8	23.8		
1959	23.9 ¹	24.5	25.9	28.7				26.3	25.5	24.9	24.4	23.1		
1960	23.7	26.1	26.8	28.3	29.5	31.8	28.4	28.1	25.9	24.8	24.8	23.4	321.6	26.8
1961	25.3	25.2	26.3	26.2	29.2	30.4		26.5	25.6	25.9	22.9	22.9		
Total	193.1	200.7	212.4	188.8	232.5	244.4	185.2	235.3	228.6	222.3	214.9	207.2		
Average	24.1	25.1	26.6	27.0	29.1	30.6	26.5	26.1	25.4	24.7	23.9	23.0	312.1	26.0
1962	24.0	26.9	26.8	29.1	29.5	30.8	29.1	25.9	26.1	24.3	22.9	23.7		
Total	217.1	227.6	239.2	217.9	262.0	275.2	214.3	261.2	254.7	246.6	237.8	234.1		
Average	24.1	25.3	26.6	27.2	29.1	30.6	26.8	26.1	25.5	24.7	23.8	23.4	313.2	26.0

Table 1.58

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
Lekkerdt														
1952	0.0					216.0	411.6	352.1	359.2	129.1			1,468.0	
1953	0.0	54.7	69.9	149.5	272.0	373.1	408.7	194.0	90.5	166.6	25.5	0.0	1,804.5	
1955					221.9	456.0	356.9	455.2	365.8	185.6			2,041.4	
1956					133.0	543.0	355.0	311.0	80.0	236.0			1,658.0	
1957		111.0	321.3	52.0					248.3	164.5			897.1	
1958	13.2	9.6	6.0	20.3	72.0	329.0	230.2	228.3	143.2	88.1	32.2	0.0	1,172.1	
1959	21.7	12.2	18.0	162.0	279.0							1.5	494.4	
1960	46.3	59.5	98.9	32.5	240.5	510.0	372.1	410.8	408.5	83.5	39.5	65.5	2,367.6	
1961				242.0	170.6	373.5	447.0	438.0					1,671.1	
Total	81.2	247.0	514.1	658.3	1389.0	2800.6	2581.5	2389.4	1695.5	1053.4	97.2	67.0	13,574.2	
Average	16.2	49.4	102.8	109.7	198.4	400.1	368.8	341.3	242.2	150.5	32.4	16.8	2,028.6	
1962	No record													

TABLE 1.57

Temperature at Lakkant in degrees Centigrade Elevation 2,005 meters

<u>Average Daily Temperature</u>														
1960	17.5	18.5	18.6	19.4	17.9	16.8	15.4	17.1	18.0	19.2	20.0	20.7	219.3	18.3
1961				18.4	20.0	17.9	15.1	15.3						
Total	17.5	18.5	18.8	37.8	37.9	34.7	30.5	32.4	18.0	19.2	20.0	20.7		
Average	17.5	18.5	18.8	18.9	18.9	17.3	15.2	16.2	18.0	19.2	20.0	20.7	219.2	18.3
1962 No record														
<u>Average of Daily Maxima</u>														
1960	24.1	24.9	25.4	25.8	23.6	21.9	20.1	20.6	21.3	23.0	22.5	23.7	276.9	23.1
1961				24.4	26.0	22.4	20.0	20.5						
Total	24.1	24.9	25.4	50.2	49.6	44.3	40.1	41.1	21.3	23.0	22.5	23.7		
Average	24.1	24.9	25.4	25.1	24.8	22.1	20.0	20.5	21.3	23.0	22.5	23.7	277.4	23.1
<u>Average of Daily Minima</u>														
1960	10.8	12.0	12.1	13.0	12.2	11.7	10.7	13.0	14.7	15.3	17.5	17.6	160.6	13.4
1961				12.4	13.9	13.3	10.2	10.4						
Total	10.8	12.0	12.1	25.4	26.1	25.0	20.9	23.4	14.7	15.3	17.5	17.6		
Average	10.8	12.0	12.1	12.7	13.0	12.5	10.4	11.7	14.7	15.3	17.5	17.6	160.3	13.4

Table 1.60

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent Normal
Hendri														
1955					301.5	199.4	392.4	288.1	365.5	121.5	13.0	0.0	1,681.4	
1956	0.0	0.0	23.5	98.1	113.4	322.1	243.5	258.2	446.9	236.5	37.0	14.5	1,793.2	
1957	0.0	0.0	118.5	118.9	194.2	306.5	198.5	488.5	303.5	142.5	64.5	0.0	1,855.0	
1958	39.0	0.0	0.0	189.8	203.5	241.0	242.5	378.1	200.0	115.5	75.0	0.0	1,684.4	
1959	0.0	1.0	7.0	103.0	163.8	218.8	275.3	243.8	411.6	171.6	85.4	0.0	1,681.5	
1960	0.0	24.0	0.0	117.8	140.3	297.6	411.2	257.2	437.8	172.2	27.0	28.8	1,893.9	
1961		9.0		56.2	28.2	392.2	310.9	337.1	324.5	89.5		0.0	1,547.6	
Total	39.0	34.0	149.0	583.2	1144.9	1987.6	2074.3	2251.0	2489.8	1049.3	281.9	43.3	12,117.3	
Average	7.8	5.7	29.8	97.2	163.6	282.5	296.3	321.6	355.7	149.7	47.0	6.2	1,763.1	
1962	0.0	0.0	72.2		169.0	411.2								
Total	39.0	34.0	221.2	583.2	1313.9	2388.8	2074.3	2251.0	2489.8	1049.3	281.9	43.3		
Average	6.5	4.9	36.9	97.2	164.2	298.6	296.3	321.6	355.7	149.9	47.0	6.2	1,785.0	

TABLE 1.61

Temperature at Mendi in degrees Centigrade Elevation 1,767 meters

											MAX	MEAN		
<u>Average Daily Temperature</u>														
1959					21.0	19.4	18.0	18.2	19.2					
1960	19.7	^E 22.0	22.7	20.0	20.6	19.1	18.0	18.8	18.8	19.0	19.3	20.1	240.1	20.0
1961		21.4		23.2	23.0	19.7	17.5	17.9	18.6	18.6		18.6		
Total	19.7	43.4	22.7	45.2	64.6	58.2	53.5	54.9	56.6	37.6	19.3	38.7		
Average	19.7	21.7	22.7	22.6	21.5	19.4	17.8	18.3	18.9	18.8	19.3	19.3	240.0	20.0
1962	19.3	21.5	22.1		20.3	19.0	18.1	16.8	19.3	19.4				
Total	39.0	64.9	44.8	43.2	84.9	77.2	71.6	71.7	75.9	57.0	19.3	38.7		
Average	19.5	21.6	22.4	21.6	21.2	19.3	17.9	17.9	19.0	19.0	19.3	19.4	238.1	19.9
<u>Average of Daily Maxima</u>														
1959					25.8	24.3	22.1	22.3	23.7	24.4	26.4	27.4		
1960	26.5	28.9	29.9	28.4	26.2	24.1	22.2	23.4	23.8	24.1	25.1	26.9	309.5	25.8
1961		28.6		30.1	29.5	24.4	21.3	21.9	23.3	23.4		24.9		
Total	26.5	57.5	29.9	58.5	81.5	72.8	65.6	67.6	70.8	71.9	51.5	79.2		
Average	26.5	28.7	29.9	29.2	27.2	24.3	21.9	22.5	23.6	24.0	25.8	26.4	310.0	25.8
1962	26.7	29.6	29.2		25.6	23.9	22.6	19.8	23.7	25.6				
Total	53.2	87.1	59.1	58.5	107.1	96.7	88.2	87.4	94.5	97.5	51.5	79.2		
Average	26.6	29.0	29.6	29.2	26.8	24.2	22.0	21.9	23.6	24.4	25.8	26.4	309.5	25.8
<u>Average of Daily Minima</u>														
1959					16.1	14.4	13.8	14.0	14.6					
1960	12.9	^E 15.1	15.4	15.5	15.0	14.0	13.8	14.1	13.7	13.8	13.5	13.2	170.0	14.2
1961		14.3		16.3	16.5	14.9	13.7	13.9	14.0	13.7		12.3		
Total	12.9	29.4	15.4	31.8	47.6	43.3	41.3	42.0	42.3	27.5	13.5	25.5		
Average	12.9	14.7	15.4	15.9	15.9	14.4	13.8	14.0	14.1	13.7	13.5	12.7	171.0	14.3
1962	11.8	13.4	14.9		15.0	14.0	13.8	13.8	13.9	13.2				
Total	24.7	42.8	30.3	31.8	62.6	57.3	55.1	55.8	56.2	40.7	13.5	25.5		
Average	12.4	14.2	15.2	15.9	15.6	14.3	13.8	13.9	14.0	13.6	13.5	12.8	169.2	14.1

Table 1.62

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	PERCENT MEAN
Nejo														
1953	0.0	25.5	25.0	105.0	103.0	375.0	225.0	401.1	353.3				1,611.1	
1954	0.0	18.0	20.5	21.5	186.0	273.5	245.5	391.5	238.5	66.0	0.0	0.0	1,461.0	
1955						300.5	310.0	363.5	363.5	65.0	15.0		1,417.5	
1956	0.0	0.0	58.0	57.5	187.0	399.5	391.5	241.5	388.5	331.0	0.0	37.0	2,091.5	
1957		2.5	159.0	19.5	234.5	229.6	344.1	421.6	204.5	130.0	54.0	0.0	1,799.3	
1958	16.0	15.0	0.7	88.6	191.7	327.4	311.0	458.8	327.5	202.0	26.5	0.0	1,965.2	
1959	1.5	10.0	6.0	164.5	203.0	317.5	283.2	322.5	431.5	216.5	39.9	82.0	2,018.1	
1960	3.0	18.3	2.5	110.0	218.6	492.2	472.9	407.2	454.2	83.7	11.2	12.0	2,275.8	
1961	0.0	66.9	5.3	54.3	187.8	370.5	309.5	363.7	353.1	110.6	33.6		1,855.3	
Total	20.5	154.2	277.0	620.9	1511.6	3085.7	2892.7	3771.4	3114.8	1204.8	170.2	71.0	16,494.8	
Average	2.9	19.3	34.6	77.6	189.0	342.8	321.4	374.6	346.1	150.6	21.3	11.8	1,892.0	
1962	0.0	0.0	16.5	30.5	309.1	233.5	286.5	293.5	272.0			4.0		
Total	20.5	154.2	293.5	628.4	1820.7	3319.2	3179.2	3664.9	3386.6	1204.8	170.2	75.0		
Average	2.6	17.1	32.6	80.9	202.3	331.9	317.9	366.5	338.7	150.6	21.3	10.7	1,823.1	

TABLE 1.63

Temperature at <u>Nejo</u> in degrees Centigrade										Elevation <u>1,900</u> meters				
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL	YEAR
<u>Average Daily Temperature</u>														
1959					19.2	18.0	16.7	16.8	17.3	17.7	18.6	19.3		
1960	19.7	19.1	22.0	21.0	19.7	18.1	16.7	17.8	18.1	18.7	19.3	20.3	230.5	19.2
1961	20.5	19.8	22.0	21.8	21.7	18.2	16.6	17.0	17.6	17.9		18.3		
Total	40.5	38.9	44.0	42.8	60.6	54.3	50.0	51.6	53.0	54.3	37.9	57.9		
Average	20.2	19.4	22.0	21.4	20.2	18.1	16.7	17.2	17.7	18.1	18.9	19.3	229.2	19.1
1962	18.7	20.4	20.7	21.4	18.8	17.7	16.4	15.8	16.0	17.6				
Total	59.2	59.3	64.7	64.2	79.4	72.0	66.4	67.4	69.0	71.9	37.9	57.9		
Average	19.7	19.8	21.6	21.4	19.9	18.0	16.6	16.9	17.3	18.0	18.9	19.3	227.4	19.0
<u>Average of Daily Maxima</u>														
1959					23.7	22.1	20.1	20.1	21.3	22.1	23.6	25.4		
1960	26.5	27.2	29.0	27.1	25.1	23.1	19.8	22.0	22.8	23.9	25.3	26.7	298.5	24.9
1961	27.9	26.5	28.8	28.6	28.2	22.7	20.2	20.8	22.7	23.0		23.3		
Total	54.4	53.7	57.8	55.7	77.0	67.9	60.1	62.9	66.8	69.0	48.9	75.4		
Average	27.2	26.8	28.9	27.8	25.7	22.6	20.0	21.0	22.3	23.0	24.4	25.1	294.8	24.6
1962	26.5	28.1	27.9	28.6	24.4	22.8	21.2	20.8	21.5	24.5				
Total	80.9	81.8	85.7	84.3	101.4	90.8	81.3	83.7	88.3	93.5	48.9	75.4		
Average	27.0	27.3	28.6	28.1	25.4	22.7	20.3	20.9	22.1	23.6	24.4	25.1	295.3	24.6
<u>Average of Daily Minima</u>														
1959					14.6	13.8	13.3	13.4	13.2	13.3	13.6	13.2		
1960	12.9	14.0	15.0	14.9	14.3	13.0	13.5	13.5	13.3	13.5	13.3	13.9	165.1	13.8
1961	13.7	13.2	15.1	15.0	15.2	13.6	13.0	13.1	12.5	12.7		13.4		
Total	26.6	27.2	30.1	29.9	44.1	40.4	39.8	40.0	39.0	39.5	26.9	40.5		
Average	13.3	13.6	15.0	15.0	14.7	13.5	13.3	13.3	13.0	13.2	13.4	13.5	164.8	13.7
1962	10.9	12.7	13.8	14.3	13.2	12.6	11.6	10.7	10.5	10.7				
Total	37.5	39.9	43.9	44.2	57.3	53.0	51.4	50.7	49.5	50.2	26.9	40.5		
Average	12.5	13.3	14.6	13.7	14.3	13.2	12.9	12.7	12.4	12.6	13.4	13.5	159.1	13.3

Table 1.64

Precipitation in millimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Percent MEAN
Konji Sugar Estate														
1951	0.0	0.0	145.0	66.0	36.0	59.0	148.0	172.0	86.0	62.0	0.0	12.0	786.0	
1952	2.0	0.0	63.0	140.0	31.0	62.0	275.0	291.0	59.0	5.0	0.0	0.0	928.0	
1953	0.0	11.0	23.0	97.0	37.0	73.0	98.0	154.0	39.0	0.0	0.0	38.0	570.0	
1954	0.0	2.0	26.0	38.8	30.0	130.0	244.5	245.0	84.0	41.0	2.0	0.0	843.3	
1955	12.0	0.0	8.0	44.0	31.0	32.0	189.0	148.0	145.0	10.0	0.0	4.0	623.0	
1956	0.0	11.0	98.0	8.0	5.0	70.0	193.0	230.0	98.0	131.0	2.0	4.0	850.0	
1957	9.0	46.0	75.0	137.0	27.0	59.0	186.0	95.0	32.0	23.0	0.0	2.0	691.0	
1958	48.0	75.0	46.0	19.0	26.0	91.0	355.0	267.0	207.0	32.0	5.0	0.0	1,170.0	
1959	12.0	53.0	33.0	41.0	64.0	56.0	170.0	140.0	91.0	0.0	1.0	32.0	693.0	
1960														
1961														
1962														
Total	84.0	198.0	517.0	590.8	287.0	632.0	1858.5	1742.0	841.0	303.0	10.0	92.0	7,154.3	
Average	9.2	22.0	52.4	65.6	31.9	70.2	206.5	193.6	93.4	33.7	1.1	10.2	794.8	

TABLE 1.65

Temperature at	<u>Nonji Sugar Estate</u> in degrees Centigrade										Elevation			Average
	<u>Average of Daily Maxima</u>										meters			
1953	25.0	29.3	29.9	29.3	31.0	29.9	25.4	26.0	27.3	29.1	26.8	24.2	333.2	27.8
1954	25.4	27.4	29.8	30.3	31.1	29.5	25.7	26.1	27.1	27.1	26.9	27.0	333.4	27.8
1955	27.0	27.5	31.0	30.5	31.0	30.3	27.5	26.3	26.8	27.1	26.7	26.0	337.7	28.1
1956	25.8	26.9	31.1	29.3	30.8	29.4	25.9	26.0	27.7	25.8	24.7	25.8	329.2	27.4
1957	27.2	27.4	27.3	28.2	29.9	30.5	27.7		29.5	29.1	28.8	26.9	312.5	28.4
1958	26.1	25.2	29.9	29.4	31.8	29.5	24.6	23.8	25.2	26.9	26.4	26.1	324.9	27.1
1959	26.4	27.3	28.7	30.8		28.4	25.6	24.7	25.7				217.6	27.2
1960														
1961														
1962	25.4												25.4	25.4
Total	208.3	191.0	207.7	207.8	185.6	207.5	182.4	152.9	189.3	165.1	160.3	156.0	2213.9	
Average	26.0	27.3	29.7	29.7	30.9	29.6	26.1	25.5	27.0	27.5	26.7	26.0	332.0	27.7

TABLE 1.66

Temperature at Wang Sugar Estate in degrees Centigrade

Elevation _____ meters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	Average
	<u>Average of Daily Minima</u>													
1953	9.2	12.8	14.5	16.7	14.5	16.4	15.0	16.0	14.9	11.5	11.9	11.1	165.3	13.8
1954	6.0	12.9	16.0	16.0	16.4	16.4	16.5	16.0	15.9	10.5	10.1	10.2	162.9	13.6
1955	14.0	9.4	14.3	15.4	15.3	17.1	16.1	16.3	15.5	11.0	11.4	12.2	168.0	14.0
1956	12.7	11.8	15.6	16.4	16.0	17.1	16.1	16.1	15.8	13.4	8.8	11.0	170.9	14.2
1957	12.3	14.5	15.4	15.4	14.9	16.5	16.8		14.8	12.5	13.5		146.6	14.7
1958	14.5	14.7	14.7	15.8	14.9	17.2	16.2	16.1	15.8	11.8	9.5	12.4	173.6	14.5
1959	13.0	14.5	14.1	15.3		16.5	16.5	16.3	16.1				122.3	15.3
1960														
1961														
1962	8.0												8.0	
<u>Total</u>	89.7	90.6	104.6	111.0	91.9	117.2	114.1	96.8	108.8	70.7	65.2	56.9	1117.5	
<u>Average</u>	11.2	12.9	14.9	15.8	15.3	16.7	16.3	16.1	15.5	11.8	10.9	11.4	168.8	14.1

TABLE 1.67

Temperature at Wonji Sugar Estate in degrees Centigrade Elevation meters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	PER Average
<u>Average Daily Temperature</u>														
1953	17.1	21.1	22.2	23.0	22.7	23.2	20.7	21.0	21.1	20.3	19.4	17.7	249.5	20.8
1954	15.7	20.2	22.9	23.2	23.8	23.0	21.1	21.1	21.5	18.8	18.5	18.6	248.4	20.7
1955	20.5	18.5	22.7	23.0	23.2	23.7	21.8	21.3	21.2	19.1	19.1	19.1	253.2	21.1
1956	19.3	19.4	23.4	22.9	23.4	23.3	21.0	21.1	21.8	19.8	16.8	18.4	250.6	20.9
1957	19.8	21.0	21.4	21.8	22.4	23.5	22.3		22.2	20.8	21.9		217.1	21.7
1958	20.3	20.0	22.3	22.6	23.4	22.9	20.4	20.0	20.5	19.4	18.0	19.3	249.1	20.8
1959	19.7	20.9	21.4	23.1		22.5	21.1	20.5	20.9				170.1	21.3
1960														
1961														
1962	16.7												16.7	16.7
Total	149.1	141.1	156.3	159.6	138.9	162.1	148.4	125.0	149.2	118.2	113.7	93.1	1654.7	
Average	18.6	20.2	22.3	22.8	23.2	23.2	21.2	20.8	21.3	19.7	19.0	18.6	250.9	20.9

TABLE 1.68

Climatic Data at Bahir Dar StationLatitude N. 11° 36'Elevation 1802 mLongitude E. 37° 24'Daily Evaporation in Centimeters for 1960

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	--	--	0.50	--	--	--	1.08	--	--	--	--	--
2	0.40	0.49	0.78	--	--	0.05	0.56	2.34	2.67	0.45	--	--
3	0.09	0.47	0.53	--	--	0.34	--	0.51	0.13	--	--	--
4	0.47	1.14	0.50	--	--	0.03	--	2.46	0.26	--	--	--
5	0.24	0.09	0.45	--	0.19	--	--	0.20	--	0.52	--	0.19
6	--	0.15	0.35	--	--	0.11	0.26	--	0.22	--	--	--
7	--	0.52	0.73	--	--	0.20	0.43	0.68	--	0.54	--	--
8	0.39	0.75	0.57	--	--	0.42	0.59	0.45	--	0.58	--	0.55
9	0.79	0.43	--	--	--	--	--	--	--	0.50	--	--
10	--	0.62	--	1.14	--	0.17	--	0.72	0.28	0.58	--	--
11	--	0.42	--	0.56	--	0.40	--	1.28	--	--	--	0.40
12	--	1.10	--	0.62	0.69	0.81	0.73	--	0.28	0.46	--	0.50
13	--	--	--	0.14	--	0.34	--	0.08	--	--	--	0.49
14	0.53	--	--	0.04	--	--	--	--	--	--	--	0.33
15	0.40	0.73	--	--	--	--	--	--	1.09	--	--	0.22
16	0.45	--	--	--	--	--	0.57	--	1.27	--	--	0.42
17	0.52	0.52	--	--	1.86	--	1.09	0.16	--	--	0.52	0.26
18	0.49	0.68	--	--	0.77	--	0.21	2.12	--	--	0.28	0.41
19	0.50	--	--	--	0.65	--	--	--	--	--	0.52	0.25
20	0.41	--	--	--	0.01	--	--	0.12	2.76	--	1.06	--
21	0.37	--	--	--	0.54	--	0.22	0.42	0.66	--	--	--
22	0.25	--	--	0.58	0.91	--	--	0.66	0.12	--	--	0.43
23	0.20	0.49	--	--	--	0.29	0.72	--	0.87	--	--	0.32
24	0.48	0.51	--	--	--	0.38	--	--	0.34	--	0.65	--
25	0.48	0.27	--	0.80	0.85	--	0.90	--	0.09	--	0.44	--
26	0.32	0.62	--	0.41	0.53	0.44	--	--	--	--	0.56	0.62
27	0.44	0.56	--	0.80	--	0.20	2.22	--	--	--	0.39	0.71
28	1.20	0.97	--	1.40	--	0.11	--	--	0.42	--	0.19	--
29	--	--	--	0.98	--	0.46	1.66	--	0.17	--	0.39	--
30	--	--	--	--	0.56	--	0.86	--	--	--	--	--
31	--	--	--	--	1.99	--	--	0.19	--	--	--	--

TABLE 1.69

Climatic Data at Asosa StationLatitude N.10° 30'Elevation 1700 mLongitude E. 34° 05'Daily Evaporation in Centimeters for 1960:

Day	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1							--	--	--	0.41	0.40	--
2							--	--	--	0.04	0.59	0.25
3							0.19	--	0.08	0.08	0.53	0.44
4							0.33	--	0.64	0.23	0.39	0.89
5							--	--	--	0.27	0.57	0.53
6							--	--	--	1.01	1.36	0.64
7							--	--	0.03	0.09	--	0.50
8							--	--	--	--	1.22	0.70
9							--	--	--	--	0.70	0.98
10							--	--	--	1.18	0.56	0.40
11							--	--	--	0.09	0.79	0.66
12							--	--	--	1.01	0.42	0.64
13							--	--	0.49	1.02	0.47	0.70
14							--	--	--	0.36	0.05	0.43
15							--	--	--	1.95	0.19	0.39
16							--	--	--	0.54	0.37	--
17							--	0.18	0.54	0.27	0.88	0.50
18							--	--	--	--	0.69	0.94
19							--	0.26	0.20	--	0.29	0.48
20							--	0.54	--	0.19	0.73	0.63
21							--	0.32	2.12	0.12	0.31	0.28
22							--	0.20	0.33	0.44	0.18	0.24
23							--	0.45	1.52	0.26	0.64	0.15
24							--	--	0.42	--	1.26	0.25
25							--	0.27	0.01	0.19	--	0.38
26							--	0.22	0.10	0.60	0.45	0.03
27							--	--	1.36	--	1.18	0.25
28							--	--	0.12	0.33	0.81	0.08
29							--	--	--	0.18	0.76	0.20
30							--	0.15	--	0.28	1.03	0.06
31							--	0.58	--	0.50	--	0.17

NO RECORDS

Table 170

Evaporation in centimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	PERCENT MEAN	
Addis Ababa															
1959	13.6	13.7	18.8	17.2	15.7	13.0	12.3	11.0	16.3	13.2	13.5	14.0	172.3		
1960	14.0	18.4	18.4	15.3	16.6	15.2	12.9	10.4	17.4	12.3	15.7	15.3	180.0		
1961	17.0	16.8	15.8	19.7	17.1	14.2	12.6	10.7	15.4	16.1	16.7	17.3	185.4		
Average*	13.8	16.0	17.0	16.9	16.1	14.1	12.6	10.7	16.8	12.8	14.6	14.6	176.1		
Asosa															
1960									19.3	9.6	19.5	14.3			
1961	25.2	20.8	26.8						17.6	19.8	11.4				
1962				21.3	21.6	16.6	14.5								
Bahir Dar															
1960	14.8	16.0			20.4	10.8	21.9	34.2	17.3						
1961	15.1	14.0	21.4	24.9	21.9	10.8	33.5	26.4	14.6	18.1	15.1	13.3	229.1		
1962			22.0	24.7	21.8										
	29.9	30.0	43.4	49.6	64.1		55.4	60.6	31.9						
Average	14.9	15.0	21.7	24.8	21.3	10.8	27.7	30.3	30.9	18.1	15.1	13.3	243.9		
Wad. Medani															
				← Average = 24.3 →											
1959	29.4	32.3	43.7	47.0	50.2	45.6	31.0	25.9	18.9	26.0	29.4	25.4	404.8		
1960	27.6	30.2	40.0	45.4	50.8	47.1	33.5	24.1	29.4	29.4	33.0	28.2	418.7		
Average	28.5	31.2	41.8	46.2	50.5	46.4	32.2	25.0	24.2	27.7	31.2	26.8	411.7		
* Excluding 1961 data															

Table 1.71

Evaporation in centimeters

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	PERCENT MEAN
Wenji Sugar Plantation														
1959	22.5	22.4	28.6	32.2	29.8	26.9	20.0	17.0	15.9	22.2	24.6	22.2	284.3	
1960	24.3	27.9	21.0	24.8	23.9	27.8	18.8	17.4	16.0	23.9	23.6	24.5	273.9	
1961	25.0	26.6	27.8	23.7	28.6	24.8	18.9	15.2	17.2	20.3	17.8	15.2	261.1	
Average	23.9	25.6	25.8	26.5	27.4	26.5	19.2	16.5	16.4	22.1	22.0	20.6	273.0	

Chapter 2

Streamflow Data

Prior to 1961, the Abbay near Kese was the only station equipped with a cableway from which high flows could be measured. Since then, sixteen (16) cableways have been built to provide access for high flow measurements. These were very helpful in securing more definite rating curves.

As yet, only occasional stages of the Dabus River flow are available. More detailed data for this river will be included in the next report.

All high flows carry sediment which will not remain in suspension at the negligible velocities obtained in recorder-house stilling wells. An approximate two-meter deposit of sediment accumulates in each stilling well during the five-meter to ten-meter rise that occurs each rainy season. This has not been cleared frequently enough to secure a complete gage height record at some gages. Consequently, there are gaps in some of the records. Because of improved equipment and greater experience of the personnel, records in the present report are generally more accurate than those previously presented.

FOOTNOTES

Pertaining to Tables 2.1 through 2.65

- a - No gage height record; discharge computed on basis of records.
- b - Staff gage reading.
- c - Rating curve extrapolated.
- d - Doubtful gage height.
- e - Discharge is estimated.
- g - Discharge measurement made this day.
- h - Gage height record taken from gage height book; balance taken from chart.
- i - Gage height is estimated.
- k - Gage height affected by backwater from the Abbey. Used curve with parameters, showing Abbey below Guder flow.
- r - Recorder not working.
- s - Discharge computed by averaging discharge for intervals of day.
- v - Gage height from one or more staff observations.

TABLE 2.1

Daily Gage Height, in meters, and Discharge, in second-meters,
Gilgel Abbay River at Dangila-Bahir Dar--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.90	14.05	.71	6.98	.62	4.53	.58	3.60	.52	2.46	.74	7.90
2	.90	14.05	.70	6.68	.62	4.53	.58	3.60	.52	2.46	.62	4.53
3	.89	13.61	.70	6.68	.62	4.53	.58	3.60	.53	2.64	.63	4.79
4	.88	13.17	.69	6.40	.62	4.53	.57	3.40	.53	2.64	.72	7.28
5	.88	13.17	.69	6.40	.62	4.53	.57	3.40	.52	2.46	1.06	21.96
6	.86	12.30	.69	6.40	.62	4.53	.57	3.40	.52	2.46	.95	16.30
7	.85	11.90	.69	6.40	.60	4.04	.56	3.20	.53	2.64	.95	16.30
8	.85	11.90	.68	6.12	.60	4.04	.55	3.00	.54	2.82	.80	10.00
9	.84	11.52	.67	5.84	.60	4.04	.55	3.00	.54	2.82	.71	6.98
10	.83	11.14	.67	5.84	.60	4.04	.55	3.00	.53	2.64	.78	9.26
11	.83	11.14	.66	5.57	.60	4.04	.55	3.00	.52	2.46	.69	6.40
12	.81	10.38	.66	5.57	.60	4.04	.55	3.00	.54	2.82	.65	5.31
13	.80	10.00	.66	5.57	.62	4.53	.55	3.00	.54	2.82	.84	11.52
14	.80	10.00	.65	5.31	.62e	4.53	.55	3.00	.52	2.46	.77	8.90
15	.80	10.00	.64	5.05	.61e	4.28	.55	3.00	.52	2.46	.67	5.84
16	.80	10.00	.64	5.05	.60e	4.04	.55	3.00	.55	3.00	.63	4.79
17	.80	10.00	.64	5.05	.60	4.04	.54	2.82	.57	3.40	.70	6.68
18	.79	9.62	.64	5.05	.61	4.28	.54	2.82	.55	3.00	.81	10.38
19	.78	9.26	.64	5.05	.61	4.28	.54	2.82	.54	2.82	.88	13.17
20	.77	8.90	.64	5.05	.61	4.28	.54	2.82	.52	2.46	1.16	28.09
21	.77	8.90	.64	5.05	.60	4.04	.54	2.82	.55	3.00	1.12	25.53
22	.76	8.56	.63	4.79	.60	4.04	.54	2.82	.59	3.82	1.12	25.53
23	.76	8.56	.63	4.79	.61	4.28	.54	2.82	.59	3.82	1.22	32.09
24	.76	8.56	.63	4.79	.61	4.28	.54	2.82	.63	4.79	1.29	36.98
25	.76	8.56	.62	4.53	.61	4.28	.54	2.82	.69	6.40	1.25	34.15
26	.76	8.56	.62	4.53	.60	4.04	.53	2.64	.69	6.40	1.19	30.08
27	.74	7.90	.62	4.53	.60	4.04	.53	2.64	.65	5.31	1.20	30.75
28	.72	7.28	.62	4.53	.60	4.04	.52	2.46	.86	12.30	1.61	63.44
29	.71	6.98	--	--	.60	4.04	.52	2.46	.69	6.40	1.79	81.12
30	.71	6.98	--	--	.59	3.82	.52	2.46	.78	9.26	1.74	76.06
31	.71	6.98	--	--	.58	3.60	--	--	.82	10.76	--	--
sec-m da	313.93		153.60		130.18		89.24		126.00		642.11	
	July		August		September		October		November		December	
1	1.80	82.20	2.61	194.64	2.61	194.64	2.28	144.60	1.04h	20.85	.85	11.90
2	1.49	52.54	2.54	183.40	2.49	175.50	2.29	146.05	1.02h	19.78	.84	11.52
3	1.75	77.06	2.75	218.64	2.28	144.60	2.39	160.55	.99h	18.25	.83	11.14
4	1.86	89.24	2.78	223.92	2.19	131.55	2.26h	141.70	.97h	17.26	.82	10.76
5	2.07	114.47	2.71	211.72	2.34	153.30	2.33h	151.85	.96h	16.78	.81	10.38
6	2.01	107.21	2.69	208.28	2.49	175.50	2.33h	151.85	.95h	16.30	.83	11.14
7	2.26	141.70	2.55	185.00	2.73	215.17	2.21h	134.45	.94h	15.84	.83	11.14
8	2.30	147.50	2.51	178.60	2.79	225.70	2.14h	124.30	.94h	15.84	.81	10.38
9	2.17	128.65	2.52	180.20	2.61	194.64	2.00h	106.00	.94h	15.84	.80	10.00
10	2.03	109.63	2.57	188.20	2.42	165.00	1.64h	66.28	.94	15.84	.79	9.62
11	2.01	107.21	2.64	199.71	2.41	163.50	1.58h	60.62	.95	16.30	.78	9.26
12	2.00	106.00	2.63	198.01	2.31	148.95	1.51h	54.27	.98	17.75	.77	8.90
13	2.12	121.40	2.65	201.42	2.24	138.80	1.48h	51.69	1.03	20.31	.77	8.90
14	2.22	135.90	2.53	181.80	2.19	131.55	1.44h	48.38	1.00	18.75	.76	8.56
15	2.28	144.60	2.63	198.01	2.23	137.35	1.40h	45.20	.94	15.84	.76	8.56
16	2.24	138.80	2.75	218.64	2.34	153.30	1.37h	42.89	.92	14.93	.76	8.56
17	2.19	131.55	2.71	211.72	2.33	151.85	1.34h	40.64	.92	14.93	.75	8.22
18	2.15	125.75	2.74	216.90	2.34	153.30	1.32h	39.16	.93	15.38	.74	7.90
19	2.31	148.95	2.91	274.88	2.35	154.75	1.28h	36.26	.92	14.93	.74	7.90
20	2.44	168.00	2.92	249.76	2.30	147.50	1.24h	33.46	.90	14.05	.73	7.58
21	2.47	172.50	3.08	280.56	2.27	143.15	1.23h	32.77	.89	13.61	.73	7.58
22	2.49	175.50	2.86h	238.51	2.31	148.95	1.19h	30.08	.88	13.17	.73	7.58
23	2.56	186.60	2.62h	196.31	2.42	165.00	1.18h	29.41	.92	14.93	.72	7.28
24	2.41	163.50	2.51h	178.60	2.33	151.85	1.16h	28.09	.98	17.75	.72	7.28
25	2.60	193.00	2.68h	206.56	2.23	137.35	1.15h	27.44	1.16	28.09	.71	6.98
26	2.64	199.71	2.78	223.92	2.06	113.26	1.14h	26.80	1.00	18.75	.70	6.68
27	2.75	218.64	2.70	210.00	2.04	110.84	1.12h	25.53	.94	15.84	.70	6.68
28	2.78	223.92	2.73	215.17	1.95	99.98	1.10h	24.30	.91	14.49	.70	6.68
29	2.72	213.44	2.66	203.13	1.93	97.58	1.08h	23.11	.88	13.17	.69	6.40
30	2.75	218.64	2.44	168.00	1.99	104.79	1.07h	22.53	.86	12.30	.68	6.12
31	2.70	210.00	2.59	191.40	--	--	1.04h	20.85	--	--	.68	6.12
sec-m da	4,553.81		6,435.61		4,529.20		2,071.11		497.85		267.70	

TABLE 2.2

Daily Gage Height, in meters, and Discharge, in second-meters,
Koga River near Bahir Dar, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.88	1.88	.84	1.44	.78	.91	.74	.62	.72	1.50	.73	.56
2	.87	1.76	.82	1.25	.77	.83	.74	.62	.73	.56	.73	.56
3	.87	1.76	.80	1.07	.77	.83	.74	.62	.73	.56	.77	.83
4	.86	1.65	.80	1.07	.77	.83	.74	.62	.73	.56	.81	1.16
5	.86	1.65	.80	1.07	.78	.91	.74	.62	.74	.62	.76	.76
6	.84	1.44	.80	1.07	.79	.99	.74	.62	.74	.62	.77	.83
7	.84	1.44	.80	1.07	.79	.99	.74	.62	.76	.76	.77	.83
8	.84	1.44	.80	1.07	.80	1.07	.74	.62	.74	.62	.79	.99
9	.85	1.54	.80	1.07	.78	.91	.74	.62	.74	.62	.75	.69
10	.85	1.54	.80	1.07	.78	.91	.74	.62	.74	.62	.74	.62
11	.85	1.54	.79	.99	.78	.91	.63	.13	.74	.62	.73	.56
12	.84	1.44	.79	.99	.77	.83	.54c	.015	.74	.62	.73	.56
13	.85	1.54	.79	.99	.77	.83	.55c	.02	.73	.56	.73	.56
14	.85	1.54	.79	.99	.77	.83	.55c	.02	.74	.62	.74	.62
15	.85	1.54	.79	.99	.76	.76	.75	.69	.74	.62	.72	.50
16	.85	1.54	.79	.99	.76	.76	.74	.62	.73	.56	.72	.50
17	.85	1.54	.79	.99	.76	.76	.74	.62	.73	.56	.75	.69
18	.84	1.44	.79	.99	.76	.76	.74	.62	.72	.50	.75	.69
19	.84	1.44	.79	.99	.76	.76	.73	.56	.73	.56	.76	.76
20	.84	1.44	.78	.91	.76	.76	.73	.56	.74	.62	.71	.44
21	.84	1.44	.78	.91	.76	.76	.73	.56	.74	.62	.74	.62
22	.84	1.44	.78	.91	.76	.76	.73	.56	.74	.62	.74	.62
23	.84	1.44	.78	.91	.75	.69	.73	.56	.73	.56	.79	.99
24	.84	1.44	.78	.91	.76	.76	.72	.50	.73	.56	1.01	3.69
25	.82	1.25	.78	.91	.76	.76	.72	.50	.73	.56	.80	1.07
26	.82	1.25	.77	.83	.75	.69	.72	.50	.72	.50	.77	.83
27	.82	1.25	.78	.91	.75	.69	.72	.50	.72	.50	.84	1.44
28	.82	1.25	.78	.91	.75	.69	.72	.50	.72	.50	.79	.99
29	.82	1.25	--	--	.75	.69	.72	.50	.78	.91	.77	.83
30	.82	1.25	--	--	.74	.62	.73	.56	.74	.62	.83	1.34
31	.82	1.25	--	--	.74	.62	--	--	.73	.56	--	--
sec-m da	45.61		28.27		24.87		15.295		18.39		26.13	
	July		August		September		October		November		December	
1	.80	1.07	1.48	13.80	1.52	14.82	1.26	8.49	.96	2.93	.92	2.38
2	.85	1.54	1.47	13.55	1.52	14.82	1.32	9.88	.95	2.79	.91	2.25
3	.79	.99	1.86	24.14	1.46	13.30	1.50	14.30	.95	2.79	.90	2.12
4	.80	1.07	1.81	22.69	1.50	14.30	1.39	11.56	.95	2.79	.90	2.12
5	.84	1.44	1.55	15.60	1.66	18.52	1.24	8.05	.95	2.79	.90	2.12
6	.90	2.12	1.56	15.86	2.00	28.30	1.24	8.05	.95	2.79	.89	2.00
7	1.04	4.19	1.39	11.56	1.68	19.06	1.20	7.20	.95	2.79	.89	2.00
8	1.14	6.01	1.49	14.05	1.65	18.25	1.17	6.60	.95	2.79	.88	1.88
9	1.23	7.83	1.41	12.05	1.50	14.30	1.17	6.60	.94	2.65	.88	1.88
10	1.16	6.40	1.38	11.32	1.53	15.08	1.08	4.89	.95	2.79	.88	1.88
11	1.06	4.53	1.35	10.60	1.41	12.05	1.12	5.63	.96	2.93	.87	1.76
12	.98	3.23	1.40	11.80	1.37	11.08	1.10	5.25	.97	3.08	.87	1.76
13	1.26	8.49	1.36	10.84	1.29	9.17	1.08	4.89	1.05	4.36	.87	1.76
14	1.04	4.19	1.32	9.88	1.26	8.49	1.06	4.53	.98	3.23	.86	1.65
15	1.03	4.02	1.28	8.94	1.22	7.82	1.08	4.89	.96	2.93	.86	1.65
16	1.06	4.53	1.64	17.98	1.20	7.20	1.04	4.19	.96	2.93	.86	1.65
17	1.18	6.80	1.74	20.72	1.28	8.94	1.02	3.85	.94	2.65	.86	1.65
18	1.20	7.20	1.54	15.34	1.22	7.62	1.03	4.02	.94	2.65	.86	1.65
19	1.25	8.27	1.58	16.38	1.23	7.83	1.02	3.85	.94	2.65	.85	1.54
20	1.43	12.55	1.56	15.86	1.20	7.20	1.02	3.85	.94	2.65	.85	1.54
21	1.37	11.08	1.79	22.12	1.16	6.40	1.02	3.85	.94	2.65	.85	1.54
22	1.40	11.80	1.73	20.44	1.30	9.40	1.01	3.69	.94	2.65	.86	1.65
23	1.52	14.82	1.62	17.44	1.40	11.80	1.02	3.85	.90	2.12	.85	1.54
24	1.58	16.38	1.49	14.05	1.41	12.05	1.00	3.53	.95	2.79	.84	1.44
25	1.52	14.82	1.42	12.30	1.34	10.36	.99	3.38	.94	2.65	.84	1.44
26	1.73	20.44	1.61	17.17	1.26	8.49	.98	3.23	.92	2.38	.84	1.44
27	1.86	24.14	1.63	17.71	1.28	8.94	.98	3.23	.92	2.38	.84	1.44
28	1.57	16.12	1.57	16.12	1.18	6.80	.98	3.23	.92	2.38	.83	1.34
29	1.54	15.34	1.68	19.06	1.19	7.00	.97	3.08	.92	2.38	.83	1.34
30	1.63	17.71	1.55	15.60	1.28	8.94	.96	2.93	.92	2.38	.84	1.44
31	1.62	17.44	1.60	16.90	--	--	.97	3.08	--	--	.84	1.44
sec-m da	276.56		487.87		278.72		127.75		168.75		276.56	

TABLE 2.5

Daily Gage Height, in meters, and Discharge, in second-meters, Ribb River near Addis Zemin, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	1.08	1.40	.90	.72	.80	.42	.74	.30	.72	.26	.89	.69
2	1.05	1.25	.89	.69	.80	.42	.74	.30	.72	.26	.89	.69
3	1.03	1.17	.89	.69	.80	.42	.74	.30	.71	.24	.88	.66
4	1.02	1.13	.89	.69	.80	.42	.72	.26	.72	.26	.89	.69
5	1.00	1.05	.89	.69	.80	.42	.72	.26	.72	.26	.90	.72
6	1.00	1.05	.88	.66	.80	.42	.72	.26	.73	.28	1.12	1.60
7	.98	.97	.88	.66	.80	.42	.72	.26	.73	.28	1.44	3.62
8	.98	.97	.88	.66	.80	.42	.72	.26	.89	.69	1.30	2.60
9	.97	.93	.87	.63	.80	.42	.70	.22	.88	.66	1.06	1.30
10	.96	.90	.87	.63	.79	.40	.70	.22	1.05	1.25	.97	.93
11	.95	.87	.87	.63	.79	.40	.70	.22	.91	.75	.94	.84
12	.94	.84	.87	.63	.78	.38	.70	.22	.86	.60	.93	.81
13	.94	.84	.86	.60	.78	.38	.70	.22	.85	.57	.93	.81
14	.92	.78	.86	.60	.78	.38	.68	.19	.85	.57	.93	.81
15	.92	.78	.86	.60	.78	.38	.68	.19	.85	.57	.92	.78
16	.92	.78	.86	.60	.78	.38	.68	.19	.86	.60	.92	.78
17	.92	.78	.84	.54	.78	.38	.68	.19	.86	.60	.92	.78
18	.92	.78	.84	.54	.78	.38	.68	.19	.86	.60	.91	.75
19	.92	.78	.84	.54	.77	.36	.68	.19	.87	.63	.91	.75
20	.92	.78	.84	.54	.77	.36	.69	.20	.87	.63	1.10	1.50
21	.92	.78	.84	.54	.77	.36	.69	.20	.86	.60	1.05	1.25
22	.91	.75	.84	.54	.77	.36	.69	.20	.87	.63	1.07	1.35
23	.91	.75	.83	.51	.77	.36	.70	.22	.87	.63	.94	.84
24	.91	.75	.82	.48	.77	.36	.70	.22	.88	.66	.93	.81
25	.90	.72	.82	.48	.77	.36	.70	.22	.87	.63	.93	.81
26	.90	.72	.82	.48	.76	.34	.71	.24	.87	.63	.93	.81
27	.91	.75	.81	.45	.76	.34	.70	.22	.88	.66	.92	.78
28	.91	.75	.80	.42	.76	.34	.71	.24	.88	.66	.92	.78
29	.90	.72	--	--	.76	.34	.71	.24	.88	.66	1.04	1.21
30	.90	.72	--	--	.76	.34	.71	.24	.88	.66	1.17	1.85
31	.90	.72	--	--	.74	.30	--	--	.88	.66	--	--
sec-m da	26.96		16.44		11.66		6.66		17.64		32.60	
	July		August		September		October		November		December	
1	1.04	1.21	r	r	r	r	3.78	52.12	1.49	4.02	1.24	2.24
2	.95	.87	r	r	r	r	4.00	59.90	1.47	3.86	1.23	2.18
3	.93	.81	r	r	r	r	3.66	48.08	1.46	3.78	1.22	2.12
4	.95	.87	r	r	r	r	4.29	70.94	1.45	3.70	1.21	2.06
5	1.17	1.85	r	r	r	r	2.30	14.10	1.44	3.62	1.21	2.06
6	1.48	3.94	r	r	r	r	2.85	24.85	1.42	3.46	1.20	2.00
7	1.55	4.55	r	r	r	r	2.63	20.10	1.41	3.38	1.20	2.00
8	1.81	7.22	r	r	r	r	2.45	16.70	1.40	3.30	1.19	1.95
9	1.19	1.95	r	r	r	r	2.33	14.61	1.40	3.30	1.18	1.90
10	1.43	3.54	r	r	r	r	2.23	12.95	1.38	3.16	1.17	1.85
11	1.75	6.55	r	r	r	r	2.15	11.75	1.38	3.16	1.16	1.80
12	1.31	2.67	r	r	r	r	2.08	10.72	1.42	3.46	1.15	1.75
13	r	r	r	r	r	r	2.02	9.88	1.44	3.62	1.15	1.75
14	r	r	r	r	3.37	38.50	1.96	9.08	1.39	3.23	e	1.75
15	r	r	r	r	3.21	34.19	1.93	8.69	1.36	3.02	e	1.70
16	r	r	r	r	2.99	28.25	1.88	8.06	1.35	2.95	e	1.70
17	r	r	r	r	2.78	23.26	1.84	7.58	1.34	2.88	e	1.65
18	r	r	r	r	2.65	20.50	1.81	7.22	1.31	2.67	e	1.60
19	r	r	r	r	2.92	26.52	1.77	6.77	1.36	3.02	e	1.55
20	r	r	r	r	2.68	21.12	1.74	6.44	1.43	3.54	e	1.50
21	r	r	r	r	2.56	18.74	1.71	6.11	1.35	2.95	e	1.45
22	r	r	r	r	2.85	24.85	1.68	5.80	1.31	2.67	e	1.40
23	r	r	r	r	3.42	40.42	1.67	5.70	1.29	2.54	e	1.35
24	r	r	r	r	3.35	38.30	1.65	5.50	1.29	2.54	e	1.30
25	r	r	r	r	3.27	35.93	1.63	5.30	1.26	2.36	e	1.25
26	r	r	r	r	2.79	23.48	1.59	4.91	1.26	2.36	1.04	1.21
27	r	r	r	r	2.47	17.06	1.57	4.73	1.26	2.36	1.02	1.13
28	r	r	r	r	3.34	38.00	1.55	4.55	1.25	2.30	1.00	1.05
29	r	r	r	r	2.25	13.30	1.53	4.37	1.25	2.30	.99	1.01
30	r	r	r	r	3.77	51.78	1.52	4.28	1.24	2.24	.97	.93
31	r	r	r	r	--	--	1.51	4.19	--	--	.96	.90
sec-m da							476.01		91.75		50.09	

TABLE 2.6

Daily Gage Height, in meters, and Discharge, in second-meters,
Gumara River near Bahir Dar, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.95	3.020	.82	2.292	.80	2.180	.80	2.180	r		r	
2	.94	2.964	.82	2.292	.80	2.180	.80	2.180	r		r	
3	.94	2.964	.82	2.292	.80	2.180	.79	2.124	r		r	
4	.94	2.964	.82	2.292	.80	2.180	.78	2.068	r		r	
5	.93	2.908	.82	2.292	.80	2.180	.78	2.068	r		r	
6	.93	2.908	.82	2.292	.80	2.180	.78	2.068	r		.89	2.684
7	.91	2.796	.82	2.292	.80	2.180	.78	2.068	r		.98	3.188
8	.91	2.796	.81	2.236	.80	2.180	.78	2.068	r		.96	3.076
9	.91	2.796	.81	2.236	.81	2.236	.77	2.012	r		.93	2.908
10	.91	2.796	.80	2.180	.82	2.292	.76	1.956	r		.89	2.684
11	.90	2.740	e	2.180	.82	2.292	.76	1.956	r		.86	2.516
12	.90	2.740	e	2.180	.84	2.404	.76	1.956	r		.91	2.796
13	.89	2.684	e	2.180	.90	2.740	.76	1.956	r		.86	2.516
14	.89	2.684	e	2.180	.90	2.740	.79	2.124	r		.84	2.404
15	.89	2.684	e	2.180	.90	2.740	.79	2.124	r		.82	2.292
16	.89	2.684	e	2.180	.88	2.628	.78	2.068	r		.80	2.180
17	.88	2.628	e	2.180	.86	2.516	.78	2.068	r		.80	2.180
18	.88	2.628	e	2.180	.86	2.516	.78	2.068	r		.81	2.236
19	.87	2.572	e	2.180	.85	2.460	.78	2.068	r		.89	2.684
20	.87	2.572	.80	2.180	.84	2.404	.73	1.788	r		.89	2.684
21	.86	2.516	.80	2.180	.84	2.404	.73	1.788	r		1.16	6.148
22	.86	2.516	.80	2.180	.86	2.516	.74	1.844	r		1.00	3.300
23	.86	2.516	.80	2.180	.86	2.516	.74	1.844	r		.97	3.132
24	.86	2.516	.80	2.180	.86	2.516	.74	1.844	r		1.02	3.656
25	.84	2.404	.80	2.180	.86	2.516	.74	1.844	r		.95	3.020
26	.83	2.348	.80	2.180	.84	2.404	.73	1.788	r		.90	2.740
27	.84	2.404	.80	2.180	.83	2.348	.73	1.788	r		1.01	3.478
28	.84	2.404	.80	2.180	.82	2.292	.73	1.788	r		.96	3.076
29	.84	2.404	--	--	.82	2.292	e	1.788	r		1.22	7.218
30	.84	2.404	--	--	.82	2.292	e	1.788	r		1.23	7.397
31	.83	2.348	--	--	.80	2.180	--	--	r		--	--
sec-m da	82.508		61.936		73.628		59.072					
	July		August		September		October		November		December	
1	1.16	6.15	4.50	120.02	4.56	131.34	3.58	89.56	1.48	11.890	1.10	5.080
2	1.04	4.01	6.03	198.66	3.76	97.02	3.64	92.05	1.46	11.530	1.09	4.902
3	1.04	4.01	6.49	221.01	3.42	83.05	3.85	100.76	1.44	11.170	1.08	4.724
4	1.05	4.19	6.46	219.56	3.29	77.85	3.75	96.61	1.41	10.630	1.07	4.546
5	1.24	7.58	5.61	178.71	4.83	143.22	3.32	79.05	1.40	10.450	1.06	4.368
6	1.51e	12.48	5.53	174.92	4.31	120.45	3.03	67.45	1.38	10.090	1.05	4.190
7	1.55e	13.40	5.33	165.75	4.16	113.94	2.84	60.17	1.36	9.730	1.04	4.012
8	1.51e	12.48	4.89	145.86	4.53	130.02	2.67	53.71	1.34	9.370	1.04	4.012
9	1.50e	12.25	4.46	126.96	4.01	107.43	2.55	49.15	1.32	9.010	1.03	3.834
10	1.51e	12.48	4.60	133.10	4.38	123.49	2.45	45.40	1.30	8.650	1.02	3.656
11	1.55e	13.40	4.87	144.98	3.69	94.12	2.32	40.59	1.28	8.292	1.01	3.478
12	1.53	12.94	4.87	144.98	3.45	84.25	2.22	36.90	1.28	8.292	1.01	3.478
13	1.24	7.58	5.18	158.91	3.30	78.25	2.13	33.58	1.28	8.292	1.01	3.478
14	1.53	12.94	4.33	121.32	3.23	75.45	1.99	28.37	1.27	8.113	1.00	3.300
15	1.63	15.54	4.61	133.54	3.21	74.65	1.95	26.64	1.26	7.934	.99	3.244
16	1.56	13.63	4.83	143.22	4.02	107.87	1.92	25.34	1.24	7.576	.98	3.188
17	1.48	11.89	4.28	119.15	3.51	86.66	1.88	23.82	1.23	7.397	.96	3.076
18	1.48	11.89	3.98	106.17	3.29	77.85	1.85	22.82	1.21	7.139	.96	3.076
19	1.51	12.48	3.80	98.68	3.51	86.66	1.81	21.49	1.21	7.039	.96	3.076
20	1.78	20.50	4.80	141.90	3.30	78.25	1.78	20.50	1.20	6.860	.96	3.076
21	1.94	26.21	4.63	134.42	3.38	81.45	1.75	19.51	1.20	6.860	.95	3.020
22	1.92	25.34	4.46	126.96	3.70	94.53	1.71	18.18	1.19	6.682	.95	3.020
23	2.80	58.65	4.16	113.94	4.35	122.19	1.69	17.52	1.17	6.326	.94	2.964
24	3.55	88.32	4.83	143.22	3.47	85.05	1.67	16.86	1.17	6.326	.94	2.964
25	3.14	71.85	4.32	120.89	3.48	85.45	1.64	15.87	1.16	6.148	.92	2.852
26	3.60	90.39	5.80	187.72	3.49	85.85	1.62	15.21	1.15	5.970	.92	2.852
27	3.07	69.05	4.97	149.38	3.09	69.85	1.60	14.55	1.15	5.970	.92	2.852
28	3.46	84.65	4.66	135.74	2.89	62.07	1.58	14.09	1.13	5.614	.92	2.852
29	3.79	98.27	4.22	116.55	2.78	57.89	1.55	13.40	1.13	5.614	.92	2.852
30	3.22	75.05	3.72	95.36	3.33	79.45	1.53	12.94	1.12	5.436	.92	2.852
31	3.84	100.34	4.33	121.32	--	--	1.50	12.25	--	--	.92	2.852
sec-m da	1,009.95		4,442.91		2,795.42		1,184.33		240.300		107.726	

TABLE 2.9

Daily Gage Height, in meters, and Discharge, in second-meters, Abbay River near Bahir Dar, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.			
	January		February		March		April		May		June			
1	1.38	159.6	1.01	102.41	r		.46	38.64	.24	19.00	.13	10.85		
2	1.37	157.9	1.00	101.00	r		.46	38.64	.25	19.80	.13	10.85		
3	1.35	154.5	.99	99.60	r		.45	37.69	.24	19.00	.13	10.85		
4	1.34	152.8	.99	99.60	r		.44	36.74	.24	19.00	.12	10.20		
5	1.32	149.4	.98	98.20	r		.44	36.74	.23	18.20	.13	10.85		
6	1.31	147.7	.97	96.81	r		.43	35.80	.23	18.20	.13	10.85		
7	1.29	144.41	.96	95.43	r		.43	35.80	.22	17.40	.15	12.25		
8	1.28	142.82	.95	94.06	r		.41	33.93	.22	17.40	.15	12.25		
9	1.27	141.23	.93	91.33	r		.41	33.93	.21	16.65	.15	12.25		
10	1.26	139.65	.92	89.98	r		.40	33.00	.21	16.65	.15	12.25		
11	1.24	136.49	.91	88.64	r		.39	31.07	.21	16.65	.15	12.25		
12	1.23	134.91	.90	87.30	r		.39	31.07	.21	16.65	.15	12.25		
13	1.23	134.91	r		r		.38	30.15	.21	16.65	.15	12.25		
14	1.22	133.34	r		r		.37	29.23	.20	15.90	.15	12.25		
15	1.21	131.77	r		r		.37	29.23	.20	15.90	.14	11.55		
16	1.19	128.64	r		r		.35	27.40	.20	15.90	.14	11.55		
17	1.18	127.09	r		r		.35	27.40	.19	15.15	.14	11.55		
18	1.18	127.09	r		r		.34	26.49	.19	15.15	.13	10.85		
19	1.16	124.03	r		r		.33	25.59	.19	15.15	.13	10.85		
20	1.15	122.53	r		r		.32	24.69	.18	14.40	.13	10.85		
21	1.14	121.03	r		r		.31	24.79	.17	13.65	.14	11.55		
22	1.13	119.55	r		.54	46.43	.30	23.90	.18	14.40	.15	12.25		
23	1.11	116.64	r		.54	46.43	.29	23.05	.18	14.40	.14	11.55		
24	1.10	115.20	r		.52	44.46	.29	23.05	.18	14.40	.15	12.25		
25	1.09	113.77	r		.52	44.46	.28	22.20	.17	13.65	.15	12.25		
26	1.08	112.34	r		.50	42.50	.27	21.40	.16	12.95	.14	11.55		
27	1.07	110.91	r		.50	42.50	.27	21.40	.16	12.95	.14	11.55		
28	1.06	109.49	r		.50	42.50	.26	20.60	.15	12.25	.15	12.25		
29	1.05	108.07	--	--	.49	41.53	.26	20.60	.15	12.25	.16	12.95		
30	1.03	105.23			.48	40.56	.26	20.60	.14	11.55	.16	12.95		
31	1.02	103.82	--	--	.47	39.60	--	--	.13	10.85	--	--		
sec-m da	4,026.86				864.82				482.10				350.75	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.			
	July		August		September		October		November		December			
1	.16	12.95	.95	94.06	2.53	433.1	2.78	517.0	2.23	344.6	r			
2	.16	12.95	1.00	101.00	2.55	439.5	2.81	527.6	2.20	336.5	r			
3	.16	12.95	1.04	106.65	2.57	445.9	2.82	531.2	2.18	331.3	r			
4	.17	13.65	1.12	118.09	2.59	452.3	2.82	531.2	2.16	326.1	r			
5	.23	18.20	1.22	133.34	2.65	472.0	2.81	527.6	2.14	320.9	r			
6	.24	19.00	1.27	141.23	2.68	482.2	2.79	520.5	2.13	318.3	r			
7	.19	15.15	1.36	156.20	2.71	492.5	2.77	513.5	2.10	310.5	r			
8	.20	15.90	1.44	170.20	2.74	503.0	2.75	506.5	2.08	305.5	r			
9	.20	15.90	1.51	182.90	2.79	520.5	2.74	503.0	2.07	303.0	r			
10	.21	16.65	1.56	192.40	2.81	527.6	2.72	496.0	2.04	295.6	r			
11	.24	19.00	1.58	196.20	2.82	531.2	2.68	482.2	2.02	290.8	r			
12	.26	20.60	1.64	208.00	2.82	531.2	2.66	475.4	2.02	290.8	r			
13	.27	21.40	1.68	216.00	2.80	524.0	2.64	468.7	2.03	293.2	r			
14	.31	24.79	1.71	222.10	2.82	531.2	2.61	458.8	2.01	288.4	r			
15	.31	24.79	1.77	234.70	2.83	534.8	2.59	452.3	1.99	283.7	r			
16	.33	25.50	1.85	252.00	2.85	542.0	2.56	442.7	1.98	281.4	r			
17	.35	27.40	1.90	263.00	2.85	542.0	2.52	429.9	1.97	279.1	r			
18	.38	30.15	1.95	274.50	2.84	538.4	2.52	429.9	1.94	272.2	r			
19	.41	33.93	2.00	286.00	2.84	538.4	2.50	423.5	1.92	267.6	r			
20	.45	37.69	2.07	303.00	2.83	534.8	2.48	417.5	1.92	267.6	r			
21	.45	37.69	2.09	308.00	2.82	531.2	2.45	408.0	1.90	263.0	r			
22	.47	39.60	2.12	315.70	2.82	531.2	2.43	402.0	1.89	260.8	r			
23	.54	46.43	2.13	318.30	2.84	538.4	2.42	399.0	1.88	258.6	r			
24	.57	49.40	2.16	326.10	2.86	545.7	2.40	393.0	1.86	254.2	r			
25	.58	50.40	2.20	336.50	2.86	545.7	2.38	387.2	1.85	252.0	r			
26	.65	57.51	2.27	355.60	2.85	542.0	2.36	381.4	1.83	247.6	r			
27	.72	65.07	2.29	361.20	2.83	534.8	2.33	372.7	r		r			
28	.68	60.66	2.31	366.90	2.80	524.0	2.31	366.7	r		r			
29	.77	70.90	2.36	381.40	2.78	517.0	2.29	361.2	r		r			
30	.75	68.55	2.38	387.20	2.78	517.0	2.27	355.6	r		r			
31	.82	76.97	2.49	420.40	--	--	2.25	350.0	--	--	r			
sec-m da	1,041.82		7,728.87		15,443.6		13,831.8							

TABLE 2.11

Daily Gage Height, in meters, and Discharge, in second-meters,
Andassa River near Bahir Dar, Ethiopia—Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.92	3.81	.78	2.34	.73	1.92	.68	1.45	.64	1.03	.64	1.03
2	.91	3.69	.77	2.26	.72	1.83	.68	1.45	.64	1.03	.64	1.03
3	.90	3.57	.77	2.26	.71	1.74	.68	1.45	.64	1.03	.64	1.03
4	.90	3.57	.76	2.18	.72	1.83	.68	1.45	.64	1.03	.67	1.35
5	.90	3.57	.76	2.18	.72	1.83	.68	1.45	.64	1.03	.68	1.45
6	.89	3.46	.76	2.18	.72	1.83	.68	1.45	.64	1.03	.77	2.26
7	.88	3.35	.76	2.18	.72	1.83	.68	1.45	.66	1.25	.78	2.34
8	.88	3.35	.76	2.18	.73	1.92	.67	1.35	.66	1.25	.73	1.92
9	.86	3.13	.76	2.18	.73	1.92	.67	1.35	.66	1.25	.69	1.55
10	.84	2.93	.75	2.10	.73	1.92	.67	1.35	.66	1.25	.66	1.25
11	.83	2.83	.75	2.10	.73	1.92	.66	1.25	.66	1.25	.66	1.25
12	.83	2.83	.75	2.10	.73	1.92	.66	1.25	.66	1.25	.65	1.14
13	e	2.73	.75	2.10	.73	1.92	.66	1.25	.65	1.14	.65	1.14
14	e	2.83	.75	2.10	.72	1.83	.66	1.25	.66	1.25	.66	1.25
15	.83	2.83	.75	2.10	.72	1.83	.65	1.14	.66	1.25	.65	1.14
16	.83	2.83	.75	2.10	.72	1.83	.65	1.14	.65	1.14	.65	1.14
17	.84	2.93	.75	2.10	.71	1.74	.65	1.14	.68	1.45	.68	1.45
18	.86	3.13	.75	2.10	.71	1.74	.65	1.14	.66	1.25	.70	1.65
19	.83	2.83	.75	2.10	.71	1.74	.65	1.14	.67	1.35	.73	1.92
20	.82	2.73	.75	2.10	.71	1.74	.65	1.14	.66	1.25	.78	2.34
21	.82	2.73	.75	2.10	.71	1.74	.65	1.14	.65	1.14	.72	1.83
22	.82	2.73	.75	2.10	.70	1.65	.64	1.03	.65	1.14	.76	2.18
23	.81	2.63	.74	2.01	.70	1.65	.64	1.03	.68	1.45	.71	1.74
24	.81	2.63	.74	2.01	.70	1.65	.64	1.03	.68	1.45	.73	1.92
25	.80	2.53	.74	2.01	.69	1.55	.64	1.03	.68	1.45	.97	4.45
26	.80	2.53	.74	2.01	.69	1.55	.64	1.03	.65	1.14	.74	2.01
27	.80	2.53	.74	2.01	.69	1.55	.64	1.03	.65	1.14	.68	1.45
28	.80	2.53	.73	1.92	.69	1.55	.64	1.03	.65	1.14	.79	2.43
29	.79	2.43	--	--	.69	1.55	.64	1.03	.66	1.25	.71	1.74
30	.79	2.43	--	--	.69	1.55	.64	1.03	.66	1.25	.71	1.74
31	.78	2.34	--	--	.68	1.45	--	--	.64	1.03	--	--
sec-m da	90.97		59.21		54.22		36.45		37.34		51.12	
	July		August		September		October		November		December	
1	.74	2.01	1.80	26.80	1.90	31.50	1.53	16.64	.94	4.06	.83	2.83
2	.71	1.74	1.78	25.94	1.86	29.56	1.72	23.48	.93	3.93	.82	2.73
3	.68	1.45	1.93	33.00	1.80	26.80	1.81	27.24	.92	3.81	.82	2.73
4	.68	1.45	1.96	34.53	1.71	23.09	1.66	21.19	.91	3.69	.81	2.63
5	.80	2.53	2.08	40.88	2.18	46.80	1.49	15.40	.90	3.57	.80	2.53
6	.89	3.46	1.72	23.48	2.01	37.12	1.41	13.17	.90	3.57	.81	2.63
7	.85	3.03	1.55	17.29	1.82	27.69	1.34	11.37	.90	3.57	.80	2.53
8	1.14	7.06	1.54	16.96	1.88	30.52	1.34	11.37	.89	3.46	.79	2.43
9	1.05	5.58	1.73	23.88	1.82	27.69	1.33	11.32	.88	3.35	.80	2.53
10	.90	3.57	1.54	16.96	1.69	22.32	1.31	10.64	.88	3.35	.80	2.53
11	1.05	5.58	1.47	14.82	1.50	15.70	1.29	10.17	.87	3.24	.79	2.43
12	.90	3.57	1.80	26.80	1.53	16.64	1.27	9.71	.88	3.35	.79	2.43
13	.94	4.06	1.52	16.32	1.48	15.11	1.25	9.27	.90	3.57	.79	2.43
14	1.08	6.05	1.37	12.12	1.40	12.90	1.23	8.83	.95	4.19	.78	2.34
15	1.17	7.61	1.78	25.94	1.34	11.37	1.21	8.41	.93	3.93	.77	2.26
16	1.26	9.49	2.20	48.00	1.51	16.01	1.19	8.00	.91	3.69	.78	2.34
17	1.33	11.12	1.96	34.53	1.44	13.98	1.17	7.61	.89	3.46	.76	2.18
18	1.25	9.27	1.66	21.19	1.49	15.40	1.15	7.24	.89	3.46	.76	2.18
19	1.42	13.44	1.74	24.28	1.44	13.98	1.13	6.88	.90	3.57	.76	2.18
20	1.64	20.45	1.78	25.94	1.33	11.12	1.11	6.54	.90	3.57	.75	2.10
21	1.28	9.94	2.18	46.80	1.29	10.17	1.07	5.89	.89	3.46	.75	2.10
22	1.15	7.24	2.06	39.78	1.27	9.71	1.04	5.43	.87	3.24	.75	2.10
23	1.22	8.62	2.15	45.00	1.35	11.62	1.03	5.28	.90	3.57	.74	2.01
24	1.48	15.11	1.67	21.56	1.28	9.94	1.02	5.13	.91	3.69	.74	2.01
25	1.28	9.94	1.55	17.29	1.33	11.12	1.02	5.13	.91	3.69	.74	2.01
26	1.73	23.88	2.02	37.64	1.28	9.94	1.01	4.99	.89	3.46	.73	1.92
27	1.82	27.59	1.98	35.56	1.26	9.49	1.00	4.85	.87	3.24	.73	1.92
28	1.71	23.09	1.83	28.15	1.24	9.05	.98	4.58	.87	3.24	.74	2.01
29	1.99	36.08	1.96	34.53	1.20	8.20	.97	4.45	.86	3.13	.74	2.01
30	1.86	29.56	1.80	26.80	1.19	8.00	.96	4.32	.84	2.93	.74	2.01
31	1.86	29.56	1.95	34.02	--	--	.95	4.19	--	--	.75	2.10
sec-m da	343.23		876.79		542.54		298.72		106.04		71.17	

TABLE 2.13

Daily Gage Height, in meters, and Discharge, in second-meters,
Chacha River near Chacha, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.			
	January		February		March		April		June			
1			.36	.160	.36	.160	.36	.160	.34c	.098		
2			.38	.270	.36	.160	.36	.160	.34c	.098		
3			.37	.210	.36	.160	.36	.160	.34c	.098		
4			.37	.210	.36	.160	.36	.160	.34c	.098		
5			.36	.160	.36	.160	.36	.160	.34c	.098		
6			.36	.160	.36	.160	.36	.160	.34c	.098		
7			.36	.160	.36	.160	.36	.160	.34c	.098		
8			.36	.160	.36	.160	.36	.160	.34c	.098		
9		.36	.160	.37	.210	.36	.160	.35	.120	.34c	.098	
10		.36	.160	.38	.270	.36	.160	.34c	.098	.34c	.098	
11		.35	.120	.37	.210	.36	.160	.34c	.098	.34c	.098	
12		.36	.160	.37	.210	.36	.160	.35	.120	.36	.160	
13		.36	.160	.37	.210	.36	.160	.35	.120	.36	.160	
14		.36	.160	.37	.210	.36	.160	.34c	.098			
15		.36	.160	.37	.210	.36	.160	.35	.120			
16		.36	.160	.37	.210	.36	.160	.34c	.098			
17		.36	.160	.36	.160	.36	.160	.34c	.098			
18		.36	.160	.38	.270	.36	.160	.35	.120			
19		.36	.160	.38	.270	.36	.160	.34c	.098			
20		.36	.160	.37	.210	.36	.160	.35	.120			
21		.36	.160	.37	.210	.36	.160	.34c	.098			
22		.36	.160	.37	.210	.36	.160	.34c	.098			
23		.36	.160	.37	.210	.36	.160	.33c	.076			
24		.36	.160	.37	.210	.36	.160	.34c	.098			
25		.36	.160	.37	.210	.36	.160	.34c	.098			
26		.36	.160	.36	.160	.36	.160	.34c	.098			
27		.36	.160	.36	.160	.36	.160	.34c	.098			
28		.36	.160	.36	.160	.36	.160	.34c	.098			
29		--	--	.36	.160	.36	.160	.34c	.098			
30		--	--	.36	.160	.36	.160	.34c	.098			
31		--	--	.36	.160	--	--	.34c	.098			
sec-m da				6.150		4.800		3.644				
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.			
	July		August		September		October		December			
1			.76	9.31	1.36	34.79	.45	.920	.33c	.076	.35	.120
2			1.34	33.91	1.64	47.11	.46	1.060	.33c	.076	.34c	.098
3			1.32	33.03	.83	11.86	.64	5.190	.33c	.076	.34c	.098
4			.80	10.75	.74	8.59	.60	4.010	.33c	.076	.33c	.076
5			.66	5.81	.78	10.03	.56	2.990	.33c	.076	.33c	.076
6			.56	2.99	.76	9.31	.53	2.320	.33c	.076	.33c	.076
7			.80	10.75	.95	16.76	.50	1.720	.33c	.076	.33c	.076
8			.76	9.31	1.08	22.47	.48	1.370	.33c	.076	.33c	.076
9			1.22	28.63	1.86	56.79	.46	1.060	.33c	.076	.32c	.054
10			1.26	30.39	1.28	31.27	.44	.792	.33c	.076	.32c	.054
11			.97	17.63	.72	7.87	.42	.572	.33c	.076	.32c	.054
12	.34c	.098	1.20	27.75	1.04	20.71	.41	.480	.34c	.098	.32c	.054
13	.33c	.076	.79	10.39	.94	16.34	.40	.400	.33c	.076	.32c	.054
14	.33c	.076	.97	17.63	.71	7.51	.39	.330	.33c	.076	.32c	.054
15	.33c	.076	.94	16.34	.65	5.50	.38	.270	.41	.480	.32c	.054
16	.34c	.098	1.19	27.31	.72	7.87	.36	.160	.40	.400	.32c	.054
17	.54	2.540	1.96	61.19	.67	6.13	.35	.120	.39	.330	.32c	.054
18	.54	2.540	1.06	21.59	.60	4.01	.35	.120	.38	.270	.31c	.032
19	.56	2.990	1.15	25.55	.68	6.46	.35	.120	.36	.160	.31c	.032
20	.54	2.540	1.12	24.25	.58	3.48	.34	.098	.36	.160	.31c	.032
21	.52	2.110	1.20	27.75	.52	2.11	.34	.098	.36	.160	.31c	.032
22	.50	1.720	1.18	26.87	.50	1.72	.34	.098	.36	.160	.31c	.032
23	.65	5.500	1.93	59.87	.53	2.32	.33	.076	.35	.120	.30c	.019
24	.99	18.510	1.46	39.19	.52	2.11	.33	.076	.35	.120	.30c	.019
25	.68	6.460	1.30	32.15	.51	1.91	.33	.076	.35	.120	.30c	.019
26	.64	5.190	1.76	52.39	.48	1.37	.33	.076	.34c	.098	.30c	.019
27	.90	14.700	1.17	26.43	.47	1.21	.33	.076	.34c	.098	.31c	.032
28	1.18	26.870	.86	13.06	.44	.79	.33	.076	.34c	.098	.31c	.032
29	1.05	21.150	.83	11.86	.43	.68	.33	.076	.34c	.098	.30c	.019
30	.78	10.030	.89	14.29	.42	.57	.33	.076	.35	.120	.30c	.019
31	1.06	21.590	.74	8.59	--	--	.33	.076	--	--	.32c	.054
sec-m da			736.96		349.65		24.982		4.078		1.574	

TABLE 2.16

Daily Gage Height, in meters, and Discharge, in second-meters,
Beressa River near Debre Birhan, Ethiopia-Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	0.62	.205	0.60	.107	0.61	.148	0.60	.107	0.63	.280	0.62	.205
2	0.61	.148	0.60	.107	0.62	.205	0.60	.107	0.63	.280	0.63	.280
3	0.60	.107	0.60	.107	0.62	.205	0.60	.107	0.63	.280	0.64	.350
4	0.61	.148	0.60	.107	0.61	.148	0.60	.107	0.63	.280	0.63	.280
5	0.61	.148	0.59	.077	0.61	.148	0.61	.148	0.62	.205	0.64	.350
6	0.60	.107	0.60	.107	0.60	.107	0.61	.148	0.62	.205	0.72	.850
7	0.60	.107	0.59	.077	0.60	.107	0.61	.148	0.63	.280	0.65	.410
8	0.60	.107	0.60	.107	0.61	.148	0.61	.148	0.62	.205	0.64	.350
9	0.60	.107	0.60	.107	0.62	.205	0.60	.107	0.62	.205	0.64	.350
10	0.60	.107	0.60	.107	0.62	.205	0.60	.107	0.63	.280	0.64	.350
11	0.61	.148	0.60	.107	0.62	.205	0.60	.107	0.63	.280	0.62	.205
12	0.60	.107	0.60	.107	0.62	.205	0.61	.148	0.62	.205	0.63	.280
13	0.60	.107	0.60	.107	0.62	.205	0.60	.107	0.63	.280	0.63	.280
14	0.61	.148	0.61	.148	0.64	.350	0.61	.148	0.63	.280	0.64	.350
15	0.61	.148	0.61	.148	0.63	.280	0.61	.148	0.63	.280	0.64	.350
16	0.60	.107	0.60	.107	0.63	.280	0.60	.107	0.63	.280	0.63	.280
17	0.60	.107	0.60	.107	0.62	.205	0.60	.107	0.63	.280	0.65	.410
18	0.61	.148	0.60	.107	0.62	.205	0.62	.205	0.63	.280	0.64	.350
19	0.60	.107	0.60	.107	0.63	.280	0.63	.280	0.62	.205	0.64	.350
20	0.60	.107	0.60	.107	0.62	.205	0.63	.280	0.63	.280	0.64	.350
21	0.60	.107	0.60	.107	0.62	.205	0.62	.205	0.62	.205	0.64	.350
22	0.61	.148	0.60	.107	0.62	.205	0.64	.350	0.60	.107	0.64	.350
23	0.60	.107	0.60	.107	0.62	.205	0.64	.350	0.60	.107	0.64	.350
24	0.60	.107	0.60	.107	0.62	.205	0.63	.280	0.61	.148	0.64	.350
25	0.60	.107	0.60	.107	0.62	.205	0.63	.280	0.61	.148	0.64	.350
26	0.60	.107	0.61	.148	0.60	.107	0.64	.350	0.62	.205	0.64	.350
27	0.60	.107	0.61	.148	0.60	.107	0.68	.590	0.62	.205	0.65	.410
28	0.60	.107	0.61	.148	0.60	.107	0.64	.350	0.60	.107	0.64	.350
29	0.60	.107	--	--	0.61	.148	0.65	.410	0.60	.107	0.64	.350
30	0.60	.107	--	--	0.61	.148	0.64	.350	0.62	.205	0.64	.350
31	0.60	.107	--	--	0.60	.107	--	--	0.62	.205	--	--
sec-m da	3.743		3.141		5.795		6.406		6.899		10.540	
	July		August		September		October		November		December	
1	0.67	.53	1.98	36.66	1.30	11.40	.76	1.14	.63	.280	.65	.410
2	0.66	.47	1.30	11.40	2.05	39.65	.79	1.38	.63	.280	.65	.410
3	0.65	.41	1.12	6.46	1.13	6.70	.79	1.38	.63	.280	.64	.350
4	0.66	.47	.98	3.63	1.30	11.40	.80	1.46	.63	.280	.64	.350
5	0.66	.47	.92	2.75	1.30	11.40	.78	1.30	.63	.280	.61	.148
6	0.67	.53	.94	3.03	1.35	12.95	.76	1.14	.63	.280	.64	.350
7	0.68	.59	1.28	10.80	1.65	23.40	.76	1.14	.63	.280	.64	.350
8	0.67	.53	1.30	11.40	1.30	11.40	.73	.92	.62	.205	.64	.350
9	0.68	.59	1.42	15.21	1.95	35.40	.72	.85	.62	.205	.64	.350
10	0.66	.47	2.14	43.56	1.30	11.40	.70	.71	.63	.280	.64	.350
11	0.72	.85	1.36	13.27	1.27	10.50	.69	.65	.64	.350	.64	.350
12	0.79	1.38	1.38	13.91	.95	3.17	.69	.65	.68	.590	.63	.280
13	0.72	.85	1.25	9.92	.92	2.75	.68	.59	.80	1.460	.64	.350
14	0.72	.85	1.50	17.90	.96	3.32	.66	.47	.77	1.220	.64	.350
15	0.72	.85	1.90	33.30	.88	2.25	.66	.47	.72	.850	.63	.280
16	0.73	.92	2.05	39.65	.94	3.03	.65	.41	.70	.710	.60	.107
17	0.82	1.64	1.25	9.92	.87	2.14	.65	.41	.70	.710	.63	.280
18	0.73	.92	1.48	17.22	.82	1.64	.65	.41	.69	.650	.63	.280
19	0.98	3.63	1.95	35.40	.84	1.83	.65	.41	.68	.590	.63	.280
20	1.36	13.27	1.23	9.34	.82	1.64	.65	.41	.68	.590	.62	.205
21	0.84	1.83	1.19	8.23	.84	1.83	.65	.41	.68	.590	.63	.280
22	0.74	.99	1.55	19.67	1.03	4.52	.64	.35	.66	.470	.63	.280
23	1.08	5.56	2.50	59.50	.86	2.03	.64	.35	.66	.470	.62	.205
24	2.00	37.50	1.42	15.21	.80	1.46	.64	.35	.66	.470	.63	.280
25	0.88	2.25	1.23	9.34	.78	1.30	.64	.35	.65	.410	.63	.280
26	0.96	3.32	1.50	17.90	.76	1.14	.64	.35	.66	.470	.63	.280
27	1.46	16.54	1.40	14.55	.76	1.14	.64	.35	.66	.470	.63	.280
28	2.08	40.94	1.17	7.70	.73	.92	.64	.35	.66	.470	.62	.205
29	1.40	14.55	1.40	14.55	.72	.85	.63	.28	.66	.470	.62	.205
30	2.30	50.60	1.30	11.40	.80	1.46	.63	.28	.65	.410	.61	.148
31	2.50	59.50	1.07	5.34	--	--	.63	.28	--	--	.60	.107
sec-m da	263.80		528.12		224.02		20.00		15.070		8.730	

TABLE 2.18

Daily Gage Height, in meters, and Discharge, in second-meters,
Giamma River near mouth-Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.95d	11.90	.85d	8.00	.80d	6.50	.80d	6.50	r		r	
2	.96d	12.40	.84d	7.70	.80d	6.50	.80d	6.50	r		r	
3	.96d	12.40	.84d	7.70	.80d	6.50	.80d	6.50	r		r	
4	.95d	11.90	.84d	7.70	.79d	6.20	.79d	6.20	r		r	
5	.94d	11.50	.84d	7.70	.79d	6.20	.79d	6.20	r		r	
6	.94d	11.50	.84d	7.70	.80d	6.50	.79d	6.20	r		r	
7	.93d	11.10	.83d	7.40	.81d	6.80	.78d	5.91	r		r	
8	.93d	11.10	.85d	7.40	.82d	7.10	.78d	5.91	r		r	
9	.92d	10.70	.83d	7.40	.82d	7.10	.78d	5.91	r		r	
10	.92d	10.70	.82d	7.10	.82d	7.10	.78d	5.91	r		r	
11	.92d	10.70	.82d	7.10	.85d	8.00	.77d	5.63	r		r	
12	.91d	10.30	.82d	7.10	.90d	9.90	.77d	5.63	r		r	
13	.90d	9.90	.81d	6.80	.94d	11.50	.77d	5.63	r		r	
14	.90d	9.90	.81d	6.80	.98d	13.40	.77d	5.63	r		r	
15	.90d	9.90	.82d	7.10	1.02d	15.40	.76d	5.36	r		r	
16	.90d	9.90	.81d	6.80	1.00d	14.40	.76d	5.36	r		r	
17	.89d	9.50	.81d	6.80	.96d	12.40	.76d	5.36	r		r	
18	.89d	9.50	.81d	6.80	.93d	11.10	.77d	5.63	r		r	
19	.89d	9.50	.81d	6.80	.94d	11.50	.80d	6.50	r		r	
20	.88d	9.10	.81d	6.80	.97d	12.90	.80d	6.50	r		r	
21	.88d	9.10	.81d	6.80	.95d	11.90	r		r		r	
22	.88d	9.10	.81d	6.80	.91d	10.30	r		r		r	
23	.88d	9.10	.80d	6.50	.89d	9.50	r		r		r	
24	.88d	9.10	.80d	6.50	.87d	8.70	r		r		r	
25	.87d	8.70	.80d	6.50	.86d	8.30	r		r		r	
26	.86d	8.30	.80d	6.50	.85d	8.00	r		r		r	
27	.86d	8.30	.80d	6.50	.84d	7.70	r		r		r	
28	.86d	8.30	.80d	6.50	.83d	7.40	r		r		r	
29	.86d	8.30	--	--	.82d	7.10	r		r		r	
30	.86d	8.30	--	--	.82d	7.10	r		r		r	
31	.85d	8.00	--	--	.81d	6.80	--	--	r		--	--
sec-m da	308.00		197.30		273.80							
	July		August		September		October		November		December	
1	r		3.28	560.8	3.60	720.0	1.50	56.0	.89	9.50	.88	9.10
2	r		3.31	574.7	4.11c	1035.0	1.50	56.0	.89	9.50	.88	9.10
3	r		3.64	741.4	3.31	574.7	1.77	95.2	.88	9.10	.87	8.70
4	r		3.22	533.8	2.51	268.0	1.87	112.3	.88	9.10	.87	8.70
5	r		2.63	304.3	2.65	310.7	1.64	75.0	.87	8.70	.86	8.30
6	r		3.09	477.8	2.42	241.8	1.51	57.2	.87	8.70	.86	8.30
7	r		3.69	768.5	2.55	280.0	1.39	44.0	.86e	8.30	.85	8.00
8	r		3.24	542.7	2.60	295.0	1.32	37.0	.87e	8.70	.85	8.00
9	r		3.59	714.7	2.42	241.8	1.26	31.6	.88e	9.10	.85	8.00
10	r		3.96	925.4	2.92	408.0	1.22	28.4	.89e	9.50	.84	7.70
11	r		3.97	931.5	2.57	286.0	1.17	24.9	.90e	9.90	.84	7.70
12	r		3.84	853.3	2.17	176.8	1.14	22.8	.92e	10.70	.82	7.10
13	r		4.10c	1020.0	1.95	127.7	1.12	21.4	.94e	11.50	.82	7.10
14	r		4.23c	1115.0	1.95	127.7	1.09	19.4	.96e	12.40	.82	7.10
15	r		4.13c	1050.0	1.81	101.7	1.07	18.2	.98e	13.40	.82	7.10
16	r		4.20c	1095.0	1.76	93.6	1.04	16.4	.99e	13.90	.82	7.10
17	r		4.36c	1207.0	1.82	103.4	1.02	15.4	.98	13.40	.81	6.80
18	r		3.51	673.1	1.78	96.8	1.01	14.9	.96	12.40	.81	6.80
19	r		3.49	662.9	1.74	90.4	.98	13.4	.94	11.50	.81	6.80
20	r		4.45c	1280.0	1.66	78.0	.97	12.9	.93	11.10	.81	6.80
21	r		4.05c	1000.0	1.61	70.5	.95	11.9	.92	10.70	.80	6.50
22	r		3.90	889.0	1.53	59.6	.94	11.5	.91	10.30	.80	6.50
23	r		3.76	807.4	1.63	73.5	.94	11.5	.90	9.90	.80	6.50
24	r		4.55c	1370.0	1.81	101.7	.94	11.5	.90	9.90	.80	6.50
25	r		3.36	598.5	1.64	75.0	.92	10.7	.91	10.30	.80	6.50
26	2.68	319.4	3.87	871.0	1.51	57.2	.92	10.7	.89	9.50	.80	6.50
27	2.86	384.5	3.77	813.0	1.43	48.3	.91	10.3	.89	9.50	.80	6.50
28	3.26	551.7	2.98	432.0	1.41	46.1	.91	10.3	.89	9.50	.80	6.50
29	2.81	365.7	2.77	351.2	1.37	42.0	.90	9.9	.89	9.50	.79	6.20
30	2.88	392.2	2.62	301.2	1.45	50.5	.90	9.9	.88	9.10	.79	6.20
31	3.00	440.0	2.45	250.5	--	--	.90	9.9	--	--	.79	6.20
sec-m da			23,715.7		6,281.5		890.5		308.60		224.9	

TABLE 2.19

Daily Gage Height, in meters, and Discharge, in second-meters.
Abbey River near Kese, Ethiopia-Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	1.68	205.4	1.31	128.8	1.04	85.0	.87	61.4	.81	54.2	0.55	27.5
2	1.67	203.1	1.30	127.0	1.03	83.5	.86	60.2	.79	51.9	0.56	28.4
3	1.66	200.8	1.28	123.6	1.02	82.0	.84	57.8	.81	54.2	0.56	28.4
4	1.64	196.2	1.27	121.9	1.01	80.5	.84	57.8	.77	49.7	0.57	29.3
5	1.63	193.9	1.26	120.2	1.02	82.0	.82	55.4	.76	48.6	0.60	32.0
6	1.60	187.0	1.25	118.5	1.01	80.5	.81	54.2	.77	49.7	0.58	30.2
7	1.59	184.7	1.24	116.8	1.01	80.5	.80	53.0	.81	54.2	0.80	53.0
8	1.58	182.4	1.23	115.1	1.02	82.0	.80	53.0	.81	54.2	0.96	73.1
9	1.57	180.1	1.22	113.4	1.01	80.5	.79	51.9	.86	60.2	1.06	88.0
10	1.56	177.9	1.21	111.7	1.02	82.0	.79	51.9	.89	63.8	1.05	86.5
11	1.54	173.5	1.20	110.0	1.04	85.0	.78	50.8	.90	65.0	1.01	80.5
12	1.52	169.2	1.19	108.4	1.07	89.5	.77	49.7	.89	63.8	0.94	70.3
13	1.50	165.0	1.18	106.8	1.11	95.6	.77	49.7	.85	59.0	0.85	59.0
14	1.49	162.9	1.17	105.2	1.13	98.8	.75	47.5	.79	51.9	0.80	53.0
15	1.48	160.8	1.16	103.6	1.14	100.4	.75	47.5	.76	48.6	0.78	50.8
16	1.47	158.7	1.14	100.4	1.14	100.4	.74	46.4	.73	45.3	0.75	47.5
17	1.46	156.7	1.13	98.8	1.13	98.8	.73	45.3	.70	42.0	0.73	45.3
18	1.45	154.7	1.12	97.2	1.10	94.0	.73	45.3	.67	39.0	0.70	42.0
19	1.44	152.7	1.12	97.2	1.07	89.5	.73	45.3	.65	37.0	0.69	41.0
20	1.43	150.7	1.11	95.6	1.07	89.5	.75	47.5	.63	35.0	0.72	44.2
21	1.42	148.8	1.10	94.0	1.10	94.0	.77	49.7	.61	33.0	0.78	50.8
22	1.41	146.9	1.10	94.0	1.09	92.5	.78	50.8	.60	32.0	0.83	56.6
23	1.40	145.0	1.09	92.5	1.05	86.5	.80	53.0	.59	31.1	0.83	56.6
24	1.39	143.2	1.08	91.0	1.03	83.5	.80	53.0	.58	30.2	0.81	54.2
25	1.38	141.4	1.08	91.0	1.01	80.5	.80	53.0	.57	29.3	0.77	49.7
26	1.36	137.8	1.06	88.0	.99	77.5	.79	51.9	.58	30.2	0.76	48.6
27	1.35	136.0	1.06	88.0	.97	74.5	.77	49.7	.59	31.1	0.74	46.4
28	1.34	134.2	1.05	86.5	.95	71.7	.77	49.7	.57	29.3	0.74	46.4
29	1.34	134.2	--	--	.92	67.6	.81	54.2	.55	27.5	0.76	48.6
30	1.33	132.4	--	--	.90	65.0	.82	55.4	.55	27.5	0.80	53.0
31	1.32	130.6	--	--	.89	63.8	--	--	.54	26.6	--	--
sec-m da	5,046.9		2,945.2		2,619.6		1,552.0		1,355.1		1,520.9	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	.85	59.0	4.94h	1,685	6.18h	2,636	3.88	1,041	2.40	402.0	1.91	261.6
2	.86	60.2	5.27h	1,930	6.23h	2,678	4.13	1,173	2.38	395.6	1.89	256.5
3	.86	60.2	5.94h	2,444	6.29h	2,730	4.53	1,411	2.36	389.2	1.86	249.0
4	.86	60.2	6.04h	2,524	4.97h	1,706	4.59	1,449	2.33	379.6	1.85	246.5
5	.99	77.5	4.98h	1,713	5.34h	1,983	4.23	1,229	2.30	370.0	1.84	244.0
6	1.29	125.3	5.20h	1,878	5.28h	1,938	3.90	1,051	2.29	366.9	1.82	239.0
7	1.32e	143.2	6.26h	2,704	5.06h	1,773	3.68	939	2.27	360.5	1.80	234.0
8	1.50e	165.0	5.78h	2,320	5.00h	1,728	3.52	858	2.25	354.3	1.78	229.2
9	1.61h	189.3	5.20h	1,878	5.05	1,766	3.41	803	2.22	345.0	1.77	226.8
10	1.80h	234.0	5.99h	2,484	5.18	1,863	3.31	754	2.21	342.0	1.75	222.0
11	1.90h	259.0	5.59h	2,172	4.78	1,573	3.23	717	2.20	339.0	1.73	217.2
12	e	311.0	5.53h	2,128	4.42	1,342	3.16	686	2.19	336.1	1.70	210.0
13	2.30h	370.0	6.09h	2,564	4.16	1,189	3.10	660	2.22	345.0	1.69	207.7
14	1.82h	239.0	6.08	2,556	4.07	1,140	3.03	631	2.24	351.2	1.68	205.4
15	2.24h	351.2	5.76	2,305	3.97	1,087	2.98	611	2.22	345.0	1.66	200.8
16	1.89h	256.5	6.00	2,492	3.94	1,072	3.93	1,067	2.18	333.2	1.65	198.5
17	2.55h	451.8	6.22	2,670	3.96	1,082	2.87	569	2.15	324.7	1.62	191.6
18	2.92h	567.8	5.49	2,098	3.92	1,061	2.86	565	2.11	313.7	1.61	189.3
19	2.29h	366.9	5.00	1,728	3.91	1,056	2.80	542	2.10	311.0	1.59	184.7
20	2.93h	587.8	6.10	2,572	3.89	1,046	2.76	527	2.08	305.8	1.58	182.4
21	3.04h	635.1	6.50	2,906	3.74	969	2.72	512	2.07	303.2	1.57	180.1
22	2.68h	457.8	5.95h	2,452	3.69	944	2.68	498	2.05	298.0	1.55	175.7
23	3.10h	660.0	e	2,496	3.79	995	2.65	487	2.03	292.8	1.54	173.5
24	3.88h	1,040.8	6.06h	2,540	3.92	1,061	2.62	476	2.02	290.2	1.52	169.2
25	3.80h	1,000.0	4.98h	1,713	3.79	995	2.59	466	2.02	290.2	1.51	167.1
26	3.78h	989.3	5.13h	1,826	3.74	969	2.56	455	2.00	285.0	1.50	165.0
27	4.10h	1,156.0	6.14h	2,604	3.64	918	2.53	445	1.98	279.8	1.47	158.7
28	4.13h	1,172.5	5.75h	2,297	3.57	883	2.50	435	1.95	272.0	1.46	156.7
29	3.82h	1,010.2	6.16h	2,620	3.54	868	2.48	428	1.94	269.4	1.45	154.7
30	4.11h	1,161.5	5.00h	1,728	3.68	939	2.45	419	1.92	264.2	1.44	152.7
31	4.92h	1,671.0	4.86h	1,629	--	--	2.43	412	--	--	1.42	148.8
sec-m da	15,946.6		69,656		41,992		22,313		9,354.6		6,198.4	

TABLE 2.20

Daily Gage Height, in meters, and Discharge, in second-meters,
Muger River near Chancho, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.41	.26	.47	.53	.35	.10	.35	.10	e	.20	.43	.33
2	.41	.26	.47	.53	.35	.10	e	.10	e	.23	.43	.33
3	.41	.26	.47	.53	.35	.10	e	.12	.40	.23	.44	.38
4	.41	.26	.37	.14	.34	.08	.36	.12	.39	.20	.47	.53
5	.41	.26	.37	.14	.34	.08	.36	.12	.40	.23	.44	.38
6	.41	.26	.37	.14	.34	.08	.35	.10	.40	.23	.50	.71
7	.41	.26	.37	.14	.34	.08	.36	.12	.38	.17	.52	.83
8	.40	.23	.37	.14	.34	.08	.35	.10	.38	.17	.54	.95
9	e	.23	e	.14	.37	.14	.35	.10	e	.25	.48	.59
10	.40	.23	e	.12	.41	.26	e	.10	.43	.33	.48	.59
11	.40	.23	.36	.12	.41	.26	.35	.10	.45	.43	.46	.48
12	.40	.23	.38	.17	e	.32	.35	.10	e	.40	.45	.43
13	.39	.20	.36	.12	.44	.38	e	.10	e	.40	.44	.38
14	.39	.20	.36	.12	.43	.33	.35	.10	e	.40	.44	.38
15	.39	.20	e	.12	.41	.26	.35	.10	.44	.38	.44	.38
16	.39e	.20	.36	.12	.41	.26	.35	.10	.43	.33	.44	.38
17	.39	.20	.36	.12	.40	.23	.35	.10	.42	.29	.44	.38
18	.39	.20	.36	.12	.40	.23	.36	.12	.41	.26	.45	.43
19	.39	.20	.36	.12	.42	.29	.38	.17	.42	.29	.52	.83
20	.39	.20	.36	.12	.43	.33	e	.20	.42	.29	.47	.53
21	.38	.17	.36	.12	.42	.29	.40	.23	.42	.29	.47	.53
22	.38	.17	.36	.12	.43	.33	.40	.23	.41	.26	.47	.53
23	.38	.17	.35	.10	.40	.23	.43	.33	.42	.29	.45	.43
24	.38	.17	e	.12	.40	.23	.47	.53	.42	.29	.45	.43
25	.38	.17	e	.10	.39	.20	.43	.33	.42	.29	e	.40
26	.38	.17	.35	.10	.39	.20	.40	.23	.41	.26	.44	.38
27	.38	.17	.35	.10	.37	.14	.40	.23	.41	.26	.44	.38
28	.36	.12	.35	.10	.37	.14	.40	.23	.41	.26	.45	.43
29	.39	.20	--	--	.37	.14	.40	.23	.42	.29	.44	.38
30	.48	.59	--	--	.38	.17	.39	.20	.42	.29	.46	.48
31	.47	.53	--	--	.36	.12	--	--	.42	.29	--	--
sec-m da	7.20		4.66		6.18		5.04		8.78		14.59	
	July		August		September		October		November		December	
1	.47	.53	1.33	12.56	2.08	35.94	1.11	8.08	.57	1.16	.49	.65
2	.48	.59	1.19	9.60	1.63	20.32	1.07	7.36	.56	1.09	.49	.65
3	.49	.65	1.19	9.60	1.54	17.78	1.06	7.19	.55	1.02	.49	.65
4	.64	1.73	1.20	9.80	1.62	20.02	1.33	12.56	.55	1.02	.49	.65
5	.60	1.40	1.02	6.52	1.58	18.88	1.26	11.03	e	1.02	.48	.59
6	.57	1.16	1.00	6.20	1.60	19.44	1.19	9.60	.55	1.02	.47	.53
7	.61	1.48	1.44	15.17	1.58	18.88	1.03	6.68	.54	.95	.48	.59
8	.65	1.82	1.25	10.82	e	25.30	e	6.04	.54	.95	.47	.53
9	1.15	8.83	1.43	14.92	2.00	32.80	.95	5.43	.54	.95	.47	.53
10	.66	1.91	e	13.84	2.02	33.58	.94	5.28	.54	.95	.47	.53
11	.66	1.91	e	12.76	2.00	32.80	.87	4.29	.54	.95	.47	.53
12	.85	4.03	1.29	11.68	1.70	22.42	.84	3.90	.53	.89	.46	.48
13	.87	4.29	1.20	9.80	1.68	21.82	.84	3.90	.53	.89	.46	.48
14	.72	2.50	1.11	8.08	1.66	27.22	.84	3.90	.52	.83	.46	.48
15	.67	2.00	1.35	13.02	1.52	17.24	.83	3.77	.52	.83	.46	.48
16	.66	1.91	1.28	11.46	1.47	15.92	e	3.16	.52	.83	.46	.48
17	.64	1.73	1.30	11.90	1.63	20.32	.72	2.50	.52	.83	.47	.53
18	.72	2.50	1.41	14.44	1.40	14.20	.70	2.30	.52	.83	.46	.48
19	.72	2.50	1.31	12.12	1.60	19.44	.68	2.10	.51	.77	.46	.48
20	.71	2.40	1.40	14.20	1.50	16.70	.67	2.00	.51	.77	.46	.48
21	.72	2.50	1.37	13.48	1.31	12.12	.66	1.91	.50	.71	.46	.48
22	.73	2.61	1.40	14.20	1.26	11.03	.65	1.82	.51	.77	.46	.48
23	.77	3.05	1.32	12.34	1.38	13.72	.64	1.73	.50	.71	.46	.48
24	.97	5.73	1.28	11.46	1.63	20.32	.63	1.64	.49	.65	.46	.48
25	.87	4.29	1.56	18.32	1.52	17.24	.62	1.56	.51	.77	.46	.48
26	.82	3.64	2.08	35.94	1.33	12.56	.61	1.48	.51	.77	.46	.48
27	.87	4.29	1.92	29.82	1.32	12.34	.60	1.40	.51	.77	.45	.43
28	.98	5.88	1.52	17.24	1.30	11.90	.59	1.32	.51	.77	.45	.43
29	1.14	8.64	1.08	7.54	1.45	15.42	.58	1.24	.51	.77	.46	.48
30	1.05	7.02	1.55	18.05	1.58	18.88	.57	1.16	.50	.71	.45	.43
31	.99	6.04	1.78	24.96	--	--	.58	1.24	--	--	.46	.48
sec-m da	99.56		431.84		590.55		127.57		25.95		15.93	

TABLE 2.24

Daily Gage Height, in meters, and Discharge, in second-meters,
Fato River near Guder, Ethiopia-Year Ending December 21, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.40	.132	.38	.073	.38	.073	.38	.073	.38	.073	.39	.107
2	.39	.107	.38	.073	.38	.073	.38	.073	.38	.073	.42	.172
3	.39	.107	.38	.073	.38	.073	.38	.073	.46e	.230	.58	.398
4	.39	.107	.38	.073	.38	.073	.38	.073	.54e	.337	.57	.382
5	.40	.132	.38	.073	.38	.073	.38	.073	.62e	.463	.56	.367
6	.39	.107	.38	.073	.38	.073	.38	.073	.71	.631	.48	.254
7	.40	.132	.39	.107	.39	.107	.38	.073	.73	.674	.47	.242
8	.42	.172	.39	.107	.41	.153	.38	.073	.44	.205	.55	.352
9	.40	.132	.39	.107	.40	.132	.38	.073	.48	.254	.47	.242
10	.40	.132	.39	.107	.40	.132	.38	.073	.52	.308	.42	.172
11	.39	.107	.39	.107	.40	.132	.38	.073	.42	.172	.41	.153
12	.39	.107	.39	.107	.40e	.132	.38	.073	.40	.132	.41	.153
13	.39	.107	.39	.107	.39e	.107	.38	.073	.40	.132	.42	.172
14	.39	.107	.39	.107	.39	.107	.38	.073	.39	.107	.40	.132
15	.39	.107	.39	.107	.42	.172	.38	.073	.39	.107	.40	.132
16	.38	.073	.39	.107	.42	.172	.38	.073	.39	.107	.40	.132
17	.38	.073	.39	.107	.40	.132	.38	.073	.38	.073	.41	.153
18	.38	.073	.39	.107	.39	.107	.38	.073	.38	.073	.42	.172
19	.38	.073	.38	.073	.41	.153	.39	.107	.38	.073	.48	.254
20	.38	.073	.38	.073	.40	.132	.38	.073	.38	.073	.53	.322
21	.38	.073	.38	.073	.39	.107	.39	.107	.38	.073	.45	.218
22	.38	.073	.39	.107	.39	.107	.39	.107	.39	.107	.44	.205
23	.38	.073	.39	.107	.38	.073	.38	.073	.40	.132	.61	.446
24	.38	.073	.39	.107	.38	.073	.38	.073	.40	.132	.54	.337
25	.38	.073	.38	.073	.38	.073	.38	.073	.39	.107	.54	.337
26	.38	.073	.38	.073	.38	.073	.39	.107	.39	.107	.49	.267
27	.38	.073	.38	.073	.38	.073	.39	.107	.39	.107	.56	.367
28	.38	.073	.38	.073	.38	.073	.38	.073	.39	.107	.71	.631
29	.38	.073	--	--	.38	.073	.39	.107	.40	.132	.74	.696
30	.38	.073	--	--	.38	.073	.39	.107	.42	.172	.66	.533
31	.38	.073	--	--	.38	.073	--	--	.40	.132	--	--
sec-m da	2.963		2.554		3.179		2.428		5.605		8.500	
	July		August		September		October		November		December	
1	.67	.552	1.64	4.41	2.32	9.90	2.31	9.80	.56	.367	.42	.172
2	.70	.610	1.68	4.66	2.37	10.40	2.39	10.60	.54	.337	.42	.172
3	.84	.945	1.80	5.50	2.27	9.40	2.38	10.50	.53	.332	.41	.153
4	.92	1.168	1.84	5.78	2.09	7.76	2.21	8.84	.52	.308	.41	.153
5	.97	1.317	1.87	5.99	1.96	6.71	1.96	6.71	.51	.294	.40	.132
6	.99	1.379	1.90	6.23	1.91	6.31	1.79	5.43	.50	.280	.41	.153
7	1.15	1.939	1.81	5.57	2.03	7.27	1.63	4.35	.49	.267	.40	.132
8	1.18	2.058	1.78	5.36	1.98	6.87	1.50	3.60	.48	.254	.41	.153
9	1.54	3.822	2.08	7.67	1.98	6.87	1.40	3.07	.47	.242	.41	.153
10	1.67	4.590	2.25	9.20	1.87	5.99	1.32	2.63	.47	.242	.41	.153
11	1.69	4.730	2.22	8.93	1.86	5.92	1.24	2.31	.48	.254	.40	.132
12	1.70	4.800	2.15	8.30	1.86	5.92	1.16	1.98	.47	.242	.40	.132
13	1.60	4.170	2.11	7.94	2.03	7.27	1.09	1.71	.46	.230	.40	.132
14	1.66	4.530	2.08	7.67	2.14	8.21	1.02	1.47	.45	.218	.40	.132
15	1.60	4.170	1.96	6.71	2.30	9.70	.98	1.35	.45	.218	.40	.132
16	1.71	4.870	1.90	6.23	2.21	8.84	.93	1.20	.45	.218	.40	.132
17	1.82	5.640	1.85	5.85	2.44	11.10	.90	1.11	.44	.205	.40	.132
18	1.79	5.430	1.89	6.15	2.21	8.84	.84	.95	.44	.205	.40	.132
19	1.66	4.530	1.90	6.23	2.32	9.90	.86	1.00	.44	.205	.40	.132
20	1.65	4.470	2.02	7.19	2.23	9.02	.78	.79	.43	.190	.40	.132
21	1.72	4.940	2.15	8.30	2.23	9.02	.75	.72	.43	.190	.40	.132
22	1.69	4.730	2.04	7.35	2.19	8.66	.72	.65	.42	.172	.40	.132
23	1.72	4.940	1.86	5.92	2.33	10.00	.70	.61	.42	.172	.40	.132
24	1.77	5.290	1.80	5.50	2.34	10.10	.68	.57	.42	.172	.40	.132
25	1.69	4.730	1.78	5.36	2.16	8.39	.66	.53	.42	.172	.40	.132
26	1.64	4.410	2.33	10.00	1.97	6.79	.65	.52	.48	.254	.40	.132
27	1.59	4.111	2.46	11.31	1.79	5.43	.63	.48	.54	.337	.40	.132
28	1.56	3.936	2.37	10.40	1.72	4.94	.60	.43	.49	.267	.40	.132
29	1.57	3.994	2.22	8.93	1.70	4.80	.59	.41	.44	.205	.40	.132
30	1.56	3.936	2.06	7.51	1.74	5.08	.58	.40	.43	.190	.42	.172
31	1.60e	4.170	2.18	8.57	--	--	.57	.38	--	--	.49	.267
sec-m da	114.907		220.72		235.41		85.10		7.239		4.473	

TABLE 2.26

Daily Gage Height, in meters, and Discharge, in second-meters,
Guder River at Guder, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.55	.835	.49	.525	.47	.445	.44	.325	.45	.365	.55	.835
2	.54	.775	.49	.525	.47	.445	.44	.325	.44	.325	.55	.835
3	.54	.775	.49	.525	.47	.445	.43	.295	.45	.365	.61	1.285
4	.54	.775	.49	.525	.47	.445	.43	.295	.53	.715	.84	3.805
5	.54	.775	.48	.485	.47	.445	.43	.295	.59	1.115	.80	3.305
6	.54	.775	.48	.485	.49	.525	.43	.295	.66	1.765	.77	2.975
7	.54	.775	.48	.485	.49	.525	.43	.295	.65	1.665	.76	2.865
8	.54	.775	.48	.485	.52	.665	.43	.295	.74	2.645	.78	3.085
9	.53	.715	.48	.485	.56	.895	.43	.295	.63	1.465	.76	2.865
10	.53	.715	.48	.485	.52	.665	.43	.295	.54	.775	.74	2.645
11	.52	.665	.48	.485	.55	.835	.43	.295	.53	.715	.70	2.205
12	.52	.665	.48	.485	.53	.715	.43	.295	.55	.835	.70	2.205
13	.51	.615	.48	.485	.53	.715	.44	.325	.55	.835	.69	2.095
14	.51	.615	.48	.485	.52	.665	.44	.325	.50	.565	.69	2.095
15	.51	.615	.48	.485	.51	.615	.44	.325	.49	.525	.66	1.765
16	.51	.615	.47	.445	.54	.775	.44	.325	.47	.445	.69	2.095
17	.51	.615	.47	.445	.51	.615	.44	.325	.47	.445	.68	1.985
18	.51	.615	.48	.485	.50	.565	e	.355	.46	.405	.64	1.565
19	.51	.615	.48	.485	.50	.565	e	.385	.45	.365	.70	2.205
20	.51	.615	.48	.485	.50	.565	e	.415	.45	.365	.74	2.645
21	.51	.615	.48	.485	.50	.565	.47	.445	.54	.775	.73	2.535
22	.51	.615	.48	.485	.49	.525	.46	.405	.54	.775	.74	2.645
23	.51	.615	.48	.485	.48	.485	.45	.365	.54	.775	.75	2.755
24	.50	.565	.48	.485	.47	.445	.46	.405	.55	.835	.77	2.975
25	.50	.565	.48	.485	.47	.445	.46	.405	.54	.775	.80	3.305
26	.50	.565	.47	.445	.46	.405	.47	.445	.52	.665	.78	3.085
27	.50	.565	.47	.445	.45	.365	.48	.485	.50	.565	.77	2.975
28	.50	.565	.47	.445	.45	.365	.46	.405	.48	.485	.79	3.195
29	.49	.525	--	--	.45	.365	e	.385	.51	.615	.84	3.805
30	e	.525	--	--	.45	.365	.45	.365	e	.695	.83	3.675
31	e	.525	--	--	.44	.325	--	--	.54	.775	--	--
sec-m da	20.185		13.540		16.785		10.490		24.435		76.310	
	July		August		September		October		November		December	
1	.84	3.805	1.38	15.025	2.28	54.195	2.26	53.095	.67	1.875	.57	.965
2	.85	3.945	1.42	16.395	2.24	51.995	2.60	72.255	.67	1.875	.65	1.665
3	.89	4.525	1.61	23.045	2.22	50.395	2.70	78.955	.65	1.665	.62	1.375
4	.91	4.835	1.62	23.395	2.12	45.395	2.38	59.695	.64	1.565	.62	1.375
5	.99	6.125	1.70	26.195	1.99	38.245	2.15	47.045	.64	1.565	.55	.835
6	1.06	7.405	1.66	24.795	2.00	38.795	1.98	37.705	.63	1.465	.55	.835
7	1.15	9.325	1.72	26.895	2.10	44.295	1.80	29.695	.62	1.375	.57	.965
8	1.22	10.935	1.59	22.345	2.05	41.545	1.61	23.045	.62	1.375	.54	.775
9	1.45	17.445	1.78	28.995	1.96	36.655	1.48	18.495	.61	1.285	.54	.775
10	1.56	21.295	1.90	33.745	1.95	36.145	1.36	14.395	.61	1.285	.54	.775
11	1.61	23.045	1.91	34.205	1.96	36.655	e	12.935	.61	1.285	.54	.775
12	1.64	24.095	2.02	39.895	1.96	36.655	e	11.475	.60	1.195	.53	.715
13	1.66	24.795	1.88	32.855	1.98	37.705	e	10.015	.59	1.115	.53	.715
14	1.66	24.795	1.91	34.205	2.20	49.795	e	8.555	.59	1.115	.53	.715
15	1.64	24.095	1.96	36.655	2.11	44.845	e	7.095	.59	1.115	.52	.665
16	1.58	21.995	1.92	34.675	2.12	45.395	.96	5.635	.58	1.035	.52	.665
17	1.56	21.925	1.95	36.143	2.14	46.495	.94	5.315	.58	1.035	.52	.665
18	1.55	20.945	1.88	32.855	2.22	50.895	.91	4.835	.58	1.035	.52	.665
19	1.51	19.545	1.92	34.675	2.22	50.895	.88	4.375	.58	1.035	.52	.665
20	1.54	20.595	1.90	33.745	2.14	46.495	.85	3.945	.57	.965	.52	.665
21	1.56	21.295	2.10	44.295	2.15	47.045	.82	3.545	.57	.965	.52	.665
22	1.61	23.045	2.02	39.895	2.15	47.045	.80	3.305	.57	.965	.52	.665
23	1.66	24.795	2.01	39.345	2.34	57.495	.78	3.085	.57	.965	.52	.665
24	1.69	25.845	1.88	32.855	2.32	56.355	.76	2.865	.57	.965	.52	.665
25	1.75	27.945	1.95	36.145	e	50.600	.75	2.755	.57	.965	e	.665
26	1.63	23.745	2.21	50.345	2.11	44.845	.74	2.645	.64	1.565	e	.615
27	1.56	21.295	2.08	43.195	2.00	38.795	.72	2.425	.66	1.765	.51	.615
28	1.46	17.795	2.06	42.095	1.85	31.595	.70	2.205	.63	1.465	.51	.615
29	1.52	19.895	2.02	39.895	1.86	32.005	.69	2.095	.63	1.465	.51	.615
30	1.39	15.355	2.00	38.795	1.98	37.705	.68	1.985	.62	1.375	.56	.895
31	1.35	14.095	2.02	39.895	--	--	.67	1.875	--	--	.58	1.035
sec-m da	550.575		1,037.493		1,327.515		537.345		38.720		24.965	

TABLE 2.27

Daily Gage Height, in meters, and Discharge, in second-meters,
Indris River near Guder, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.51	.39	.49	.27	.48	.22	.47	.17	.48	.22	.49	.27
2	.51	.39	.48	.22	.48	.22	.47	.17	.48	.22	.49	.27
3	.50	.33	.48	.22	.48	.22	.47	.17	.48	.22	.58	.81
4	.50	.33	.48	.22	.47	.17	.47	.17	.48	.22	.56	.69
5	.51	.39	.49	.27	.47	.17	.47	.17	.52	.45	.53	.51
6	.51	.39	.48	.22	.49	.27	.47	.17	.48	.22	.52	.45
7	.51	.39	.48	.22	.50	.33	.47	.17	.55	.63	.59	.88
8	.51	.39	.48	.22	.50	.33	.47	.17	.53	.51	.58	.81
9	.50	.33	.48	.22	.50	.33	.47	.17	.55	.63	.55	.63
10	.50	.33	.48	.22	.50	.33	.47	.17	.52	.45	.53	.51
11	.50	.33	.48	.22	.50	.33	.47	.17	.50	.33	.50	.33
12	.50e	.33	.48	.22	.50	.33	.47	.17	.49	.27	.50	.33
13	.50e	.33	.48	.22	.50	.33	.47	.17	.48	.22	.50	.33
14	.50	.33	.47	.17	.50	.33	.47	.17	.48	.22	.50	.33
15	.50	.33	.47	.17	.50	.33	.47	.17	.48	.22	.50	.33
16	.50	.33	.47	.17	.49	.27	.47	.17	.47	.17	.52	.45
17	.50	.33	.47	.17	.49	.27	.47	.17	.47	.17	.51	.39
18	.50	.33	.48	.22	.49	.27	.47e	.17	.47	.17	.53	.51
19	.50	.33	.48	.22	.50	.33	.48e	.22	.46	.12	.54	.57
20	.49	.27	.48	.22	.50	.33	.49e	.27	.46	.12	.54	.57
21	.49	.27	.48	.22	.49	.27	.49	.27	.48	.22	.52	.45
22	.49	.27	.48	.22	.49	.27	.48	.22	.52	.45	.57	.75
23	.49	.27	.48	.22	.48	.22	.48	.22	.50	.33	.56	.69
24	.49	.27	.48	.22	.48	.22	.48	.22	.51	.39	.61	1.05
25	.49	.27	.48	.22	.48	.22	.48	.22	.53	.51	.59	.88
26	.49	.27	.48	.22	.48	.22	.48	.22	.52	.45	.63	1.23
27	.49	.27	.48	.22	.47	.17	.49	.27	.49	.27	.59	.88
28	.49	.27	.48	.22	.47	.17	.48	.22	.49	.27	.58	.81
29	.49	.27	--	--	.47	.17	.48e	.22	.57	.75	.61	1.05
30	.49e	.27	--	--	.47	.17	.48	.22	.55e	.63	.61	1.05
31	.49e	.27	--	--	.47	.17	--	--	.50	.33	--	--
sec-m da	9.87		6.06		7.98		5.85		10.38		18.81	
	July		August		September		October		November		December	
1	.68	1.68	.85	4.00	1.03	8.00	.97	6.51	.57	.75	.51	.39
2	.70	1.86	.85	4.00	1.08	9.36	1.06	8.80	.56	.69	.56	.69
3	.71	1.96	.99	6.99	1.06	8.80	1.04	8.26	.56	.69	.55	.63
4	.70	1.86	.96	6.28	1.02	7.74	1.00	7.24	.56	.69	.52	.45
5	.67	1.59	1.00	7.24	1.00	7.24	.97	6.51	.56	.69	.52	.45
6	.69	1.77	.96	6.28	1.00	7.24	.92	5.40	.55	.63	.54	.57
7	.74	2.28	.94	5.83	1.06	8.80	.88	4.58	.55	.63	.52	.45
8	.90	4.98	.91	5.19	1.00e	7.24	.84	3.81	.54	.57	.53	.51
9	.90	4.98	.94	5.83	.94	5.83	.80	3.10	.54	.57	.51	.39
10	.88	4.58	.96	6.28	.94	5.83	.77	2.65	.54	.57	.51	.39
11	.88	4.58	.94	5.83	.93	5.61	.75e	2.40	.51	.39	.51	.39
12	.87	4.38	.95	6.05	.90	4.98	.74e	2.28	.51	.39	.50	.33
13	.83	3.63	.95	6.05	.94	5.83	.73e	2.17	.54	.57	.50	.33
14	.82	3.45	1.02	7.74	.97	6.51	.71e	1.96	.53	.51	.50	.33
15	.78	2.79	.99	6.99	.95	6.05	.70e	1.86	.52	.45	.50	.33
16	.75	2.40	.98	6.75	.93	5.61	.68e	1.68	.52	.45	.50	.33
17	.75	2.40	.96	6.28	.94	5.83	.66	1.50	.52	.45	.50	.33
18	.74	2.28	.94	5.83	1.02	7.74	.64	1.32	.52	.45	.50	.33
19	.75	2.40	.94	5.83	1.02	7.74	.63	1.23	.52	.45	.50	.33
20	.84	3.81	.92	5.40	1.02	7.74	.63	1.23	.52	.45	.50	.33
21	.87	4.38	.94	5.83	1.01	7.49	.62	1.14	.52	.45	.50	.33
22	.90	4.98	.90	4.98	1.06	8.80	.62	1.14	.52	.45	.50	.33
23	.95	6.05	.90	4.98	1.08	9.36	.62	1.14	.52	.45	.50	.33
24	.94	5.83	.89	4.78	1.08	9.36	.60	.96	.54	.57	.50	.33
25	.90	4.98	.90	4.98	1.06	8.80	.60	.96	.54	.57	e	.33
26	.89	4.78	1.26	15.61	.95	6.05	.60	.96	.56	.69	e	.33
27	.86	4.19	1.18	12.55	1.04	8.26	.58	.81	.56	.69	.50	.33
28	.82	3.45	1.00	7.24	.92	5.40	.58	.81	.63	1.23	.50	.33
29	.82	3.45	1.02	7.74	.99	6.99	.58	.81	.60	.96	.50	.33
30	.79	2.94	1.07	9.08	1.00	7.24	.58	.81	.53	.51	.55	.63
31	.78	2.79	1.04	8.26	--	--	.57	.75	--	--	.52	.45
sec-m da	107.48		206.70		217.47		84.78		17.61		12.33	

TABLE 2.28

Daily Gage Height, in meters, and Discharge, in second-meters,
Guder River at mouth--Year Ending December 31, 1961

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1			-.02	2.86	-.07	2.01	.03	4.64	.04	3.92	.22	7.30
2			-.02	2.86	-.07	2.01	.12	5.38	.11	5.19	.42	11.5
3			-.02	2.86	-.07	2.01	.10	5.00	.05	4.10	.20	6.50
4			-.01	3.03	-.06	2.18	.08	4.64	.04	3.92	.15	5.95
5			.00	3.20	-.07	2.01	.09	4.82	.04	3.92	.10	5.00
6			.03	3.74	-.08	1.84	.19	6.71	.02	3.56	.13	5.57
7			.04	3.92	-.08	1.84	.12	5.38	.01	3.38	.79	20.3
8			.06	4.28	-.10	1.50	.13	5.57	.01	3.38	.32	9.34
9			.08	4.64	-.10	1.50	.18	6.52	.00	3.20	.19	6.71
10			.06	4.28	-.11	1.32	.26	8.10	.00	3.20	.21	7.10
11			.04	3.92	-.12	1.15	.17	6.33	.06	4.28	.76	10.2
12			.02	3.56	-.12	1.15	.24	7.70	.04	3.92	.35	10.0
13			.01	3.38	-.13	1.00	.28	8.50	.04	3.92	.23	7.50
14			.00	3.20	-.13	1.00	.26	8.10	.02	3.56	.32	9.34
15			-.02	2.86	-.12	1.15	.18	6.52	-.01	3.03	.32	9.34
16			-.03	2.69	-.11	1.32	.15	5.95	-.03	2.69	.54	14.1
17			-.04	2.52	-.08	1.84	.13	5.57	-.05	2.35	.35	10.0
18			-.04	2.52	-.05	2.35	.12	5.38	-.07	2.01	.35	10.2
19			-.04	2.52	-.03	2.69	.14	5.76	-.08	1.84	.35	10.0
20			-.05	2.35	-.04	2.52	.12	5.38	.55	14.3	.52	13.7
21			-.05	2.35	-.02	2.86	.27	8.30	.57	14.7	.72	18.4
22			-.05	2.35	.09	4.82	.19	6.71	.64	16.4	1.05	26.9
23			-.06	2.18	.18	6.52	.17	6.33	.21	7.10	.65	16.6
24			-.07	2.01	.17	6.33	.11	5.19	.28	8.50	1.16	30.8
25			-.08	1.84	.10	5.00	.08	4.54	.36	10.2	e	34.0
26	.01	3.38	-.08	1.84	.06	4.28	.07	4.46	.22	7.30	e	31.0
27	.01	3.38	-.08	1.84	.05	4.10	.06	4.28	.14	5.75	e	30.0
28	.02	3.56	-.08	1.84	.04	3.92	.06	4.28	.09	4.32	e	30.0
29	.00	3.20	--	--	.04	3.92	.06	4.28	.40	11.1	e	30.0
30	.00	3.20	--	--	.02	3.56	.04	3.92	.60	15.6	e	32.0
31	-.02	2.86	--	--	.04	3.92	--	--	.26	8.10	--	--
sec-m da				81.44		83.62		174.34		189.25		460.75
	July		August		September		October		November		December	
1	e	33.0	3.65	158	4.76	200	3.30	134.0	.88	22.7		
2	e	35.0	3.85	172	4.29	165	4.43	214.0	.86	22.1		
3	e	58.0	3.33	135	4.24	180	5.82	335.0	.84	21.5		
4	e	57.0	3.95	165	5.02	263	4.96	258.0	.82	21.0		
5	1.82	54.7	4.86	200	6.60	385	4.45	216.0	.80	20.6		
6	1.94	59.7	3.63	155	7.13	250	5.06	267.0	.77	19.7		
7	2.92	111.0	6.36	388	4.90	253	4.51	220.0	.75	19.1		
8	3.05	119.0	9.14	693	4.38	210	4.21	197.0	.72	18.4		
9	3.33	135.0	6.90	350	4.15	193	4.53	222.0	.69	17.7		
10	3.83	170.0	5.61	316	4.13	191	4.03	184.0	.89	23.0		
11	3.48	146.0	5.32	290	4.31	204	3.79	168.0	.87	22.4		
12	3.37	138.0	5.42	225	4.22	198	3.40	141.0	.80	20.6		
13	3.42	142.0	6.38	255	4.78	242	3.01	116.0	.71	18.2		
14	4.91	253.0	5.15	200	4.08	188	2.70	98.0	.68	17.4		
15	3.86	172.0	5.15	235	4.24	199	2.45	84.6	.62	16.0	.39	10.8
16	4.01	170.0	5.28	287	4.11	190	2.23	73.5	.63	17.4	.39	10.8
17	3.66	158.0	4.91	253	4.33	206	2.5	64.7	.82	21.0	.57	10.4
18	4.64	231.0	6.05	357	4.11	190	1.90	58.1	1.13	29.9	.35	10.0
19	4.05	189.0	5.84	330	3.99	182	1.76	52.2	1.50	42.3	.34	9.73
20	4.54	223.0	5.90	225	3.75	165	1.63	47.0	1.12	29.6	.33	9.56
21	5.18	278.0	6.73	310	3.88	174	1.54	43.5	.87	22.4	.33	9.56
22	4.57	170.0	5.79	315	4.18	195	1.46	40.7			.32	9.34
23	5.69	255.0	6.53	380	3.80	169	1.40	38.7			.32	9.34
24	7.75	320.0	7.26	320	3.72	163	1.33	36.2			.32	9.34
25	6.12h	260.0	5.65	260	3.41	141	1.23	33.0			.32	9.34
26	e	255.0	5.36	280	3.51	148	1.23	33.0			.31	9.12
27	4:87h	250.0	5.47	270	3.56	151	1.12	29.6			.30	8.90
28	3.87	173.0	5.79	290	3.69	161	1.06	27.8			.30	8.90
29	3.49	130.0	5.86	220	3.73	163	1.00	26.1			.29	8.70
30	4.21	135.0	7.02	270	3.47	145	.97	25.2			.29	8.70
31	3.99	150.0	5.58	220	--	--	.92	23.7			.33	9.56

TABLE 2.28

Daily Gage Height, in meters, and Discharge, in second-meters,
Guder River near the mouth--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11											.40	11.1
12											.50	13.3
13											.74	18.8
14											.46	12.3
15											.36	10.2
16											.39	10.8
17											.79	20.3
18											.52	13.7
19											.70	18.0
20											.44	11.9
21											.88	22.7
22											.54	14.1
23											.50	13.3
24											.46	12.3
25											.94	24.3
26											.48	12.7
27											1.08	28.4
28											.54	14.1
29											.77	19.7
30											1.02	26.6
31											--	--
sec-m da	July		August		September		October		November		December	
1	.77	19.7	.78	167	5.59	315	6.67	419.0	.60	15.6	.33	9.56
2	.94	24.3	4.17	194	6.45k	270	5.78	332.0	.57	14.7	.31	9.12
3	.80	20.6	5.13k	240	4.91k	205	5.75	329.0	.54	14.1	.29	8.70
4	.77	19.7	5.01k	220	4.22	198	5.79	333.0	.52	13.7	.28	8.50
5	1.31	35.6	3.91	176	4.99	261	4.85	248.0	.50	13.3	.27	8.30
6	2.03	63.7	4.00	183	4.53	222	4.10	190.0	.48	12.7	.27	8.30
7	2.98	114.0	4.53k	165	4.65	232	3.67	159.0	.46	12.3	.25	7.90
8	1.97	61.0	4.73	238	4.97	259	3.30	134.0	.44	11.9	.25	7.90
9	1.96	60.5	4.42	213	4.59	227	2.99	115.0	.43	11.7	.23	7.50
10	3.18	126.0	5.28k	210	4.24	199	2.71	98.5	.42	11.5	.22	7.30
11	3.25	131.0	4.46k	210	3.89	175	2.47	85.6	.41	11.3	.22	7.30
12	3.11	122.0	4.46k	175	3.93	177	2.24	74.0	.41	11.3	.22	7.30
13	2.67	96.2	5.23k	190	3.72	163	2.05	64.7	.41	11.3	.22	7.30
14	3.27	132.0	4.10k	155	3.49	147	1.88	57.1	.40	11.1	.21	7.10
15	2.94	112.0	4.64	231	3.57	152	1.74	51.4	.38	10.6	.20	6.90
16	2.71	98.5	4.93k	220	3.85	172	1.61	46.3	.36	10.2	.20	6.90
17	3.08	120.0	5.26k	220	4.16	193	1.50	42.3	.35	10.0	.19	6.71
18	2.95	112.0	4.16	193	3.89	175	1.40	38.7	.35	10.0	.19	6.71
19	2.81	105.0	4.51	220	3.58	153	1.30	35.3	.34	9.8	.18	6.52
20	2.66	95.6	4.76	240	3.91	176	1.21	32.4	.34	9.8	.18	6.52
21	2.48	86.1	4.38k	175	3.94	178	1.13	29.9	.33	9.6	.18	6.52
22	2.82	105.0	5.22	275	3.80	169	1.06	27.8	.32	9.3	.18	6.52
23	3.59	154.0	6.16k	250	4.36	208	1.00	26.1	.30	8.9	.17	6.33
24	4.14	192.0	5.45k	205	4.43	214	.94	24.3	.30	8.9	.17	6.33
25	3.67	159.0	3.67	159	4.04	185	.88	22.7	.30	8.9	.16	6.14
26	3.45	144.0	4.39	211	3.93	177	.84	21.5	.31	9.1	.16	6.14
27	3.56	151.0	4.92k	200	3.70	162	.79	20.3	.34	9.8	.15	5.95
28	3.25	131.0	4.18k	185	3.63	156	.74	18.8	.37	10.4	.15	5.95
29	4.73	238.0	4.87k	195	4.15	193	.69	17.7	.37	10.4	.15	5.95
30	4.57	225.0	3.96	179	5.13	273	.66	16.8	.36	10.2	.15	5.95
31	3.47	145.0	3.68	160	--	44	.63	16.2	--	--	.16	6.14
sec-m da	3,399.5		6,254		5,986		3,127.4		332.4		220.26	

TABLE 2.29

Daily Gage Height, in meters, and Discharge, in second-meters,
Abbey River below Guder--Year Ending December 31, 1961

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		
	January		February		March		April		June		
1						.47	77.9	.67	102.1	.08	39.8
2						.64	58.4	.77	112.0	.05	37.1
3						.95	136.0	1.10	160.0	.11	42.5
4						.99	143.0	.95	136.0	.07	38.9
5						.81	119.0	.78	114.0	.04	36.2
6						1.02	147.0	.62	95.0	.02	34.5
7						1.10	160.0	.57	89.0	.00	32.9
8						.93	134.0	.52	83.4	.21	51.5
9						.84	122.0	.45	75.7	.08	39.8
10						1.02	147.0	.43	73.5	.01	33.7
11						1.05	150.0	.45	75.7	-.01	32.1
12						1.26	182.0	.41	71.3	.05	37.1
13						1.04	149.0	.34	64.2	.04	36.2
14						.91	132.0	.28	58.2	.04	36.2
15						.75	110.0	.24	54.2	.16	47.0
16						.65	99.6	.20	50.6	.12	43.4
17						.58	90.2	.16	47.0	.18	48.8
18						.49	80.1	.13	44.3	.24	54.2
19						.48	79.0	.11	42.5	.17	47.9
20						.67	102.1	.18	48.8	.18	48.8
21						.88	127.0	.11	42.5	.20	50.6
22						1.23	178.0	.21	51.5	.32	62.2
23						1.33	193.0	.25	55.2	.42	72.4
24						1.10	160.0	.12	43.4	.43	73.5
25						.95	136.0	.11	42.5	.63	97.2
26						.85	123.0	.14	45.2	.93	134.0
27						.97	139.0	.09	40.7	.79	116.0
28						1.10	160.0	.06	38.0	.94e	135.0
29						.88	127.0	.03	35.3	1.09e	158.0
30						.70	105.0	.11	42.5	1.24e	179.0
31						--	--	.16	47.0	--	--
sec-m da							3,906.3		2,081.3		1,896.5
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		
	July		August		September		October		December		
1	1.39e	204	8.48e	1,839	11.79	2,832	5.62h	1,089			
2	1.54h	227	6.58h	1,404	11.37e	2,697	6.64h	1,349			
3	1.60h	239	9.00h	1,984	10.94e	2,562	7.88h	1,677			
4	1.61h	240	10.53	2,435	10.52e	2,432	7.38h	1,543			
5	2.05	316	11.94	2,880	13.00e	3,224	7.36h	1,537			
6	2.31	363	9.92e	2,251	15.37e	4,028	8.08h	1,731			
7	3.28	556	11.53e	2,749	10.30e	2,365	6.45h	1,300			
8	3.87	679	15.20e	3,970	9.78e	2,209	6.50h	1,315			
9	3.90e	687	13.85	3,507	9.40e	2,099	6.27h	1,254			
10	4.61h	846	11.81	2,839	9.44e	2,110	5.52h	1,064			
11	4.44h	806	11.83	2,845	8.98e	1,978	5.18h	982			
12	6.77h	1,384	12.62	3,098	9.38e	2,093	4.91h	918			
13	5.80	1,135	14.03	3,569	9.35e	2,084	4.63h	850			
14	7.45h	1,560	12.51e	3,063	8.62e	1,876	4.35h	785			
15	10.10h	2,305	12.00	2,900	7.73h	1,635	4.15h	741			
16	10.67	2,478	10.52h	2,432	7.68h	1,623	3.99h	706			
17	6.62	1,345	9.20h	2,041	7.35h	1,534	3.85h	675			
18	7.58	1,596	10.70h	2,488	7.04h	1,453	3.76h	656			
19	8.91	1,958	12.00e	2,900	6.87h	1,410	3.64h	631			
20	8.66	1,888	13.50e	3,390	6.79h	1,390	3.54h	610			
21	10.70	2,488	14.05e	3,575	6.70h	1,367	3.48h	597			
22	11.85e	2,851	12.13	2,941	6.62h	1,345					
23	12.70e	3,125	12.83	3,167	6.50h	1,315					
24	15.77h	4,168	14.84	3,844	6.17h	1,228					
25	13.40h	3,356	12.58	3,084	6.04h	1,193					
26	12.30	2,996	11.71	2,807	6.10h	1,211					
27	11.12	2,618	12.10e	2,932	6.33h	1,269					
28	9.27	2,061	12.42e	3,034	6.53h	1,321					
29	10.06e	2,293	13.48e	3,382	5.92h	1,164					
30	11.85h	2,851	14.95e	3,681	5.93h	1,166					
31	11.00e	2,581	12.98	3,216	--	--					
sec-m da	52,200		89,247		56,213						

TABLE 2.29

Daily Gage Height, in meters, and Discharge, in second-meters,
 Abbay River below the Guder, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.			
	January		February		March		April		May			
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12									.48	79.0		
13									.50	81.2		
14									.35	65.2		
15									.31	61.2		
16									.28	58.2		
17									.41	71.3		
18									.26	56.2		
19									.37	67.2		
20									.40	70.2		
21									.53	84.5		
22									.54	85.6		
23									.44	74.6		
24									.43	73.5		
25									.48	79.0		
26									.31	61.2		
27									.53	84.5		
28									.33	63.2		
29									.51	82.3		
30									.63	97.2		
31									--	--		
sec-m da	July		August		September		October		November		December	
1	.73	108	e 1,820	11.10	2,612	7.42	1,553	2.67	434	1.90	290	
2	.71	106	9.10rv2,012	13.94	3,538	7.54	1,584	2.63	426	1.88	286	
3	.63	97	11.85rv2,851	11.96	2,886	8.86	1,944	2.59	418	1.85	280	
4	.79	116	11.95rv2,883	9.98	2,269	9.11	2,014	2.55	410	1.83	276	
5	.98	141	9.00rv1,984	9.44	2,110	7.63	1,608	2.52	404	1.80	273	
6	1.58	235	9.75rv2,200	10.42	2,401	6.32	1,267	2.49	398	1.78	269	
7	2.04	314	11.94rv2,880	9.72	2,191	5.53	1,066	2.46	392	1.75	263	
8	1.87	284	11.14rv2,624	9.97	2,266	5.06	952	2.44	388	1.73	259	
9	1.88	286	9.70rv2,186	9.72	2,191	4.73	874	2.40	381	1.70	256	
10	2.36	373	13.40rv3,356	10.22	2,341	4.45	808	2.38	377	1.68	252	
11	2.70	440	10.83rv2,528	9.45	2,113	4.23	759	2.36	373	1.66	248	
12	2.59	418	11.62rv2,778	7.85	1,668	4.09	728	2.33	367	1.63	242	
13	2.71	442	13.77rv3,480	7.08rv1,465		3.94	695	2.41	382	1.60	239	
14	2.82	464	11.20rv2,644	6.85rv1,404		3.82	669	2.41	382	1.58	235	
15	3.17	534	10.77rv2,509	6.55rv1,326		3.70	644	2.34	369	1.56	231	
16	2.85	470	11.75rv2,819	6.32rv1,267		3.58	618	2.26	354	1.54	227	
17	3.19	538	12.55rv3,075	6.92rv1,423		3.49	599	2.20	344	1.52	224	
18	3.08	516	10.17rv2,326	6.36	1,277	3.39	578	2.17	338	1.50	222	
19	3.42	585	e 2,300	6.66	1,355	3.34	568	2.16	336	1.48	218	
20	4.41	800	11.00rv2,581	6.58	1,335	3.26	552	2.12	328	1.46	214	
21	4.50	821	11.35rv2,691	6.08	1,205	3.20	540	2.10	326	1.44	210	
22	3.97	701	11.63rv2,781	5.94	1,168	3.13	526	2.09	324	1.42	208	
23	4.40	798	13.66 3,442	6.31	1,265	3.06	512	2.06	318	1.40	206	
24	6.09	1,208	13.00 3,224	6.92	1,423	3.01	502	2.08	322	1.38	202	
25	6.59	1,338	9.26rv2,058	6.35	1,274	2.96	492	2.06	318	1.36	198	
26	6.53	1,321	10.00 2,275	6.05	1,196	2.93	486	2.02	310	1.34	194	
27	6.96	1,433	12.10 2,932	5.66	1,098	2.87	474	1.99	306	1.32	192	
28	7.15	1,482	10.72 2,494	5.32	1,016	2.81	462	1.98	304	1.31	191	
29	7.54	1,584	12.08 2,924	5.40	1,036	2.78	456	1.96	300	1.30	190	
30	7.45	1,560	9.97rv2,266	6.30	1,263	2.74	448	1.93	294	1.28	186	
31	e 1,629	8,70rv1,900	--	--	--	2.71	442	--	--	1.24	179	
sec-m da	21,142		80,823		51,382		25,420		10,723		7,160	

TABLE 2.30

Daily Gage Height, in meters, and Discharge, in second-meters,
Finchaa River near Cochion, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.53	5.59	.42	3.30	.37	2.46	.34	2.02	.31	1.62	.30	1.50
2	.52	5.36	.42	3.30	.37	2.46	.34	2.02	.31	1.62	.30	1.50
3	.52	5.36	.41	3.12	.37	2.46	.34	2.02	.31	1.62	.30	1.50
4	.51	5.14	.41	3.12	.37	2.46	.34	2.02	.31	1.62	.30	1.50
5	.50	4.92	.41	3.12	.37e	2.46	.34	2.02	.31	1.62	.30	1.50
6	.50	4.92	.41	3.12	.37e	2.46	.34	2.02	.31	1.62	.30	1.50
7	.50	4.92	.41	3.12	.37e	2.46	.34	2.02	.31	1.62	.30	1.50
8	.49	4.71	.40	2.95	.37e	2.46	.33	1.88	.32	1.75	.31	1.62
9	.49	4.71	.40	2.95	.37e	2.46	.33	1.88	.32	1.75	.31	1.62
10	.48	4.50	.40	2.95	.37e	2.46	.33	1.88	.32	1.75	.31	1.62
11	.48	4.50	.40	2.95	.37e	2.46	.33	1.88	.33	1.88	.31	1.62
12	.48	4.50	.40	2.95	.36e	2.31	.33	1.88	.32	1.75	.31	1.62
13	.47	4.29	.40e	2.95	.36e	2.31	.33	1.88	.32	1.75	.30	1.50
14	.46	4.08	.39e	2.78	.36e	2.31	.33	1.88	.32	1.75	.30	1.50
15	.46	4.08	.39e	2.78	.36e	2.31	.33	1.88	.32	1.75	.30	1.50
16	.46	4.08	.39	2.78	.36	2.31	.33	1.88	.32	1.75	.31	1.62
17	.46	4.08	.39	2.78	.36	2.31	.33	1.88	.32	1.75	.31	1.62
18	.46	4.08	.39	2.78	.36	2.31	.32	1.75	.31	1.62	.33	1.88
19	.45	3.88	.39	2.78	.36	2.31	.32	1.75	.31	1.62	.34	2.02
20	.45	3.88	.38	2.62	.36	2.31	.32	1.75	.31	1.62	.34	2.02
21	.45	3.88	.38	2.62	.36	2.31	.33	1.88	.31	1.62	.34	2.02
22	.44	3.68	.38	2.62	.36	2.31	.33	1.88	.30	1.50	.34	2.02
23	.44	3.68	.38	2.62	.36	2.31	.33	1.88	.30	1.50	.34	2.02
24	.44	3.68	.38	2.62	.36	2.31	.33	1.88	.30	1.50	.37	2.46
25	.44	3.68	.38	2.62	.35	2.16	.33	1.88	.30	1.50	.37	2.46
26	.43	3.49	.38	2.62	.35	2.16	.32	1.75	.30	1.50	.37	2.46
27	.43	3.49	.37	2.46	.35	2.16	.31	1.62	.30	1.50	.38	2.62
28	.43	3.49	.37	2.46	.35	2.16	.31	1.62	.30	1.50	.38	2.62
29	.42	3.30	--	--	.35	2.16	.31	1.62	.30	1.50	.39	2.78
30	.42	3.30	--	--	.35	2.16	.31	1.62	.30	1.50	.45	3.88
31	.42	3.30	--	--	.34	2.02	--	--	.30	1.50	--	--
sec-m da	130.55		79.84		72.07		55.82		50.45		57.60	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	.46	4.08	1.03	21.7	1.47	41.7	1.48	42.2	1.31	34.0	e	11.8
2	.48	4.50	1.03	21.7	1.48	42.2	1.52	44.2	1.31	34.0	.75	11.5
3	.60	7.25	1.04	22.1	1.50	43.2	1.58	47.4	1.30	33.5	.68	9.4
4	.66	8.86	1.05	22.5	1.50	43.2	1.62	49.6	1.25	31.2	.67	9.1
5	.73	10.90	1.06	22.9	1.50	43.2	1.62	49.6	1.21	29.4	.65	8.6
6	.78	12.40	1.06	22.9	1.50	43.2	1.62	49.6	1.20	29.0	.63	8.1
7	.80	13.20	1.07	23.4	1.50	43.2	1.62	49.6	1.20	29.0	.62	7.8
8	.83	14.20	1.10	24.6	1.51	43.7	1.61	49.0	1.17	27.6	.62	7.8
9	.83	14.20	1.12	25.5	1.52	44.2	1.61	49.0	1.14	26.3	.60	7.3
10	.83	14.20	1.15	26.8	1.52	44.2	1.60	48.5	1.13	25.9	.58	6.8
11	.84	14.50	1.15	26.8	1.52	44.2	1.59	48.0	1.11	25.0	.57	6.5
12	.86	15.20	1.16	27.2	1.50	43.2	1.58	47.4	1.07	23.4	.56	6.3
13	.87	15.60	1.17	27.6	1.50	43.2	1.58	47.4	1.05	22.5	.56	6.3
14	.86	15.20	1.17	27.6	1.48	42.2	1.58	47.4	1.03	21.7	.55	6.1
15	.85	14.90	1.21	29.4	1.47	41.7	1.55	45.8	.97	19.3	.55	6.1
16	.83	14.20	1.22	29.9	1.46	41.2	1.55	45.8	.96	19.0	.55	6.1
17	.84	14.50	1.22	29.9	1.44	40.2	1.54	45.3	.93	17.8	.54	5.8
18	.84	14.50	1.22	29.9	1.43	39.7	1.53	44.8	.91	17.1	.54	5.8
19	.85	14.90	1.23	30.4	1.43	39.7	1.50	43.2	.89	16.3	.54	5.8
20	.83	14.20	1.26	31.7	1.42	39.2	1.50	43.2	.87	15.6	.53	5.6
21	.81	13.50	1.28	32.6	1.42	39.2	1.48	42.2	.85	14.9	.53	5.6
22	.82	13.90	1.28	32.6	1.42	39.2	1.47	41.7	.82	13.9	.53	5.6
23	.86	15.20	1.29	33.0	1.41	38.7	1.45	40.7	.82	13.9	.52	5.4
24	.89	16.30	1.33	34.9	1.41	38.7	1.45	40.7	.80	13.2	.52	5.4
25	.90	16.70	1.37	36.8	1.42	39.2	1.43	39.7	.80	13.2	.52	5.4
26	.90	16.70	1.38	37.2	1.45	40.7	1.42	39.2	.80	13.2	.51	5.1
27	.90	16.70	1.40	38.2	1.45	40.7	1.42	39.2	.80	13.2	.50	4.9
28	.94	18.20	1.42	39.2	1.45	40.7	1.41	38.7	e	12.8	.50	4.9
29	1.00	20.50	1.43	39.7	1.46	41.2	1.36	36.3	e	12.4	.49	4.7
30	1.00	20.50	1.44	40.2	1.46	41.2	1.36	36.3	e	12.1	.49	4.7
31	1.02	21.30	1.46	41.2	--	--	1.35	35.8	--	--	.48	4.5
sec-m da	440.99		930.1		1.246.0		1.367.5		630.4		204.8	

TABLE 2.31

Daily Gage Height, in meters, and Discharge, in second-meters,
Chemoga River near Debre Markos, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.56	.745	.38	.415	.27	.265	.36	.387	.39	.430	.40	.445
2	.54	.705	.36	.387	.29	.289	.34	.359	.44	.505	.37	.401
3	.52	.665	.36	.387	.29	.289	.33	.345	.46	.545	.40	.445
4	.54	.705	.36	.387	.30	.303	.32	.331	.42	.475	.45	.525
5	.52	.665	.36	.387	.30	.303	.33	.345	.44	.505	.58	.785
6	.50	.625	.36	.387	.30	.303	.28	.275	.42	.475	.54	.705
7	.50	.625	.34	.359	.32	.331	.30	.303	.42	.475	.62	.875
8	.46	.545	.36	.387	.34	.359	.31	.317	.45	.525	.63	.905
9	.45	.525	.34	.359	.45	.525	.36	.387	.66	.995	.56	.745
10	.42	.475	.33	.345	.53	.685	.26	.255	.68	1.055	.53	.685
11	.46	.545	.33	.345	.50	.625	.26	.255	.66	.995	.48	.585
12	.46	.545	.32	.331	.42	.475	.27	.265	.68	1.055	.50	.625
13	.46	.545	.32	.331	.58	.785	.28	.275	.60	.825	.45	.525
14	.44	.505	.32	.331	.48	.585	.30	.303	.54	.705	.42	.475
15	.44	.505	.30	.303	.39	.430	.27	.265	.51	.645	.40	.445
16	.46	.545	.31	.317	.38	.415	.28	.275	.45	.525	.42	.475
17	.46	.545	.32	.331	.35	.373	.32	.331	.41	.460	.42	.475
18	.44	.505	.29	.289	.34	.359	.40	.445	.40	.445	.44	.505
19	.46	.545	.30	.303	.34	.359	.83	1.545	.37	.401	.43	.490
20	.46	.545	.31	.317	.39	.430	.83	1.545	.34	.359	.46	.545
21	.46	.545	.32	.331	.82	1.505	.73	1.205	.33	.345	.50	.625
22	.45	.525	.32	.331	1.02	2.445	.62	.875	.32	.331	.50	.625
23	.44	.505	.31	.317	.88	1.745	.52	.665	.35	.373	.46	.545
24	.44	.505	.30	.303	.68	1.055	.46	.545	.36	.387	.41	.460
25	.41	.460	.31	.317	.62	.875	.42	.475	.41	.460	.38	.415
26	.42	.475	.30	.303	.54	.705	.42	.475	.44	.505	.38	.415
27	.41	.460	.30	.303	.47	.565	.41	.460	.42	.475	.39	.430
28	.40	.445	.32	.331	.45	.525	.40	.445	.36	.387	.46	.545
29	.41	.460	--	--	.42	.475	.41	.460	.36	.387	.45	.525
30	.42	.475	--	--	.40	.445	.43	.490	.37	.401	.46	.545
31	.40	.445	--	--	.38	.415	--	--	.48	.585	--	--
sec-m da	16.910		9.534		19.243		14.903		17.036		16.791	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	.45	.525	1.96	14.665	2.76	49.925	1.76	10.555	.64	.935	.48	.585
2	.48	.585	1.75	10.355	2.70	45.685	2.25	23.355	.60	.825	.50	.625
3	.52	.665	1.90	13.405	2.54	36.235	2.48	33.125	.59	.805	.48	.585
4	.60	.825	1.94	14.245	2.50	34.155	2.54	36.235	.58	.785	.48	.585
5	.65	.965	2.09	18.155	2.17	20.645	2.29	24.905	.62	.875	.49	.605
6	1.28	4.245	2.34	26.905	2.28	24.515	2.07	17.555	.63	.905	.47	.565
7	1.12	3.045	2.34	26.905	2.38	28.565	1.82	11.755	.61	.845	.46	.545
8	1.42	5.675	2.46	32.135	2.42	30.275	1.67	9.005	.60	.825	.46	.545
9	1.34	4.795	2.54	36.235	2.45	31.655	1.54	7.055	.58	.785	.45	.525
10	1.32	4.585	2.42	30.275	2.56	37.285	1.44	5.895	.56	.745	.46	.545
11	1.17	3.365	2.35	27.315	2.38	28.565	1.34	4.795	.54	.705	.44	.505
12	1.32	4.585	2.18	20.965	2.02	16.135	1.24	3.925	.55	.725	.43	.490
13	1.25	4.005	2.28	24.515	2.19	21.285	1.17	3.365	.56	.745	.42	.475
14	1.36	5.015	2.10	18.455	2.25	23.355	1.07	2.745	.54	.705	.40	.445
15	1.36	5.015	2.24	22.985	1.87	12.775	1.06	2.685	.55	.725	.40	.445
16	1.66	8.855	2.40	29.405	1.78	10.955	1.03	2.505	.57	.765	.38	.415
17	1.65	8.705	2.32	26.095	1.85	12.355	1.00	2.325	.55	.725	.37	.401
18	1.65	8.705	2.36	27.725	2.16	20.325	.96	2.115	.56	.745	.37	.401
19	1.66	8.855	2.30	25.295	2.18	20.965	.93	1.965	.55	.725	.41	.460
20	1.75	10.355	2.29	24.905	1.88	12.985	.88	1.745	.53	.685	.44	.505
21	1.72	9.785	2.92	62.500	1.68	9.155	.85	1.625	.52	.665	.47	.565
22	1.54	7.055	3.16	87.500	1.70	9.455	.84	1.585	.52	.665	.46	.545
23	1.43	5.785	2.88	58.505	2.00	15.605	.82	1.505	.53	.685	.48	.585
24	1.56	7.355	2.48	33.125	1.99	15.355	.80	1.425	.54	.705	.46	.545
25	2.26	23.735	2.20	21.605	1.90	13.405	.78	1.355	.62	.875	.44	.505
26	2.14	19.695	2.23	22.625	1.76	10.555	.80	1.425	.64	.935	.43	.490
27	2.26	23.735	2.24	22.985	1.65	8.705	.78	1.355	.57	.765	.42	.475
28	2.48	33.125	2.52	35.195	1.68	9.155	.76	1.295	.51	.645	.41	.460
29	2.30	25.295	2.88	58.505	1.66	8.855	.74	1.235	.54	.705	.40	.445
30	2.24	22.985	2.74	48.545	1.74	10.155	.72	1.175	.54	.705	.44	.505
31	2.18	20.965	2.68	44.405	--	--	.69	1.085	--	--	.47	.565
sec-m da	292.885		966.435		629.040		222.675		22.930		15.937	

TABLE 2.32

Daily Gage Height, in meters, and Discharge, in second-meters,
Dijil River near Debre Markos, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.42	.178	.35	.121	.32	.099	.20	.029	.23	.053	.26	.077
2	.42	.178	.34	.114	.32	.099	.22	.045	.22	.045	.24	.061
3	.42	.178	.32	.099	.33	.106	.23	.053	.23	.053	.24	.061
4	.42	.178	.32	.099	.32	.099	.22	.045	.24	.061	.26	.077
5	.39	.151	.33	.106	.32	.099	.21	.037	.24	.061	.28	.093
6	.39	.151	.33	.106	.31	.091	.22	.045	.24	.061	.27	.085
7	.40	.158	.34	.114	e	.056	.20	.029	.24	.061	.30	.109
8	.40	.158	.34	.114	.24	.061	.21	.037	.24	.061	.27	.085
9	.42	.178	.34	.114	.27	.085	.21	.037	.24	.061	.24	.061
10	.40	.158	.31	.091	.26	.077	.21	.037	.24	.061	.23	.053
11	.39	.151	.35	.121	.28	.093	.20	.029	.24	.061	.23	.053
12	.39	.151	.36	.128	.27	.085	.22	.045	.24	.061	.23	.053
13	.37	.136	.38	.143	.27	.085	.22	.045	.24	.061	.23	.053
14	.38	.143	.35	.121	.27	.085	.23	.053	.23	.053	.24	.061
15	.38	.143	.39	.151	.27	.085	.22	.045	.23	.053	.23	.053
16	.40	.158	.37	.136	.26	.077	.24	.061	.22	.045	.23	.053
17	.39	.151	.36	.128	.25	.069	.25	.069	.22	.045	.24	.061
18	.39	.151	.37	.136	.26	.077	.25	.069	.22	.045	.24	.061
19	.39	.151	.37	.136	.26	.077	.25	.069	.23	.053	.23	.053
20	.38	.143	.37	.136	.26	.077	.24	.061	.22	.045	.24	.061
21	.38	.143	.34	.114	.27	.085	.22	.045	.22	.045	.28	.093
22	.38	.143	.33	.106	.27	.085	.23	.053	.22	.045	.24	.061
23	.37	.136	.32	.099	.26	.077	.24	.061	.22	.045	.25	.069
24	.37	.136	.32	.099	.26	.077	.23	.053	.22	.045	.24	.061
25	.36	.128	.33	.106	.25	.069	.24	.061	.22	.045	.24	.061
26	.32	.099	.31	.091	.24	.061	.23	.053	.22	.045	.24	.061
27	.34	.114	.32	.099	.23	.053	.23	.053	.24	.061	.24	.061
28	.33	.106	.32	.099	.23	.053	.23	.053	.22	.045	.28	.093
29	.33	.106	--	--	.23	.053	.23	.053	.23	.053	.25	.069
30	.37	.136	--	--	.22	.045	.22	.045	.24	.061	.30	.109
31	.35	.121	--	--	.20	.029	--	--	.24	.061	--	--
sec-m da	4.512		3.227		2.369		1.470		1.651		2.062	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	.25	.069	.98	1.352	1.90	4.009	1.64	3.177	.53	.424	.28	.093
2	.50	.373	1.10	1.640	1.70	3.369	1.84	3.817	.51	.389	.28	.093
3	.36	.175	1.00	1.400	1.56	2.930	1.93	4.108	.49	.358	.30	.109
4	.33	.139	.92	1.208	1.71	3.401	1.55	2.900	.47	.328	.30	.109
5	.91	1.184	.86	1.067	1.56	2.930	1.38	2.404	.48	.343	.29	.101
6	.70	.730	1.43	2.547	1.81e	3.721	1.28	2.124	.45	.298	.24	.061
7	.38	.199	1.07	1.568	1.64	3.177	1.23	1.984	.44	.283	.27	.085
8	.62	.586	1.04	1.496	1.46	2.634	1.18	1.846	.42	.253	.24	.061
9	.47	.328	1.34	2.292	1.64	3.177	1.12	1.690	.43	.268	.24	.061
10	.89	1.136	1.18	1.846	1.44	2.576	1.08	1.592	.38	.199	.27	.085
11	.56	.478	.98	1.352	1.37	2.376	1.04	1.496	.36	.175	.25	.069
12	.47	.328	1.07e	1.573	1.32	2.236	1.02	1.448	.40	.225	.23	.053
13	.42	.253	1.16	1.794	1.28	2.124	.94	1.256	.36	.175	.24	.061
14	.40	.225	1.50	2.750	1.26	2.068	.91	1.184	.34	.151	.23	.053
15	.94	1.256	1.73	3.465	1.22	1.956	.87	1.090	.33	.139	.23	.053
16	.50	.373	1.44	2.576	1.68e	3.305	.84	1.021	.32	.128	.22	.045
17	.60	.550	1.25	2.040	1.78e	3.625	.82	.975	.30	.109	.23	.053
18	1.28	2.124	1.60	3.050	1.78e	3.625	.80	.930	.30	.109	.23	.053
19	.93	1.232	1.27	2.096	1.70e	3.369	.76	.849	.33	.139	.23	.053
20	.62	.586	1.84	3.817	1.36	2.348	.74	.809	.32	.128	.23	.053
21	.70	.730	1.96	4.210	1.39	2.432	.73	.789	.30	.209	.22	.045
22	.71	.749	1.60	3.050	1.60	3.050	.70	.730	.32	.128	.22	.045
23	.69	.712	1.56	2.930	1.57	2.960	.70	.730	.32	.128	.22	.045
24	.73	.789	1.40	2.460	1.32	2.236	.66	.658	.29	.101	.23	.053
25	e	.951	1.26	2.068	1.30	2.180	.63	.604	.29	.101	.24	.061
26	.88	1.113	1.82	3.753	1.28	2.124	.63	.604	.35	.163	.23	.053
27	1.35	2.320	1.48	2.692	1.20	1.900	.60	.550	.34	.151	.23	.053
28	1.62	3.113	1.80	3.689	1.36	2.348	.58	.514	.30	.109	.21	.037
29	1.28	2.124	1.44	2.576	1.78	3.625	.56	.478	.32	.128	.21	.037
30	1.12	1.690	1.66	3.241	1.32	2.236	.57	.496	.29	.101	.22	.045
31	1.04	1.496	1.80	3.689	--	--	.55	.460	--	--	.23	.053
sec-m da	28.111		75.287		84.047		43.313		5.840		1.931	

TABLE 2.33

Daily Gage Height, in meters, and Discharge, in second-meters,
Kulich Creek near Debre Markos, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.59	.55	.52	.34	.52	.34	.46	.20	.48	.24	.54	.40
2	.58	.52	.52	.34	.53	.37	.46	.20	.48	.24	.52	.34
3	.58	.52	.52	.34	.54	.40	.46	.20	.50	.28	.59	.55
4	.57	.49	.52	.34	.52	.34	.46	.20	.52	.34	.56	.46
5	.58	.52	.52	.34	.52	.34	.46	.20	.54	.40	.60	.58
6	.57	.49	.53	.37	.52	.34	.46	.20	.62	.66	.56	.46
7	.57	.49	.54	.40	.54	.40	.46	.20	.52	.34	.61	.62
8	.56	.46	.54	.40	.53	.37	.46	.20	.52	.34	.56	.46
9	.58	.52	.53	.37	.55	.43	.46	.20	.52	.34	.52	.34
10	.57	.49	.53	.37	.54	.40	.46	.20	.52	.34	.50	.28
11	.56	.46	.53	.37	.59	.55	.46	.20	.50	.28	.50	.28
12	.56	.46	.52	.34	.53	.37	.46	.20	.50	.28	.50	.28
13	.56	.46	.52	.34	.54	.40	.46	.20	.49	.26	.50	.28
14	.56	.46	.52	.34	.52	.34	.46	.20	.49	.26	.49	.26
15	.56	.46	.52	.34	.52	.34	.46	.20	.46	.20	.49	.26
16	.56	.46	.52	.34	.52	.34	.46	.20	.46	.20	.52	.34
17	.56	.46	.53	.37	.55	.43	.46	.20	.46	.20	.52	.34
18	.56	.46	.53	.37	.52	.34	.48	.24	.44	.16	.51	.31
19	.57	.49	.53	.37	.55	.43	.48	.24	.44	.16	.52	.34
20	.57	.49	.53	.37	.55	.43	.48	.24	.44	.16	.52	.34
21	.56	.46	.53	.37	.54	.40	.46	.20	.46	.20	.54	.40
22	.56	.46	.53	.37	.55	.43	.45	.18	.46	.20	.61	.62
23	.56	.46	.53	.37	.52	.34	.45	.18	.46	.20	.58	.52
24	.56	.46	.54	.40	.51	.31	.45	.18	.46	.20	.50	.28
25	.55	.43	.54	.40	.50	.28	.45	.18	.50	.28	.60	.58
26	.56	.46	.54	.40	.49	.26	.45	.18	.52	.34	.51	.31
27	.55	.43	.52	.34	.48	.24	.46	.20	.50	.28	.55	.43
28	.55	.43	.52	.34	.48	.24	.47	.22	.48	.24	.52	.34
29	.54	.40	--	--	.48	.24	.48	.24	.50	.28	.54	.40
30	.54	.40	--	--	.48	.24	.48	.24	.58	.52	.72	1.08
31	.54	.40	--	--	.47	.22	--	--	.55	.43	--	--
sec-m da	14.50		10.15		10.90		6.12		8.85		12.48	
	July		August		September		October		November		December	
1	.61	.62	.77	1.33	.98	4.60	1.00	5.00	.62	.66	.58	.52
2	.64	.74	.74	1.18	1.01	5.30	.94	3.80	.62	.66	.58	.52
3	.64	.74	.86	2.20	.92	3.40	.97	4.40	.62	.66	.58	.52
4	.77	1.33	.76	1.28	1.10	8.00	.94	3.80	.63	.70	.58	.52
5	.61	.62	.98	4.60	.89	2.80	.89	2.80	.64	.74	.58	.52
6	.70	.98	1.02	5.60	.90	3.00	.86	2.20	.64	.74	.57	.49
7	.65	.78	.96	4.20	1.15	10.00	.85	2.00	.64	.74	.57	.49
8	.87	2.40	.82	1.70	1.39	22.40	.81	1.60	.63	.70	.57	.49
9	.66	.82	1.14	9.60	1.11	8.40	.80	1.50	.63	.70	.56	.46
10	.67	.86	.85	2.00	.98	4.60	.78	1.38	.64	.74	.56	.46
11	.66	.82	1.04	6.20	.87	2.40	.76	1.28	.64	.74	.56	.46
12	.65	.82	1.66	49.00	.86	2.20	.74	1.18	.62	.66	.56	.46
13	.66	.82	.80	1.50	.85	2.00	.74	1.18	.62	.66	.56	.46
14	.63	.70	1.49	32.00	.85	2.00	.72	1.08	.61	.62	.56	.46
15	.62	.66	1.58	41.00	.86	2.20	.72	1.08	.60	.58	.55	.43
16	.95	4.00	.94	3.80	1.14	9.60	.70	.98	.60	.58	.56	.46
17	.69	.94	.87	2.40	.86	2.20	.70	.98	.62	.66	.56	.46
18	.99	4.80	1.50	33.00	1.55	38.00	.69	.94	.60	.58	.56	.46
19	.67	.86	.86	2.20	.90	3.00	.68	.90	.60	.58	.56	.46
20	.69	.94	1.65	48.00	1.14	9.60	.68	.90	.60	.58	.56	.46
21	.98	4.60	1.10	8.00	1.62	45.00	.68	.90	.60	.58	.56	.46
22	1.09	7.70	.96	4.20	.94	3.80	.67	.86	.60	.58	.54	.40
23	.89	2.80	.94	3.80	.99	4.80	.66	.82	.60	.58	.54	.40
24	.93	3.60	1.16	10.40	.85	2.00	.66	.82	.60	.58	.55	.43
25	1.53	36.00	1.15	10.00	.80	1.50	.66	.82	.60	.58	.54	.40
26	.86	2.20	.93	3.60	.80	1.50	.64	.74	.59	.55	.54	.40
27	.86	2.20	1.10	8.00	.89	2.80	.64	.74	.58	.52	.54	.40
28	.96	4.20	1.26	15.00	1.05	6.50	.64	.74	.60	.58	.54	.40
29	1.00	5.00	.90	3.00	.95	4.00	.64	.74	.60	.58	.54	.40
30	.80	1.50	.96	4.20	1.16	10.40	.64	.74	.60	.58	.55	.43
31	.79	1.44	1.14	9.60	--	--	.64	.74	--	--	.54	.40
sec-m da	96.49		332.59		228.00		47.64		18.99		14.08	

TABLE 2.34

Daily Gage Height, in meters, and Discharge, in second-meters,
Jedeb River near Amanuel, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.39	1.21	.34	.75	.31	.55	.29	.43	.28	.38	.36	.91
2	.39	1.21	.33	.68	.31	.55	.29	.43	.31	.55	.38	1.10
3	.38	1.10	.33	.68	.32	.61	.28	.38	.29	.43	.46	2.07
4	.38	1.10	.33	.68	.31	.55	.28	.38	.30	.49	.40	1.32
5	.38	1.10	.33	.68	.31	.55	.28	.38	.29	.43	.51	2.77
6	.38	1.10	.33	.68	.32	.61	.28	.38	.30	.49	.40	1.32
7	.38	1.10	.32	.61	.31	.55	.28	.38	.34	.75	.59	4.15
8	.37	1.00	.32	.61	.32	.61	.28	.38	.34	.75	.40	1.32
9	.37	1.00	.32	.61	.36	.91	.28	.38	.36	.91	.39	1.21
10	.37	1.00	.32	.61	.34	.75	.28	.38	.33	.68	.37	1.00
11	.37	1.00	.32	.61	.35	.83	.27	.33	.33	.68	.36	.91
12	.36	.91	.32	.61	.38	1.10	.27	.33	.32	.61	.35	.83
13	.36	.91	.32	.61	.35	.83	.27	.33	.30	.49	.36	.91
14	.36	.91	.32	.61	.33	.68	.27	.33	.31	.55	.33	.68
15	.36	.91	.32	.61	.32	.61	.27	.33	.30	.49	.33	.68
16	.36	.91	.31	.55	.31	.55	.28	.38	.29	.43	.32	.61
17	.35	.83	.31	.55	.31	.55	.29	.43	.28	.38	.34	.75
18	.36	.91	.31	.55	.31	.55	.29	.43	.28	.38	.39	1.21
19	.36	.91	.31	.55	.31	.55	.30	.49	.27	.33	.40	1.32
20	.36	.91	.31	.55	.34	.75	.29	.43	.28	.38	.35	.83
21	.36	.91	.31	.55	.35	.83	.28	.38	.28	.38	.36	.91
22	.35	.83	.31	.55	.33	.68	.27	.33	.29	.43	.34	.75
23	.35	.83	.31	.55	.33	.68	.27	.33	.30	.49	.38	1.10
24	.35	.83	.31	.55	.33	.68	.27	.33	.30	.49	.40	1.32
25	.35	.83	.32	.61	.32	.61	.27	.33	.31	.55	.45	1.94
26	.35	.83	.32	.61	.31	.55	.27	.33	.46	2.07	.41	1.44
27	.35	.83	.31	.55	.30	.49	.27	.33	.32	.61	.38	1.10
28	.35	.83	.31	.55	.30	.49	.27	.33	.30	.49	.39	1.21
29	.35	.83	--	--	.30	.49	.28	.38	.36	.91	.45	1.94
30	.35	.83	--	--	.30	.49	.28	.38	.40	1.32	.52	2.92
31	.34	.75	--	--	.29	.63	--	--	.36	.91	--	--
sec-m da	29.16		16.91		19.66		11.16		19.23		40.53	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	.49	2.48	1.12	18.22	1.37	26.41	1.20	20.80	.45	1.94	.39	1.21
2	.66	5.60	1.20	20.80	1.64	35.88	1.92	46.36	.45	1.94	.40	1.32
3	.50	2.62	1.15	19.18	1.58	33.68	1.67	36.99	.45	1.94	.42	1.56
4	.60	4.35	1.18	20.14	1.32	24.76	1.42	28.08	.45	1.94	.39	1.21
5	.72	6.97	1.47	29.80	1.18	20.14	1.32	24.76	.45	1.94	.38	1.10
6	.67	5.82	1.56	32.96	1.31	24.43	1.19	20.47	.44	1.81	.37	1.00
7	.72	6.97	1.44	28.76	1.65	36.25	1.10	17.58	.43	1.68	.37	1.00
8	1.19	20.47	1.52	31.55	1.67	36.99	1.03	15.34	.44	1.81	.37	1.00
9	.98	13.81	1.40	27.40	1.18	20.14	.99	14.10	.43	1.68	.37	1.00
10	.88	11.10	1.20	20.80	1.22	21.46	.92	12.18	.43	1.68	.36	.91
11	.80	9.00	1.21	21.13	1.14	18.86	.86	10.56	.43	1.68	.36	.91
12	1.09	17.26	1.97	48.26	1.06	16.30	.81	9.26	.42	1.56	.36	.91
13	.85	10.30	2.14	54.95	2.10	53.35	.76	7.96	.41	1.44	.35	.83
14	.82	9.52	2.02	50.18	1.10	17.58	.74	7.46	.41	1.44	.35	.83
15	.98	13.81	1.94	47.12	1.08	16.94	.70	6.50	.41	1.44	.35	.83
16	1.20	20.80	2.10	53.35	.94	12.72	.68	6.04	.41	1.44	.35	.83
17	1.05	15.98	1.66	36.62	.95	12.99	.66	5.60	.40	1.32	.35	.83
18	2.03	50.57	1.84	43.32	1.04	15.66	.64	5.17	.40	1.32	.35	.83
19	2.05	51.35	1.42	28.08	.93	12.45	.61	4.55	.40	1.32	.35	.83
20	1.14	18.86	2.43	67.09	.86	10.56	.58	3.96	.40	1.32	.35	.83
21	1.06	16.30	1.90	45.60	1.18	20.14	.57	3.77	.39	1.21	.35	.83
22	1.14	18.86	1.70	38.10	1.49	30.50	.56	3.59	.45	1.94	.35	.83
23	1.08	16.94	1.39	27.07	1.16	19.50	.54	3.24	.43	1.68	.35	.83
24	1.07	16.62	1.62	35.14	1.01	14.71	.52	2.92	.42	1.56	.34	.75
25	1.21	21.13	1.18	20.14	1.29	23.77	.52	2.92	.40	1.32	.34	.75
26	1.26	22.78	1.17	19.82	1.00	14.40	.51	2.77	.40	1.32	.34	.75
27	1.23	21.79	1.40	27.40	1.11	17.90	.50	2.62	.39	1.21	.33	.68
28	1.30	24.10	1.60	34.40	1.22	21.46	.49	2.48	.39	1.21	.33	.68
29	1.24	22.12	1.34	25.42	1.64	35.88	.48	2.34	.40	1.32	.33	.68
30	1.16	19.50	1.23	21.79	1.40	27.40	.47	2.20	.40	1.32	.33	.68
31	1.22	21.46	1.94	47.12	--	--	.46	2.07	--	--	.34	.75
sec-m da	519.24		1,041.71		693.21		334.64		46.73		27.98	

TABLE 2.35

Daily Gage Height, in meters, and Discharge, in second-meters,
Timochia River near Dembecha, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.45	1.280	.35	.610	.28	.313	.34e	.565	.34	.565	.76	6.07
2	.44	1.200	.34	.565	.28	.313	.34	.565	.36	.665	.65	3.84
3	.42	1.040	.34	.565	.29	.343	.33	.520	.40	.905	.68	4.38
4	.43	1.120	.33	.520	.28	.313	.33	.520	.38	.785	.79	6.82
5	.43	1.120	.33	.520	.31	.428	.33	.520	.38	.785	.96	12.10
6	.43	1.120	.33	.520	.31	.428	.33	.520	.38	.785	.85	8.50
7	.44	1.200	.33	.520	.31	.428	.32	.475	.41	.972	.85	8.50
8	.43	1.120	.29	.343	.33	.520	.32	.475	.48	1.550	.86	8.80
9	.42	1.040	.28	.313	.44	1.200	.32	.475	.55	2.320	.76	6.07
10	.42	1.040	.29	.343	.44	1.200	.32	.475	.51	1.860	.74	5.62
11	.40	.905	.28	.313	.39	.845	.31	.428	.49	1.650	.70	4.76
12	.40	.905	.28	.313	.52e	1.970	.31	.428	.46	1.370	.64	3.67
13	.39	.845	.28	.313	.49	1.650	.30	.385	.44	1.200	.62	3.33
14	.39	.845	.30	.385	.46	1.370	.30	.385	.43	1.120	.62	3.17
15	.38	.785	.28	.313	.42	1.040	.30	.385	.42	1.040	.56	2.45
16	.38	.785	.24	.201	.42	1.040	.31	.428	.40	.905	.54	2.20
17	.37	.725	.24	.201	.41	.972	.31	.428	.37	.725	.60	3.01
18	.35	.610	.24	.201	.41	.972	.33	.520	.35	.610	.67	4.20
19	.36	.665	.29	.343	.40	.905	.40	.905	.35	.610	.70	4.76
20	.35	.610	.27	.283	.40	.905	.40	.905	.36	.665	.62	3.33
21	.33	.520	.26	.253	.41	.972	.36	.665	.34	.565	.61	3.17
22	.32	.475	.29	.343	.42	1.040	.32	.475	.34	.565	.70	4.76
23	.39	.845	.27	.283	.41	.972	.31	.428	.36	.665	.70	4.76
24	.38	.785	.27	.283	.40	.905	.31	.428	.36	.665	.74	5.62
25	.36	.665	.26	.253	.40	.905	.31	.428	.42	1.040	.74	5.62
26	.36	.665	.27	.283	.40	.905	.30	.385	.50	1.750	.74	5.62
27	.36	.665	.26	.253	.38	.785	.30	.385	.65	3.840	.72	5.28
28	.35	.610	.27	.283	.36	.665	.30	.385	.85	8.500	.71	4.97
29	.36	.665	--	--	.36	.665	.31	.428	.87	9.100	1.14	20.20
30	.36	.665	--	--	.35	.610	.31	.428	.89	9.700	1.10	18.20
31	.33	.520	--	--	.35	.610	--	--	.81	7.360	--	--
sec-m da	26.040		9.919		29.189		14.742		64.837		183.68	
	July		August		September		October		November		December	
1	1.02	14.50	1.50	43.60	1.46	40.80	1.26	27.20	.67	4.20	.58	2.72
2	.94	11.40	1.47	41.50	1.38	35.30	1.26	27.20	.66	4.02	.60	3.01
3	1.12	19.20	1.49	42.90	1.42	38.00	1.49	42.90	.65	3.84	.59	2.86
4	.93	11.00	1.53	45.70	1.36	33.90	1.44	39.40	.64	3.67	.60	3.01
5	1.00	13.70	1.39	36.00	1.38	35.30	1.32	31.20	.65	3.84	.57	2.58
6	1.13	19.70	1.44	39.40	1.40	36.70	1.30	29.90	.64	3.67	.56e	2.45
7	1.26	27.20	1.46	40.80	1.44	39.40	1.23	25.30	.64	3.67	.55e	2.32
8	1.02	14.50	1.69	57.00	1.56	47.80	1.14	20.20	.64	3.67	.54e	2.20
9	1.12	19.20	1.66	54.90	1.56	47.80	1.14	20.20	.62	3.33	.52	1.97
10	1.14	20.20	1.49	42.90	1.56	47.80	1.00	13.70	.62	3.33	.52	1.97
11	1.33	31.90	1.46	40.80	1.52	45.00	1.00	13.70	.62	3.33	.51	1.86
12	1.35	33.30	1.32	31.20	1.52	45.00	1.00	13.70	.61	3.17	.50	1.75
13	1.40	36.70	1.32	31.20	1.36	33.90	.95	11.80	.63	3.50	.50	1.75
14	1.43	38.70	1.48	42.20	1.49	42.90	.95	11.80	.62	3.33	.50	1.75
15	1.30	29.90	1.57	48.50	1.42	38.00	.94	11.40	.60	3.01	.50	1.75
16	1.24	25.90	1.54	46.40	1.28	28.50	.94	11.40	.60	3.01	.50	1.75
17	1.06	16.20	1.80	65.00	1.18	22.30	.88	9.40	.60	3.01	.49	1.65
18	1.12	19.20	1.62	52.00	1.18	22.30	.84	8.21	.60	3.01	.50	1.75
19	1.26	27.20	1.52	45.00	1.25	26.60	.83	7.92	.58	2.72	.51	1.86
20	1.35	33.30	1.53	45.70	1.37	34.60	.82	7.64	.59	2.86	.50	1.75
21	1.32	31.20	1.63	52.70	1.02	14.50	.80	7.09	.58	2.72	.50	1.75
22	1.33	31.90	1.61	51.30	1.17	21.80	.79	6.82	.59	2.86	.54	2.20
23	1.46	40.80	1.50	43.60	1.17	21.80	.78	6.56	.59	2.86	.48	1.55
24	1.42	38.00	1.49	42.90	1.18	22.30	.78	6.56	.58	2.72	.48	1.55
25	1.44	39.40	1.52	45.00	1.19	22.90	.78	6.56	.60	3.01	.47	1.46
26	1.43	38.70	1.34	32.60	1.18	22.30	.77	6.31	.59	2.86	.46	1.37
27	1.40	36.70	1.32	31.20	1.19	22.90	.76	6.07	.59	2.86	.45	1.28
28	1.46	40.80	1.44	39.40	1.12	19.20	.76	6.07	.58	2.72	.44	1.20
29	1.39	36.00	1.47	41.50	1.08	17.20	.75	5.84	.58	2.72	.44	1.20
30	1.42	38.00	1.36	33.90	1.21	24.10	.70	4.76	.58	2.72	.44	1.20
31	1.48	42.20	1.54	46.40	--	--	.68	4.38	--	--	.44	1.20
sec-m da	876.60		1,353.20		950.90		451.19		96.24		58.37	

TABLE 2.36

Daily Gage Height, in meters, and Discharge, in second-meters,
 Gudla River near Dembecha, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.32	.81	.26	.35	.22	.17	.23	.21	.32	.81	.32	.81
2	.30	.62	.26	.35	.21	.14	.22	.17	.28	.47	.28	.47
3	.30	.62	.24	.25	.20	.11	.22	.17	.25	.30	.32	.81
4	.32	.81	.24	.25	.20	.11	.21	.14	.25	.30	.39	1.64
5	.32	.81	.24	.25	.22	.17	.22	.17	.24	.25	.54	4.77
6	.30	.62	.22	.17	.20	.11	.22	.17	.24	.25	.41	1.97
7	.30	.62	.22	.17	.22	.17	.22	.17	.26	.35	.46	2.87
8	.30	.62	.23	.21	.23	.21	.22	.17	.26	.35	.46	2.87
9	.30	.62	.22	.17	.24	.25	.21	.14	.27	.41	.37	1.37
10	.29	.54	.22	.17	.24	.25	.21	.14	.26	.35	.35	1.12
11	.28	.47	.21	.14	.23	.21	.21	.14	.26	.35	.39	1.64
12	.28	.47	.22	.17	.26	.35	.21	.14	.25	.30	.42	2.13
13	.28	.47	.21	.14	.24	.25	.21	.14	.25	.30	.44	2.48
14	.27	.41	.21	.14	.25	.30	.21	.14	.24	.25	.44	2.48
15	.28	.47	.21	.14	.26	.35	.21	.14	.23	.21	.36	1.24
16	.28	.47	.21	.14	.26	.35	.21	.14	.23	.21	.38	1.50
17	.28	.47	.20	.11	.26	.35	.22	.17	.22	.17	.74	11.65
18	.30	.62	.20	.11	.26	.35	.22	.17	.22	.17	.73	11.23
19	.30	.62	.21	.14	.26	.35	.22	.17	.22	.17	.78	13.39
20	.30	.62	.21	.14	.26	.35	.22	.17	.22	.17	.71	10.40
21	.29	.54	.21	.14	.26	.35	.22	.17	.22	.17	.73	11.23
22	.28	.47	.22	.17	.25	.30	.21	.14	.21	.14	.62	7.13
23	.26	.35	.24	.25	.25	.30	.21	.14	.21	.14	.60	6.50
24	.24	.25	.26	.35	.25	.30	.21	.14	.24	.25	.62	7.13
25	.24	.25	.24	.25	.25	.30	.21	.14	.29	.54	.62	7.13
26	.24	.25	.26	.35	.24	.25	.20	.11	.28	.47	.61	6.81
27	.24	.25	.24	.25	.24	.25	.20	.11	.29	.54	.76	12.51
28	.24	.25	.24	.25	.24	.25	.20	.11	.32	.81	.76	12.51
29	.26	.35	--	--	.23	.21	.20	.11	.32	.81	.72	10.81
30	.26	.35	--	--	.23	.21	.21	.14	.32	.81	.74	11.65
31	.26	.35	--	--	.23	.21	--	--	.33	.91	--	--
sec-m da	15.44		5.72		7.83		4.48		11.73		170.25	
	July		August		September		October		November		December	
1	.78	13.39	1.25	39.61	1.32	44.40	.99	23.65	.42	2.13	.36	1.24
2	.68	9.23	1.19	35.65	1.32	44.40	.97	22.58	.42	2.13	.36	1.24
3	.76	12.51	1.25	39.61	1.34	45.80	1.04	26.46	.42	2.13	.36	1.24
4	.73	11.23	1.28	41.63	1.13	31.84	1.01	24.76	.41	1.97	.37	1.37
5	.80	14.30	1.40	50.00	1.17	34.36	.97	22.58	.40	1.82	.36	1.24
6	.88	18.04	1.28	41.63	1.18	35.00	.97	22.58	.39	1.64	.35e	1.12
7	1.05	27.04	1.33	45.10	1.29	42.31	.84	16.16	.39	1.64	.34e	1.01
8	.93	20.50	1.39	49.30	1.41	50.70	.80	14.30	.39	1.64	.33e	.91
9	1.05	27.04	1.43	52.10	1.39	49.30	.77	12.95	.38	1.50	.32	.81
10	1.18	35.00	1.30	43.00	1.42	51.40	.71	10.40	.37	1.37	.30	.62
11	1.15	33.09	1.28	41.63	1.39	49.30	.70	10.00	.36	1.24	.33	.91
12	1.17	34.36	1.36	47.20	1.28	41.63	.65	8.15	.39	1.64	.32	.81
13	1.18	35.00	1.35	46.50	1.12	31.22	.63	7.46	.42	2.13	.32	.81
14	1.18	35.00	1.28	41.63	1.16	33.72	.62	7.13	.41	1.97	.32	.81
15	1.13	31.84	1.20	36.30	1.14	32.46	.60	6.50	.39	1.64	.32	.81
16	1.25	39.61	1.31	43.70	1.14	32.46	.59	6.20	.39	1.64	.32	.81
17	1.26	40.28	1.42	51.40	1.06	27.62	.57	5.61	.38	1.50	.32	.81
18	1.24	38.94	1.32	44.40	1.09	29.40	.54	4.77	.38	1.50	.32	.81
19	1.19	35.65	1.25	39.61	1.06	27.62	.52	4.26	.38	1.50	.32	.81
20	1.22	37.61	1.24	38.94	1.12	31.22	.51	4.01	.38	1.50	.30	.62
21	1.28	41.63	1.40	50.00	.95	21.53	.50	3.77	.37	1.37	.31	.71
22	1.23	38.27	1.32	44.40	1.08	28.80	.49	3.53	.36	1.24	.30	.62
23	1.38	48.60	1.31	43.70	1.04	26.46	.48	3.30	.37	1.37	.30	.62
24	1.46	54.20	1.30	43.00	1.10	30.00	.48	3.30	.38	1.50	.30	.62
25	1.39	49.30	1.28	41.63	1.08	28.80	.49	3.53	.38	1.50	.30	.62
26	1.47	54.90	1.13	31.84	1.10	30.00	.48	3.30	.40	1.82	.30	.62
27	1.38	48.60	1.13	31.84	1.08	28.80	.46	2.87	.40	1.82	.30	.62
28	1.32	44.40	1.12	31.22	1.02	25.32	.46	2.87	.39	1.54	.29	.54
29	1.34	45.80	1.16	33.72	1.03	25.89	.46	2.87	.37	1.37	.29	.54
30	1.29	42.31	1.19	35.65	.96	22.05	.45	2.67	.36	1.24	.30	.62
31	1.15	33.09	2.08	101.40	--	--	.43	2.30	--	--	.30	.62
sec-m da	1,050.76		1,357.34		1,033.81		294.82		49.10		25.56	

TABLE 2.37

Daily Gage Height, in meters, and Discharge, in second-meters,
Kechem River near Jiga, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.80	.786	.66	.240	.59	.103						
2	.78	.684	.66	.240	.59	.103						
3	.77	.636	.65	.216	.59	.103						
4	.77	.636	.65	.216	.60	.117						
5	.76	.590	.65	.216	.59	.103						
6	.76	.590	.65	.216	.60	.117						
7	.75	.546	.64	.193	.59	.103					.88	1.310
8	.75	.546	.64	.193	.59	.103					.88	1.310
9	.74	.504	.64	.193	.60	.117					.70	.356
10	.73	.464	.63	.171	.60	.117					.69	.324
11	.73	.464	.62	.151	.61	.133					.77	.636
12	.72	.426	.62	.151	.62	.151					.78	.684
13	.72	.426	.62	.151	.61	.133					.72	.426
14	.72	.426	.62	.151	.60	.117					.71	.390
15	.72	.426	.62	.151	.59	.103					.69	.324
16	.70	.356	.61	.133	.60	.117					.70	.356
17	.70	.356	.61	.133	.60	.117					.86	1.161
18	.70	.356	.61	.133	.59	.103					.84	1.024
19	.72	.426	.61	.133	.58	.089					.93	1.735
20	.70	.356	.61	.133	.58	.089					.97	2.130
21	.69	.324	.61	.133	.60	.117					.90	1.471
22	.68	.294	.60	.117	.60	.117					.87	1.234
23	.68	.294	.60	.117	.60	.117					.86	1.161
24	.68	.294	.60	.117	.60	.117					.88	1.310
25	.68	.294	.60	.117	.59	.103					.84	1.024
26	.68	.294	.60	.117	.58	.089					.81	.841
27	.67	.266	.59	.103	.58	.089					.90	1.471
28	.67	.266	.59	.103	.57	.078					.92	1.644
29	.68	.294	--	--	.57	.078					.85	1.091
30	.68	.294	--	--	.57	.078					.86	1.161
31	.67	.266	--	--	.57	.078					--	--
sec-m da	13,180		4,438		3,299							
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	.85	1.091	1.66	16.30	1.85	22.12	1.44	10.22	.84	1.024	.74	.504
2	.99	2.340	1.93	24.89	1.85	22.12	1.60	14.50	.83	.960	.74	.504
3	.95	1.930	1.89	23.48	1.74	18.70	1.56	13.37	.82	.899	.78	.684
4	1.08	3.470	1.90	23.83	1.64	15.70	1.50	11.75	.82	.899	.74	.504
5	1.10	3.750	1.82	21.14	1.64	15.70	1.48	11.23	.82	.899	.73	.464
6	1.26	6.330	1.78	19.90	1.74	18.70	1.40	9.25	.82	.899	.72	.426
7	1.41	9.490	2.54	50.24	1.70	17.50	1.32	7.53	.82	.899	.72	.426
8	1.30	7.130	1.96	25.99	1.89	23.48	1.26	6.33	.80	.786	.71	.390
9	1.56	13.370	2.08	30.64	2.14	33.04	1.21	5.41	.80	.786	.70	.356
10	1.44	10.220	1.79	20.20	2.13	32.64	1.18	4.93	.79	.734	.71	.390
11	1.42	9.730	1.75	19.00	1.81	20.82	1.14	4.32	.83	.960	.70	.356
12	1.39	9.020	1.84	21.79	1.66	16.30	1.11	3.89	.81	.841	.70	.356
13	1.42	9.730	1.84	21.79	1.56	13.37	1.08	3.47	.81	.841	.69	.324
14	1.34	7.940	2.30	39.67	1.53	12.55	1.06	3.20	.79	.734	.70	.356
15	1.31	7.330	2.03	28.67	1.54	12.82	1.03	2.81	.78	.684	.69	.324
16	1.26	6.330	1.93	24.89	1.58	13.93	1.06	3.20	.78	.684	.67	.266
17	1.23	5.760	2.14	33.04	1.53	12.55	1.08	3.47	.78	.684	.68	.294
18	1.29	6.930	1.96	25.99	1.56	13.37	.99	2.34	.77	.636	.67	.266
19	1.36	8.360	1.80	20.50	1.51	12.01	.97	2.13	.78	.684	.67	.266
20	1.50	11.750	1.78	19.90	1.84	21.79	.96	2.03	.76	.590	.67	.266
21	1.48	11.230	1.74	18.70	1.54	12.82	.94	1.83	.76	.590	.67	.266
22	1.39	9.020	1.66	16.30	1.64	15.70	.93	1.74	.76	.590	.68	.294
23	1.55	13.090	1.64	15.70	1.62	15.10	.92	1.64	.77	.636	.66	.240
24	1.70	17.500	1.58	13.93	1.98	26.74	.91	1.56	.75	.546	.66	.240
25	1.75	19.000	1.52	12.28	1.70	17.50	.92	1.64	.74	.504	.65	.216
26	1.74	18.700	1.60	14.50	1.60	14.50	.90	1.47	.77	.636	.66	.240
27	1.74	18.700	1.72	18.10	1.54	12.82	.90	1.47	.75	.546	.65	.216
28	1.73	18.400	1.74	18.70	1.44	10.22	.88	1.31	.74	.504	.65	.216
29	1.61	14.800	1.95	25.62	1.48	11.23	.87	1.23	.75	.546	.64	.193
30	1.55	13.090	1.89	23.48	1.49	11.49	.86	1.16	.74	.504	.64	.193
31	1.52	12.280	2.27	38.41	--	--	.85	1.09	--	--	.66	.240
sec-m da	307.811		727.57		517.33		141.53		21.725		10.276	

TABLE 2.38

Daily Gage Height, in meters, and Discharge, in second-meters,
Birr River near Jiga, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.88	1.927	.71	.755	.58	.261	.51	.125	.49	.096	.60	.315
2	.87	1.838	.70	.705	.58	.261	.51	.125	.49	.096	.59	.287
3	.86	1.752	.69	.657	.58	.261	.50	.110	.47	.071	.57	.237
4	.84	1.589	.68	.611	.58	.261	.50	.110	.49	.096	.60	.315
5	.85	1.669	.68	.611	.58	.261	.49	.096	.49	.096	.99	3.180
6	.84	1.589	.67	.567	.58	.261	.49	.096	.49	.096	.86	1.752
7	.83	1.512	.66	.525	.58	.261	.48	.083	.52	.141	.96	2.780
8	.82	1.437	.66	.525	.59	.287	.48	.083	.60	.315	.90	2.115
9	.82	1.437	.66	.525	.59	.287	.48	.083	.60	.315	.74	.917
10	.80	1.295	.64	.447	.61	.345	.48	.083	.61	.345	.68	.611
11	.80	1.295	.64	.447	.62	.377	.48	.083	.58	.261	.74	.917
12	.79	1.227	.63	.411	.64	.447	.47	.071	.56	.215	.82	1.437
13	.79	1.227	.62	.377	.63	.411	.47	.071	.56	.215	.70	.705
14	.78	1.161	.62	.377	.63	.411	.46	.060	.55	.195	.68	.611
15	.78	1.161	.63	.411	.60	.315	.46	.060	.53	.158	.67	.567
16	.77	1.097	.62	.377	.58	.261	.46	.060	.52	.141	.67	.567
17	.76	1.035	.62	.377	.58	.261	.47	.071	.52	.141	.69	.657
18	.76	1.035	.62	.377	.56	.215	.46	.060	.55	.195	.73	.861
19	.77	1.097	.62	.377	.55	.195	.47	.071	.50	.110	.76	1.035
20	.76	1.035	.61	.345	.55	.195	.47	.071	.50	.110	.75	.975
21	.74	.917	.61	.345	.56	.215	.46	.060	.56	.215	.86	1.752
22	.74	.917	.60	.315	.57	.237	.46	.060	.54	.176	.89	2.019
23	.74	.917	.60	.315	.56	.215	.46	.060	.56	.215	.86	1.752
24	.73	.851	.60	.315	.56	.215	.45	.050	.57	.237	.86	1.752
25	.72	.807	.59	.287	.56	.215	.45	.050	.57	.237	.82	1.437
26	.73	.851	.60	.315	.55	.195	.45	.050	.67	.567	.74	.917
27	.73	.851	.59	.287	.54	.176	.45	.050	.63	.411	.86	1.752
28	.72	.807	.59	.287	.54	.176	.45	.050	.63	.411	1.48	14.660
29	.73	.851	--	--	.53	.158	.45	.050	.60	.315	1.12	5.240
30	.72	.807	--	--	.52	.141	.45	.050	.58	.261	.91	2.215
31	.72	.807	--	--	.52	.141	--	--	.58	.261	--	--
sec-m da	36.798		12.270		7.960		2.202		6.714		54.337	
	July		August		September		October		November		December	
1	.86	1.75	2.65	102.30	2.16	53.10	1.76	26.99	.95	2.660	.83	1.512
2	1.21	6.90	2.62	98.67	2.28	63.32	2.45	79.70	.93	2.430	.84	1.589
3	.95	2.66	2.94	142.30	2.08	47.06	1.96	38.81	.91	2.215	.84	1.589
4	1.30	9.05	3.09	168.00	1.90	35.00	1.84	31.42	.92	2.320	.87	1.838
5	1.43	12.92	2.61	97.48	2.30	65.10	1.74	25.95	.90	2.115	.84	1.589
6	1.66	22.06	2.33	67.83	2.34	68.76	1.66	22.06	.90	2.115	.82	1.437
7	1.51	15.78	3.05	162.00	2.66	103.54	1.56	17.74	.90	2.115	.80	1.295
8	1.28	8.52	2.86	130.30	2.57	92.82	1.51	15.78	.90	2.115	.79	1.227
9	1.53	16.55	2.64	101.08	2.95	143.80	1.46	13.94	.89	2.019	.78	1.161
10	1.46	13.94	2.60	96.30	2.30	65.10	1.40	11.95	.89	2.019	.77	1.097
11	1.46	13.94	2.34	68.76	2.02	42.87	1.37	11.03	.90	2.115	.77	1.097
12	1.61	19.83	2.50	85.00	1.92	36.24	1.33	9.87	.94	2.540	.76	1.035
13	1.52	16.16	2.54	89.42	1.89	34.39	1.28	8.52	.96	2.780	.75	.975
14	1.55	17.34	2.20	56.40	1.78	28.06	1.26	8.01	.91	2.215	.74	.917
15	1.61	19.83	2.20	56.40	1.77	27.52	1.24	7.54	.89	2.019	.74	.917
16	1.64	21.15	2.39	73.60	2.48	82.85	1.22	7.11	.88	1.927	.73	.851
17	1.50	15.40	3.50	245.00	1.96	38.81	1.18	6.32	.88	1.927	.72	.807
18	1.62	20.26	3.13	174.50	1.79	28.60	1.16	5.96	.88	1.927	.72	.807
19	1.74	25.95	2.96	145.40	1.94	37.51	1.13	5.42	.86	1.752	.72	.807
20	1.78	28.06	3.09	168.00	1.69	23.47	1.08	4.56	.86	1.752	.71	.755
21	1.58	18.56	2.56	91.68	1.78	28.06	1.06	4.23	.88	1.927	.71	.755
22	1.57	18.15	2.32	66.91	1.87	33.18	1.08	4.56	.88	1.927	.72	.807
23	1.68	22.99	2.16	53.10	1.90	35.00	1.06	4.23	1.00	3.320	.72	.807
24	2.46	80.74	2.13	50.74	2.08	47.06	1.04	3.91	.97	2.910	.72	.807
25	2.13	50.74	1.98	40.14	1.88	33.78	1.06	4.23	.90	2.115	.70	.705
26	2.24	59.82	2.06	45.65	1.74	25.95	1.05	4.07	.92	2.320	.70	.705
27	2.62	98.67	2.26	61.56	1.64	21.15	1.03	3.76	.86	1.752	.69	.657
28	2.64	101.08	3.30	204.90	1.57	18.15	1.10	4.90	.84	1.589	.68	.611
29	2.16	53.10	2.77	117.70	1.56	17.74	.98	3.04	.90	2.115	.68	.611
30	2.00	41.50	2.29	64.21	1.57	18.15	.98	3.04	.84	1.589	.68	.611
31	2.42	76.61	2.36	70.66	--	--	.96	2.78	--	--	.69	.657
sec-m da	930.01		3,197.29		1,396.14		401.25		64.641		31.015	

TABLE 2.39

Daily Gage Height, in meters, and Discharge, in second-meters,
Leza River near Jiga, Ethiopia--Year Ending 31; 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.32	.55	.26	.29	.23	.20	.20	.120	.23	.262	.27	.462
2	.31	.50	.26	.29	.23	.20	.20	.120	.21	.162	.23	.262
3	.31	.50	.26	.29	.23	.20	.22	.170	.21	.162	.23	.262
4	.30	.45	.24	.23	.22	.17	.21	.140	.25	.362	.26	.412
5	.30	.45	.24	.23	.24	.23	.21	.140	.20	.112	.25	.362
6	.29	.40	.24	.23	.23	.20	.21	.140	.21	.162	.24	.312
7	.30	.45	.24	.23	.23	.20	.21	.140	.23	.262	.25	.362
8	.30	.45	.25	.26	.23	.20	.21	.140	.22	.212	.23	.262
9	.30	.45	.25	.26	.23	.20	.25	.260	.23	.262	.23	.262
10	.29	.40	.23	.20	.23	.20	.21	.140	.22	.212	.22	.212
11	.29	.40	.24	.23	.23	.20	.21	.140	.22	.212	.22	.212
12	.29	.40	.24	.23	.24	.23	.21	.140	.21	.162	.22	.212
13	.28	.36	.25	.26	.23	.20	.20	.120	.21	.162	.22	.212
14	.28	.36	.24	.23	.23	.20	.20	.120	.21	.162	.22	.212
15	.28	.36	.24	.23	.22	.17	.20	.120	.21	.162	.24	.312
16	.28	.36	.24	.23	.22	.17	.21	.140	.25	.362	.22	.212
17	.28	.36	.24	.23	.22	.17	.20	.120	.20	.112	.22	.212
18	.28	.36	.24	.23	.23	.20	.20	.120	.19	.072e	.24	.312
19	.28	.36	.23	.20	.21	.14	.21	.140	.19	.072e	.24	.312
20	.27	.32	.24	.23	.23	.20	.20	.120	.18	.032e	.24	.312
21	.27	.32	.24	.23	.23	.20	.20	.120	.18	.032e	.22	.212
22	.27	.32	.24	.23	.22	.17	.20	.112	.20	.112	.24	.312
23	.27	.32	.24	.23	.22	.17	.20	.112	.19	.072e	.24	.312
24	.26	.29	.25	.20	.22	.17	.20	.112	.19	.072e	.24	.312
25	.26	.29	.23	.20	.22	.17	.20	.112	.19	.072e	.24	.312
26	.26	.29	.24	.23	.20	.12	.20	.112	.19	.072e	.24	.312
27	.26	.29	.23	.20	.21	.14	.20	.112	.19	.072e	.24	.312
28	.26	.29	.25	.20	.22	.17	.20	.112	.23	.262	.33	.812
29	.26	.29	--	--	.21	.14	.20	.112	.23	.262	.30	.622
30	.26	.29	--	--	.21	.14	.21	.162	.22	.212	.30	.622
31	.26	.29	--	--	.22	.17	--	--	.24	.312	--	--
sec-m da	11.52		6.55		5.64		3.968		5.232		9.830	
	July		August		September		October		November		December	
1	.30	.62	.81	7.09	.88	8.42					.35	.952
2	.34	.88	.78	6.54	.74	5.84					.28	.512
3	.33	.81	.83	7.47	.69	4.00					.26	.412
4	.35	.95	1.24	16.84	.68	4.84					.30	.622
5	.34	.88	.98	10.40	.78	6.54					.30	.622
6	.35	.95	.92	9.20	.92	9.20					.28	.512
7	.36	1.03	.96	10.00	.92	9.20					.26	.412
8	.37	1.11	1.10	13.20	.94	9.60					.25	.362
9	.64	4.22	1.04	11.70	1.14	14.24					.26	.412
10	.66	4.52	.92	9.20	1.09	12.94					.26	.412
11	.65	4.37	.90	8.80	.90	8.80					.28	.512
12	.66	4.52	.84	7.66	.68	4.84					.27	.462
13	.66	4.52	.86	8.04	.67	4.68					.28	.512
14	.63	4.07	.77	6.36	.68	4.84					.26	.412
15	.64	4.22	.76	6.18	.68	4.84					.26	.412
16	.63	4.07	.96	10.00	.70	5.16					.28	.512
17	.62	3.93	1.21	16.06	.78	6.54					.28	.512
18	.63	4.07	1.16	14.76	.66	4.52					.26	.412
19	.66	4.52	1.06	12.18	.64	4.22					.26	.412
20	.59	3.52	.94	9.60	.56	3.13					.26	.412
21	.53	2.77	.84	7.66	.58	3.39					.26	.412
22	.53	2.77	.78	6.54	.68	4.84					.28	.512
23	.56	3.13	.74	5.84	.66	4.52					.28	.512
24	.92	9.20	.67	4.68	.66	4.52					.28	.512
25	.68	4.84	.68	4.84	.69	4.00					.28	.512
26	.64	4.22	.68	4.84	.68	4.84					.28	.512
27	.62	3.93	.68	4.84	.66	4.52					.27	.462
28	.66	4.52	.79	6.72	.59	3.52					.26	.412
29	.98	10.40	1.08	12.68	.60	3.65					.26	.412
30	.90	8.80	.98	10.40	.70	5.16					.26	.412
31	.72	5.50	.90	8.80	--	--					.25	.362
sec-m da	117.92		279.18		179.41						14.832	

TABLE 2.40

Daily Gage Height, in meters, and Discharge, in second-meters,
Temim River near Finote Selam, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.			
	January		February		March		April		May		June	
1						.28	.003	.32	.008	.33	.010	
2						.29	.004	.33	.010	.32	.008	
3						.28	.003	.32	.008	.36	.016	
4						.27	.002	.30	.005	.36	.016	
5						.28	.003	.30	.005	.36	.016	
6						.28	.003	.32	.008	.36	.016	
7						.29	.004	.35	.014	.31	.006	
8						.29	.004	.34	.012	.30	.005	
9						.29	.004	.32	.008	.29	.004	
10						.29	.004	.33	.010	.29	.004	
11						.28	.003	.33	.010	.29	.004	
12						.27	.002	.30	.005	.29	.004	
13						.28	.003	.30	.005	.28	.003	
14						.28	.003	.30	.005	.28	.003	
15						.26	.002	.29	.004	.28	.003	
16						.26	.002	.27	.002	.28	.003	
17						.26	.002	.27	.002	.30	.005	
18						.26	.002	.28	.003	.32	.008	
19						.27	.002	.29	.004	.30	.005	
20						.26	.002	.28	.003	.30	.005	
21						.26	.002	.28	.003	.28	.003	
22						.26	.002	.28	.003	.29	.004	
23						.26	.002	.29	.004	.29	.004	
24						.26	.002	.28	.003	.30	.005	
25						.25	.001	.28	.003	.29	.004	
26						.25	.001	.28	.003	.29	.004	
27						.25	.001	.29	.004	.30	.005	
28						.24	.001	.34	.012	.30	.005	
29						.24	.001	.32	.008	.34	.012	
30						.26	.002	.34	.012	.34	.012	
31						--	--	.37	.020	--	--	
sec-m da							.072		.206		.202	
Day	July		August		September		October		November		December	
1	.67	.720	1.27	6.16	1.49	9.20	1.36	7.340	.60	.440	.40	.040
2	.58	.377	1.78	13.78	1.43	8.32	1.76	13.460	.58	.377	.42	.056
3	.51	.188	1.80	14.10	1.43	8.32	1.66	11.860	.57	.347	.40	.040
4	.48	.128	1.74	13.14	1.37	7.48	1.30	6.550	.56	.318	.38	.026
5	.48	.128	1.84	14.78	1.52	9.65	1.25	5.900	.55	.290	.36	.016
6	.54	.263	1.62	11.22	1.60	10.90	1.20	5.300	.54	.263	.34	.012
7	.74	1.098	2.14	20.02	1.45	8.60	1.12	4.372	.53	.237	.32	.008
8	.58	.377	1.81	14.27	1.52	9.65	1.10	4.150	.53	.237	.31	.006
9	.53	.237	1.93	16.31	1.59	10.74	1.06	3.736	.52	.212	.31	.006
10	1.11	4.260	1.87	15.29	1.60	10.90	1.05	3.635	.51	.188	.31	.006
11	1.21	5.420	1.72	12.82	1.53	9.80	1.03	3.434	.54	.263	.31	.006
12	1.04	3.534	1.87	15.29	1.49	9.20	1.01	3.237	.50	.166	.30	.005
13	.80	1.500	1.82	14.44	1.42	8.18	.98	2.950	.49	.146	.29	.004
14	.69	.818	1.64	11.54	1.40	7.90	.96	2.768	.49	.146	.29	.004
15	.64	.588	1.62	11.22	1.38	7.62	.94	2.592	.48	.128	.29	.004
16	1.10	4.150	1.69	12.34	1.38	7.62	.93	2.506	.46	.098	.29	.004
17	.89	2.181	2.12	19.66	1.42	8.18	.91	2.340	.46	.098	.28	.003
18	1.27	6.160	1.94	16.48	1.34	7.07	.88	2.103	.45	.086	.28	.003
19	1.09	4.045	1.89	15.63	1.30	6.55	.86	1.949	.45	.086	.28	.003
20	.90	2.260	1.77	13.62	1.22	5.54	.84	1.797	.44	.075	.28	.003
21	.76	1.224	1.69	12.34	1.10	4.15	.82	1.647	.44	.075	.28	.003
22	.71	.924	1.60	10.90	1.10	4.15	.80	1.500	.43	.065	.28	.003
23	.66	.674	1.56	10.26	1.17	4.95	.76	1.224	.44	.075	.28	.003
24	1.04	3.534	1.52	9.65	1.45	8.60	.74	1.098	.44	.075	.28	.003
25	.88	2.103	1.45	8.60	1.40	7.90	.74	1.098	.44	.075	.28	.003
26	1.28	6.290	1.52	9.65	1.32	6.81	.72	.980	.44	.075	.28	.003
27	1.43	8.320	1.50	9.35	1.18	5.06	.69	.818	.40	.040	.28	.003
28	1.74	13.140	1.45	8.60	1.09	4.05	.68	.768	.40	.040	.28	.003
29	1.35	7.200	1.59	10.74	1.34	7.07	.66	.674	.40	.040	.28	.003
30	1.23	5.660	1.52	9.65	1.24	5.78	.64	.588	.40	.040	.28	.003
31	1.51	9.500	1.64	11.54	--	--	.62	.510	--	--	.28	.003
sec-m da	97.001		393.39		229.93		102.834		4.801		.288	

TABLE 2.41

Daily Gage Height, in meters, and Discharge, in second-meters,
Lah River near Finote Selam, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.62	1.400	.48	.358	.49	.392	.48	.358	.51	.509	.59	1.09
2	.61	1.290	.48	.358	.46	.270	.48	.358	.49	.392	.62	1.40
3	.61	1.290	.49	.392	.47	.314	.47	.314	.50	.447	.80	4.20
4	.61	1.290	.48	.358	.49	.392	.49	.392	.50	.447	.62	1.40
5	.60	1.180	.47	.314	.47	.314	.48	.358	.51	.509	.70	2.43
6	.60	1.180	.48	.358	.47	.314	.49	.392	.53	.634	.69	2.29
7	.60	1.180	.48	.358	.48	.358	.49	.392	.53	.634	.67	2.01
8	.59	1.090	.48	.358	.50	.447	.48	.358	.53	.634	.67	2.01
9	.59	1.090	.50	.447	.50	.447	.48	.358	.54	.697	.67	2.01
10	.59	1.090	.50	.447	.50	.447	.48	.358	.53	.634	.68	2.15
11	.58	1.010	.49	.392	.50	.447	.49	.392	.53	.634	.64	1.62
12	.58	1.010	.48	.358	.50	.447	.49	.392	.52	.571	.61	1.29
13	.57	.926	.47	.314	.50	.447	.48	.358	.50	.447	.64	1.62
14	.56	.842	.47	.314	.50	.447	.49	.392	.52	.571	.60	1.18
15	.56	.842	.47	.314	.49	.392	.48	.358	.52	.571	.68	2.15
16	.55	.760	.47	.314	.49	.392	.49	.392	.51	.509	.84	5.07
17	.55	.760	.47	.314	.48	.358	.48	.358	.50	.447	.68	2.15
18	.54	.697	.47	.314	.48	.358	.48	.358	.50	.447	.67	2.01
19	.54	.697	.47	.314	.48	.358	.48	.358	.50	.447	.72	2.75
20	.53	.634	.48	.358	.49	.392	.48	.358	.51	.509	.79	4.01
21	.52	.571	.48	.358	.49	.392	.49	.392	.52	.571	.78	3.82
22	.52	.571	.49	.392	.48	.358	.48	.358	.51	.509	.72	2.75
23	.52	.571	.48	.358	.48	.358	.48	.358	.51	.509	.70	2.43
24	.52	.571	.47	.314	.49	.392	.49	.392	.66	1.870	.83	4.85
25	.52	.571	.47	.314	.49	.392	.48	.358	.65	1.740	.73	2.91
26	.52	.571	.48	.358	.49	.392	.48	.358	.62	1.400	.70	2.43
27	.52	.571	.48	.358	.47	.314	.48	.358	.54	.697	.79	4.01
28	.51	.509	.47	.314	.48	.358	.48	.358	.54	.697	.86	5.52
29	.51	.509	--	--	.48	.358	.49	.392	.55	.760	1.02	9.97
30	.50	.447	--	--	.47	.314	.49	.392	.64	1.620	.94	7.57
31	.49	.392	--	--	.47	.314	--	--	.62	1.400	--	--
sec-m da	26.112		9.820		11.675		11.070		22.463		91.10	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	1.20	16.3	1.21	16.6	1.27	19.0	1.15	14.40	.69	2.29	.62	1.400
2	1.84	45.1	1.26	18.6	1.38	23.5	1.38	23.50	.68	2.15	.62	1.400
3	1.24	17.8	1.37	23.1	1.46	27.1	1.32	21.00	.66	1.87	.62	1.400
4	1.39	24.0	1.38	23.5	1.45	26.7	1.25	18.20	.66	1.87	.62	1.400
5	1.29	19.8	1.42	25.3	1.47	27.5	1.24	17.80	.65	1.74	.62	1.400
6	1.30	20.2	1.27	19.0	1.40	24.5	1.19	15.90	.64	1.62	.60	1.180
7	1.32	21.0	1.36	22.7	1.41	24.9	1.09	12.20	.63	1.51	.60	1.180
8	1.18	15.5	1.35	22.3	1.78	42.1	1.00	9.35	.63	1.51	.60	1.180
9	1.25	18.2	1.31	20.6	2.05	56.0	.99	9.05	.63	1.51	.60	1.180
10	1.32	21.0	1.63	34.7	1.30	20.2	.95	7.85	.63	1.51	.59	1.090
11	1.26	18.6	1.64	35.2	1.24	17.8	.93	7.29	.64	1.62	.58	1.010
12	1.26	18.6	1.71	38.6	1.19	15.9	.92	7.01	.64	1.62	.56	.842
13	1.33	21.4	1.65	35.7	1.19	15.9	.89	6.21	.67	2.01	.55	.760
14	1.35	22.3	1.75	40.6	1.18	15.5	.86	5.52	.66	1.87	.54	.697
15	1.34	21.8	1.63	34.7	1.18	15.5	.84	5.07	.64	1.62	.53	.634
16	1.50	28.9	1.58	32.4	1.18	15.5	.83	4.85	.63	1.51	.53	.634
17	1.37	23.1	1.73	39.6	1.15	14.4	.81	4.41	.64	1.62	.52	.571
18	1.40	24.5	1.68	37.1	1.17	15.1	.80	4.20	.64	1.62	.52	.571
19	1.95	50.8	1.54	30.6	1.12	13.2	.78	3.82	.63	1.51	.52	.571
20	1.44	26.2	1.46	27.1	1.05	10.9	.78	3.82	.62	1.40	.52	.571
21	1.50	28.9	1.42	25.3	.98	8.8	.76	3.44	.62	1.40	.52	.571
22	1.38	23.5	1.22	17.0	.98	8.8	.75	3.25	.62	1.40	.52	.571
23	1.12	13.2	1.28	19.4	1.62	34.2	.75	3.25	.63	1.51	.52	.571
24	1.31	20.6	1.17	15.1	1.50	28.9	.75	3.25	.68	2.15	.52	.571
25	1.13	13.6	1.16	14.7	1.18	15.5	.76	3.44	.64	1.62	.51	.509
26	1.86	46.1	1.30	20.2	1.15	14.4	.76	3.44	.64	1.62	.51	.509
27	1.70	38.1	1.27	19.0	1.09	12.2	.75	3.25	.62	1.40	.51	.509
28	1.56	31.5	1.70	38.1	1.04	10.6	.74	3.08	.62	1.40	.51	.509
29	1.32	21.0	1.42	25.3	1.20	16.3	.72	2.75	.62	1.40	.51	.509
30	1.22	17.0	1.26	18.6	1.30	20.2	.71	2.59	.62	1.40	.51	.509
31	1.15	14.4	1.40	24.5	--	--	.70	2.43	--	--	.51	.509
sec-m da	743.0		815.2		611.0		235.62		49.28		25.518	

TABLE 2.42

Daily Gage Height, in meters and Discharge, in second-meters,
Arera River near Finote Selam, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.26	.094	.24	.070	.24	.070	.29	.103	.35	.225	.29	.103
2	.26	.094	.24	.070	.24	.070	.28	.088	.31	.137	.30	.120
3	.26	.094	.24	.070	.24	.070	.28	.088	.30	.120	.86	4.758
4	.26	.094	.24	.070	.24	.070	.28	.088	.28	.088	.34	.200
5	.26	.094	.24	.070	.24	.070	.28	.088	.29	.103	.31	.137
6	.26	.094	.24	.070	.24	.070	.28	.088	.30	.120	.30	.120
7	.26	.094	.24	.070	.24	.070	.28	.088	.29	.103	.31	.137
8	.26	.094	.24	.070	.24	.070	.28	.088	.30	.120	.30	.120
9	.26	.094	.24	.070	.25	.081	.28	.088	.29	.103	.32	.156
10	.26	.094	.24	.070	.24	.070	.28	.088	.28	.088	.30	.120
11	.26	.094	.24	.070	.25	.081	.28	.088	.28	.088	.30	.120
12	.26	.094	.24	.070	.25	.081	.28	.088	.28	.088	.30	.120
13	.26	.094	.24	.070	.25	.081	.28	.088	.28	.088	.32	.156
14	.26	.094	.24	.070	.25	.081	.28	.088	.28	.088	.30	.120
15	.26	.094	.24	.070	.24	.070	.28	.088	.28	.088	.29	.103
16	.26	.094	.24	.070	.24	.070	.28	.088	.27	.075	.32	.156
17	.25	.081	.24	.070	.24	.070	.28	.088	.27	.075	.34	.200
18	.25	.081	.24	.070	.24	.070	.28	.088	.27	.075	.31	.137
19	.25	.081	.24	.070	.24	.070	.28	.088	.24	.046	.30	.120
20	.25	.081	.24	.070	.24	.070	.28	.088	.29	.103	.30	.120
21	.25	.081	.24	.070	.24	.070	.28	.088	.28	.088	.29	.103
22	.25	.081	.24	.070	.28	.088	.27	.075	.28	.088	.30	.120
23	.25	.081	.24	.070	.29	.103	.27	.075	.28	.088	.29	.103
24	.25	.081	.24	.070	.29	.103	.27	.075	.28	.088	.30	.120
25	.25	.081	.24	.070	.29	.103	.27	.075	.28	.088	.30	.120
26	.25	.081	.24	.070	.29	.103	.27	.075	.28	.088	.31	.137
27	.25	.081	.24	.070	.28	.088	.27	.075	.29	.103	.36	.250
28	.25	.081	.24	.070	.28	.088	.27	.075	.28	.088	.37	.277
29	.25	.081	--	--	.28	.088	.30	.120	.28	.088	.30	.120
30	.25	.081	--	--	.28	.088	.32	.156	.34	.200	.32	.156
31	.24	.070	--	--	.28	.088	--	--	.29	.103	--	--
sec-m da	2.708		1.960		2.465		2.664		3.092		8.829	
	July		August		September		October		November		December	
1	.34	.200	.51	.872	.44	.509	.34	.200	.33	.177	.30	.120
2	.36	.250	.83	4.292	.46	.594	.67	2.198	.33	.177	.32	.156
3	1.79	32.752	.45	.550	.43	.470	.52	.936	.33	.177	.32	.156
4	.52	.936	.52	.936	.59	1.466	.56	1.226	.33	.177	.32	.156
5	.75	3.150	.46	.594	.59	1.466	.42	.433	.33	.177	.31	.137
6	.38	.305	.50	.810	.48	.694	.38	.305	.32	.156	.30	.120
7	.37	.277	.60	1.550	.61	1.636	.38	.305	.32	.156	.30	.120
8	.32	.156	.71	2.642	.79	3.705	.38	.305	.32	.156	.30	.120
9	.44	.509	.61	1.636	.76	3.785	.38	.305	.32	.156	.30	.120
10	.49	.750	.59	1.466	.54	1.076	.37	.277	.32	.156	.30	.120
11	.53e	1.004	.50	.810	.48	.694	.38	.305	.35	.225	.30	.120
12	.58	1.384	.67	2.198	.45	.550	.37	.277	.38	.305	.30	.120
13	.61	1.636	.53	1.004	.41	.398	.37	.277	.36	.250	.30	.120
14	.56	1.226	.53	1.004	.41	.398	.37	.277	.34	.200	.30	.120
15	.61	1.636	.92	5.776	.40	.365	.37	.277	.32	.156	.30	.120
16	.70	2.525	.74	3.017	.46	.594	.36	.250	.30	.120	.30	.120
17	.78	3.562	.79	3.705	.45	.550	.36	.250	.30	.120	.30	.120
18	.67	2.198	.75	3.150	.44	.509	.36	.250	.30	.120	.30	.120
19	1.35	16.700	.69	2.412	.42	.433	.35	.225	.30	.120	.30	.120
20	.44	.509	.49	.750	.40	.365	.35	.225	.30	.120	.30	.120
21	.41	.398	.46	.594	.41	.398	.35	.225	.30	.120	.30	.120
22	.39	.334	.45	.550	.41	.398	.34	.200	.30	.120	.29	.103
23	.42	.433	.45	.550	.40	.365	.34	.200	.32	.156	.29	.103
24	.46	.594	.43	.470	.39	.334	.34	.200	.32	.156	.29	.103
25	.58	1.384	.45	.550	.40	.365	.34	.200	.32	.156	.29	.103
26	.59	1.466	.46	.594	.39	.334	.34	.200	.32	.156	.29	.103
27	.56	1.226	.44	.509	.39	.334	.34	.200	.31	.137	.29	.103
28	.51	.872	.43	.470	.38	.305	.34	.200	.30	.120	.29	.103
29	.46	.594	.43	.470	.40	.365	.34	.200	.30	.120	.29	.103
30	.42	.433	.46	.594	.40	.365	.33	.177	.30	.120	.29	.103
31	.52	.936	.60	1.550	--	--	.33	.177	--	--	.30	.120
sec-m da	80.335		46.075		23.820		11.282		4.762		3.692	

TABLE 2.43

Daily Gage Height, in meters,* and Discharge, in second-meters,
Debohila River near Bure, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.26	.64	.23	.53	.19	.41	.47	.397	.46	.366	.64	.934
2	.26	.64	.22	.50	.20	.44	.47	.397	.45	.335	.53	.583
3	.27	.67	.21	.47	.19	.41	.48	.428	.46	.366	.63	.899
4	.26	.64	.20	.44	.20	.44	.48	.428	.45	.335	.65	.970
5	.25	.60	.21	.47	.19	.41	.48	.428	.45	.335	.63	.899
6	.24	.57	.20	.44	.19	.41	.45	.366	.45	.335	.54	.614
7	.24	.57	.20	.44	.20	.44	.47	.397	.47	.397	.54	.614
8	.26	.64	.20	.44	.19	.41	.46	.366	.49	.459	.52	.552
9	.24	.57	.19	.41	.20	.44	.46	.366	.48	.428	.53	.583
10	.24	.57	.20	.44	.18	.38	.46	.366	.47	.397	.81	1.546
11	.20	.44	.18	.38	.19	.41	.46	.366	.47	.397	.71	1.186
12	.22	.50	.18	.38	.19	.41	.47	.397	.46	.366	.53	.583
13	.20	.44	.16	.32	.19	.41	.46	.366	.46	.366	.53	.583
14	.20	.44	.19	.41	.19	.41	.46	.366	.47	.397	.53	.583
15	.20	.44	.18	.38	.19	.41	.46	.366	.47	.397	.51	.521
16	.21	.47	.16	.32	.19	.41	.47	.397	.46	.366	.55	.645
17	.20	.44	.18	.38	.19	.41	.47	.397	.46	.366	1.06	2.446
18	.20	.44	.19	.41	.18	.38	.46	.366	.46	.366	.87	1.762
19	.22	.50	.20	.44	.20	.44	.47	.397	.45	.335	.56	.676
20	.22	.50	.19	.41	.20	.44	.46	.366	.46	.366	.56	.676
21	.22	.50	.19	.41	.20	.44	.46	.366	.46	.366	.55	.645
22	.20	.44	.18	.38	.19	.41	.46	.366	.48	.428	.59	.769
23	.22	.50	.20	.44	.20	.44	.45	.335	.47	.397	.52	.552
24	.22	.50	.20	.44	.20	.44	.45	.335	.57	.707	.54	.614
25	.22	.50	.19	.41	.49	.46	.45	.335	.66	1.006	.54	.614
26	.22	.50	.20	.44	.48	.43	.45	.335	.51	.521	.53	.583
27	.22	.50	.20	.44	.48	.43	.45	.335	.49	.459	.63	.899
28	.22	.50	.19	.41	.48	.43	.45	.335	.49	.459	.52	.552
29	.22	.50	--	--	.47	.40	.45	.335	.48	.428	.76	1.366
30	.22	.50	--	--	.46	.37	.45	.335	.54	.614	.99	2.194
31	.21	.47	--	--	.47	.40	--	--	.65	.970	--	--
sec-m da	16.13		11.78		12.95		11.135		13.830		26.643	
	July		August		September		October		November		December	
1	.93	1.978	1.20	2.950	1.06	2.446	1.11	2.626	.62	.865	.53	.583
2	.92	1.942	1.22	3.024	1.02	2.302	1.40	3.720	.60	.800	.52	.552
3	.77	1.402	1.58	4.422	1.04	2.374	1.03	2.338	.59	.769	.52	.552
4	e	3.174	1.76	5.124	1.04	2.374	1.07	2.482	.61	.832	.50	.490
5	e	5.085	1.88	5.592	1.08	2.518	1.10	2.590	.56	.676	.51	.521
6	e	7.107	2.39	7.657	1.08	2.518	.92	1.942	.56	.676	.52	.552
7	e	9.279	1.92	5.748	1.16	2.806	.88	1.798	.54	.614	.52	.552
8	3.26	11.532	1.20	2.950	1.20	2.950	.86	1.726	.54	.614	.51	.521
9	3.21	11.297	1.25	3.136	1.07	2.482	.84	1.654	.54	.614	.52	.552
10	3.36	12.002	3.12	10.882	1.05	2.410	.81	1.546	.55	.645	.52	.552
11	3.39	12.143	1.41	3.759	1.01	2.266	.80	1.510	.54	.614	.52	.552
12	2.26	7.107	1.38	3.642	1.02	2.302	.77	1.402	.54	.614	.51	.521
13	2.30	7.275	1.40	3.720	1.02	2.302	.77	1.402	.54	.614	.52	.552
14	2.32	7.359	1.57	4.383	1.03	2.338	.74	1.294	.55	.645	.50	.490
15	2.36	7.528	1.51	4.149	1.02	2.302	.72	1.222	.54	.614	.50	.490
16	2.39	7.657	1.71	4.929	1.02	2.302	.70	1.150	.54	.614	.49	.459
17	3.96	14.922	1.56	4.344	1.04	2.374	.69	1.114	.54	.614	.50	.490
18	3.83	14.311	1.46	3.954	1.04	2.374	.68	1.078	.54	.614	.49	.459
19	1.58	4.422	1.38	3.642	1.00	2.230	.68	1.078	.53	.583	.50	.490
20	1.25	3.136	1.33	3.447	.98	2.158	.67	1.042	.52	.552	.51	.521
21	1.21	2.987	1.28	3.252	.97	2.122	.66	1.006	.48	.428	.50	.490
22	1.10	2.590	1.20	2.950	.96	2.086	.66	1.006	.47	.397	.50	.490
23	1.02	2.302	1.16	2.806	.99	2.194	.66	1.006	.53	.583	.51	.521
24	1.75	5.085	1.18	2.878	1.04	2.374	.65	.970	.53	.583	.50	.490
25	1.08	2.518	1.23	3.061	1.06	2.446	.64	.934	.52	.552	.51	.521
26	1.42	3.798	1.24	3.098	1.02	2.302	.63	.899	.52	.552	.50	.490
27	1.46	3.954	1.12	2.662	.98	2.158	.63	.899	.51	.521	.49	.459
28	2.18	6.774	1.06	2.446	.96	2.086	.62	.865	.50	.490	.50	.490
29	1.36	3.564	1.11	2.626	.98	2.158	.62	.865	.52	.552	.50	.490
30	1.24	3.098	1.16	2.806	.93	1.978	.62	.865	.51	.521	.51	.521
31	1.58	4.422	1.14	2.734	--	--	.61	.832	--	--	.51	.521
sec-m da	191.750		122.773		70.032		44.861		18.362		15.934	

TABLE 2.44

Daily Gage Height, in meters, and Discharge, in second-meters,
Selale River near Bure, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.38	.215	.32	.115	.40	.261	.29	.14	.26	.11	.38	.28
2	.38	.215	.32	.115	.40	.261	.30	.15	.26	.11	.37	.26
3	.38	.215	.32	.115	.30	.090	.30	.15	.26	.11	.38	.28
4	.38	.215	.33	.129	.40	.261	.28	.13	.26	.11	.38	.28
5	.36	.177	.32	.129	.40	.261	.29	.14	.28	.13	.46	.46
6	.36	.177	.32	.129	.40	.261	.27	.12	.28	.13	.39	.30
7	.36	.177	.32	.129	.38	.215	.27	.12	.28	.13	.39	.30
8	.35	.160	.32	.129	.40	.261	.27	.12	.28	.13	.36	.24
9	.34	.144	.31	.102	.40	.261	.27	.12	.28	.13	.37	.26
10	.33	.129	.31	.102	.40	.261	.27	.12	.28	.13	.37	.26
11	.32	.115	.30	.090	.40	.261	.27	.12	.27	.12	.36	.24
12	.33	.129	.30	.090	.40	.261	.27	.12	.27	.12	.37	.26
13	.30	.090	.36	.177	.40	.261	.26	.11	.28	.13	.36	.24
14	.33	.129	.36	.177	.40	.261	.25	.10	.29	.14	.38	.28
15	.33	.129	.35	.160	.40	.261	.27	.12	.30	.15	.36	.24
16	.33	.129	.30	.090	.40	.261	.28	.13	.29	.14	.38	.28
17	.32	.115	.30	.090	.40	.261	.28	.13	.29	.14	.39	.30
18	.34	.144	.34	.144	.40	.261	.28	.13	.28	.13	.38	.28
19	.34	.144	.38	.215	.40	.261	.28	.13	.28	.13	.46	.46
20	.33	.129	.32	.115	.40	.261	.28	.13	.32	.17	.40	.32
21	.32	.115	.33	.129	.40	.261	.27	.12	.31	.16	.37	.26
22	.33	.129	.32	.115	.40	.261	.27	.12	.30	.15	.40	.32
23	.33	.129	.32	.115	.41	.287	.27	.12	.30	.15	.39	.30
24	.32	.115	.38	.215	.38	.215	.26	.11	.31	.16	.39	.30
25	.33	.129	.39	.237	.37	.195	.27	.12	.32	.17	.38	.28
26	.32	.115	.39	.237	.30	.150	.26	.11	.32	.17	.38	.28
27	.33	.129	.39	.237	.30	.150	.25	.10	.37	.26	.36	.24
28	.34	.144	.40	.261	.30	.150	.26	.11	.36	.24	.37	.26
29	.33	.129	--	--	.30	.150	.27	.12	.38	.28	.38	.28
30	.33	.129	--	--	.29	.140	.26	.11	.43	.38	.41	.34
31	.32	.115	--	--	.30	.150	--	--	.39	.30	--	--
sec-m da	4.455		4.088		7.112		3.67		5.07		8.68	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	.41	.34	.72	1.47	.92	2.60	.59	.89	.34	.20	.29	.14
2	.44	.40	.80	1.88	.73	1.52	.58	.85	.34	.20	.29	.14
3	.49	.55	.70	1.37	.66	1.17	.60	.93	.35	.22	.29	.14
4	.52	.64	.77	1.72	1.09	3.73	.58	.85	.35	.22	.29	.14
5	.49	.55	1.04	3.38	.61	.97	.61	.97	.35	.22	.30	.15
6	.52	.64	.84	2.12	.58	.85	.60	.93	.34	.20	.30	.15
7	.54	.70	.82	2.00	.68	1.27	.58	.85	.28	.13	.30	.15
8	.64	1.09	.81	1.94	.78	1.77	.58	.85	.28	.13	.30	.15
9	.56	.77	.79	1.82	.72	1.47	.58	.85	.28	.13	.30	.15
10	.57	.81	.87	2.30	.64	1.09	.59	.89	.28	.13	.29	.14
11	.59	.89	.76	1.67	.68	1.27	.58	.85	.28	.13	.29	.14
12	.79	1.82	1.00	3.10	.68	1.27	.59	.89	.29	.14	.30	.15
13	.86	2.24	.72	1.47	.72	1.47	.59	.89	.28	.13	.30	.15
14	.90	2.48	.74	1.57	.60	.93	.52	.64	.24	.09	.30	.15
15	.82	2.00	.86	2.24	.61	.97	.50	.58	.24	.09	.30	.14
16	.96	2.48	.92	2.60	.64	1.09	.50	.58	.24	.09	.30	.15
17	.83	2.06	.82	2.00	.63	1.05	.48	.52	.24	.09	.29	.14
18	.80	1.88	.77	1.72	.62	1.01	.47	.49	.23	.08	.30	.15
19	.69	1.32	.75	1.62	.62	1.01	.47	.49	.25	.10	.30	.15
20	.62	1.01	.71	1.42	.64	1.09	.46	.46	.26	.11	.28	.13
21	.70	1.37	.70	1.37	.63	1.05	.46	.46	.25	.10	.29	.14
22	.70	1.37	.83	2.06	.63	1.05	.44	.40	.28	.13	.28	.13
23	.70	1.37	.69	1.32	.60	.93	.40	.32	.26	.11	.28	.13
24	.70	1.37	.73	1.52	.67	1.22	.40	.32	.28	.13	.29	.14
25	.68	1.27	.70	1.37	.67	1.22	.39	.30	.28	.13	.29	.14
26	.74	1.57	.71	1.42	.62	1.01	.38	.28	.28	.13	.29	.14
27	.72	1.47	.66	1.17	.63	1.05	.37	.26	.29	.14	.29	.14
28	.67	1.22	.80	1.88	.64	1.09	.37	.26	.30	.15	.29	.14
29	.65	1.13	.83	2.06	.65	1.13	.36	.24	.29	.14	.29	.14
30	.64	1.09	.83	2.06	.66	1.17	.35	.22	.29	.14	.29	.14
31	.79	1.82	.80	1.88	--	--	.35	.22	--	--	.29	.14
sec-m da	39.72		57.52		38.52		18.53		4.13		4.42	

TABLE 2.45

Daily Gage Height, in meters, and Discharge, in second-meters,
Fettam River at Teltelle, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.75	1.04	.72	.84	.69	.67	.68	.62	.68	.62	.84	1.83
2	.75	1.04	.72	.84	.68	.62	.68	.62	.67	.57	.71	.78
3	.79	1.34	.72	.84	.69	.67	.68	.62	.68	.62	.77	1.18
4	.78	1.26	.71	.78	.69	.67	.67	.57	.68	.62	.93	3.11
5	.78	1.26	.72	.84	.70	.72	.66	.52	.69	.67	.90	2.62
6	.78	1.26	.71	.78	.68	.62	.67	.57	.70	.72	.92	2.94
7	.77	1.18	.71	.78	.69	.67	.67	.57	.70	.72	.84	1.83
8	.76	1.11	.70	.72	.68	.62	.68	.62	.68	.62	.79	1.34
9	.76	1.11	.71	.78	.68	.62	.68	.62	.68	.62	.79	1.34
10	.76	1.11	.71	.78	.67	.57	.68	.62	.68	.62	.75	1.04
11	.75	1.04	.70	.72	.67	.57	.69	.67	.67	.57	.74	.97
12	.75	1.04	.71	.78	.67	.57	.70	.72	.70	.72	.77	1.18
13	.75	1.04	.70	.72	.67	.57	.68	.62	.71	.78	.74	.97
14	.75	1.04	.70	.72	.68	.62	.67	.57	.70	.72	.72	.84
15	.75	1.04	.70	.72	.68	.62	.66	.52	.70	.72	.77	1.18
16	.72	.84	.70	.72	.67	.57	.65	.48	.68	.62	.80	1.42
17	.72	.84	.70	.72	.67	.57	.65	.48	.67	.57	.88	2.33
18	.74	.97	.69	.67	.68	.62	.69	.67	.67	.57	.85	1.95
19	.74	.97	.70	.72	.67	.57	.69	.67	.85	1.95	.89	2.47
20	.74	.97	.69	.67	.68	.62	.66	.52	.76	1.11	.88	2.33
21	.74	.97	.69	.67	.66	.52	.66	.52	.69	.67	.90	2.62
22	.74	.97	.69	.67	.67	.57	.65	.48	.69	.67	.89	2.47
23	.73	.90	.69	.67	.67	.57	.66	.52	.76	1.11	.88	2.33
24	.74	.97	.69	.67	.67	.57	.65	.48	.91	2.78	.87	2.20
25	.73	.90	.69	.67	.67	.57	.65	.48	.84	1.83	1.36	18.34
26	.74	.97	.69	.67	.67	.57	.66	.52	.70	.72	1.06	5.76
27	.74	.97	.68	.62	.67	.57	.66	.52	.81	1.51	.96	3.64
28	.73	.90	.68	.62	.66	.52	.65	.48	.94	3.28	1.22	11.21
29	.73	.90	--	--	.66	.52	.64	.44	.94	3.28	1.24	12.07
30	.72	.84	--	--	.67	.57	.67	.57	1.00	4.40	1.24	12.07
31	.72	.84	--	--	.67	.57	--	--	.88	2.33	--	--
sec-m da	31.63		20.40		18.47		16.88		37.31		106.36	
	July		August		September		October		November		December	
1	1.78	59.00	1.39	20.17	1.50	28.00	1.52	29.66	.86	2.07	.81	1.51
2	1.57	34.08	1.41	21.44	1.45	24.20	1.75	54.70	.85	1.95	.81	1.51
3	1.64	41.04	1.62	38.92	1.58	35.00	1.62	38.92	.84	1.83	.80	1.42
4	1.43	22.78	1.54	31.40	1.52	29.66	1.55	32.29	.85	1.95	.80	1.42
5	1.54	31.40	1.37	18.94	1.53	30.52	1.48	26.42	.84	1.83	.80	1.42
6	1.54	31.40	1.46	24.92	1.56	33.18	1.37	18.94	.84	1.83	.80	1.42
7	1.43	22.78	1.53	30.52	1.82	65.00	1.30	15.00	.83	1.72	.79	1.34
8	1.45	24.20	1.59	35.94	1.70	48.00	1.25	12.53	.83	1.72	.78	1.26
9	1.46	24.92	1.55	32.29	1.75	54.70	1.20	10.40	.82	1.61	.77	1.18
10	1.45	24.20	1.67	44.40	1.88	74.60	1.18	9.63	.82	1.61	.76	1.11
11	1.69	46.78	1.64	41.04	1.54	31.40	1.17	9.26	.84	1.83	.76	1.11
12	1.75	54.70	1.64	41.04	1.53	30.52	1.11	7.21	.86	2.07	.76	1.11
13	1.66	43.26	1.62	38.92	1.66	43.26	1.10	6.90	.88	2.33	.75	1.04
14	1.46	24.92	1.66	43.26	1.42	22.10	1.09	6.60	.86	2.07	.75	1.04
15	1.55	32.29	1.58	35.00	1.38	19.55	1.06	5.76	.84	1.83	.75	1.04
16	1.59	35.94	1.58	35.00	1.44	23.48	1.02	4.81	.83	1.72	.75	1.04
17	1.51	28.82	1.52	29.66	1.59	35.94	1.00	4.40	.82	1.61	.75	1.04
18	1.54	31.40	1.74	53.30	1.95	87.70	.99	4.21	.82	1.61	.74	.97
19	1.54	31.40	1.67	44.40	1.76	56.10	.98	4.02	.82	1.61	.73	.90
20	1.50	28.00	1.57	34.08	1.40	20.80	.97	3.83	.81	1.51	.73	.90
21	1.40	20.80	1.60	36.90	1.61	37.90	.95	3.46	.81	1.51	.75	1.04
22	1.48	26.42	1.52	29.66	1.72	50.60	.94	3.28	.81	1.51	.74	.97
23	1.55	32.29	1.46	24.92	1.78	59.00	.92	2.94	.82	1.61	.74	.97
24	1.56	33.18	1.52	29.66	1.60	36.90	.93	3.11	.83	1.72	.74	.97
25	1.64	41.04	1.47	25.66	1.48	26.42	.94	3.28	.82	1.61	.73	.90
26	1.69	46.78	1.75	54.70	1.44	23.48	.92	2.94	.81	1.51	.72	.84
27	1.58	35.00	1.58	35.00	1.44	23.48	.91	2.78	.80	1.42	.72	.84
28	1.76	56.10	1.60	36.90	1.18	9.63	.89	2.47	.80	1.42	.73	.90
29	1.41	21.44	1.54	31.40	1.32	16.07	.88	2.33	.80	1.42	.73	.90
30	1.34	17.18	1.57	34.08	1.42	22.10	.87	2.20	.81	1.51	.73	.90
31	1.36	18.34	1.53	30.52	--	--	.87	2.20	--	--	.73	.90
sec-m da	1,021.88		1,064.04		1,099.29		336.48		51.55		33.91	

TABLE 2.47

Daily Gage Height, in meters, and Discharge, in second-meters,
Sifa River near Lekkemt, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.30	3.25	.26	2.17	.20	1.03	.19	0.96	.17	.71	.70	18.80
2	.30	3.25	.26	2.17	.20	1.03	.19	0.96	.17	.71	.70	18.80
3	.30	3.25	.26	2.17	.20	1.03	.17	0.71	.17	.71	.63	15.86
4	.30	3.25	e	2.17	.20	1.03	.17	0.71	.19	.96	.53	11.66
5	.30	3.25	e	2.17	.20	1.03	.17	0.71	.20	1.03	.51	10.82
6	.30	3.25	e	1.94	.20	1.03	.17	0.71	.22	1.36	.51	10.82
7	.30	3.25	e	1.94	.20	1.03	.17	0.71	.24	1.73	.47	9.15
8	.30	3.25	e	1.73	.20	1.03	.15	0.50	.25	1.94	.42	7.16
9	.30	3.25	.24	1.73	.20	1.03	.15	0.50	.27	2.42	.33	4.10
10	.30	3.25	.24	1.73	.21	1.19	.15	0.50	.30	3.25	.31	3.53
11	.30	3.25	.24	1.73	.22	1.36	.15	0.50	.30	3.25	.30	3.25
12	.29	2.97	.24	1.73	.22	1.36	.15	0.50	.30	3.25	.48	9.56
13	.26	2.17	.22	1.36	.22	1.36	.15	0.50	.29	2.97	.47	9.15
14	.26	2.17	.22	1.36	.22	1.36	.15	0.50	.25	1.94	.42	7.16
15	.26	2.17	.20	1.03	.22	1.36	.15	0.50	.25	1.94	.40	6.41
16	.26	2.17	.20	1.03	.22	1.36	.15	0.50	.24	1.73	.40	6.41
17	.25	1.94	.20	1.03	.22	1.36	.15	0.50	.24	1.73	.55	12.50
18	.25	1.94	.20	1.03	.20	1.03	.15	0.50	.25	1.94	.66	17.12
19	.25	1.94	.20	1.03	.20	1.03	.15	0.50	.26	2.17	.66	17.12
20	.25	1.94	.20	1.03	.20	1.03	.15	0.50	.24	1.73	.55	12.50
21	.26	2.17	.20	1.03	.20	1.03	.15	0.50	.23	1.54	.50	10.40
22	.26	2.17	.20	1.03	.20	1.03	.15	0.50	.23	1.54	.54	12.08
23	.26	2.17	.20	1.03	.20	1.03	.15	0.50	.23	1.54	.48	9.56
24	.26	2.17	.20	1.03	.20	1.03	.15	0.50	.25	1.94	.45	8.33
25	.26	2.17	.20	1.03	.20	1.03	.15	0.50	.28	2.69	.50	10.40
26	.26	2.17	.20	1.03	.20	1.03	.15	0.50	.28	2.69	.50	10.40
27	.26	2.17	.20	1.03	.20	1.03	.15	0.50	.31	3.53	.50	10.40
28	.26	2.17	.20	1.03	.20	1.03	.15	0.50	.30	3.25	.50	10.40
29	.26	2.17	--	--	.20	1.03	.16	0.60	.30	3.25	.75	20.90
30	.26	2.17	--	--	.20	1.03	.16	0.60	.35	4.71	.75	20.90
31	.26	2.17	--	--	.20	1.03	--	--	.52	11.24	--	--
sec-m da	79.03		40.52		34.40		17.17		75.39		335.65	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	.72	17.00	1.52	42.60	2.27	66.6	2.48	73.4	0.47	9.04	.34	5.02
2	.69	16.10	1.39	38.50	2.07	60.2	2.89	86.5	0.46	8.72	.33	4.73
3	.69	16.10	1.42	39.40	2.04	59.3	2.84	84.9	0.46	8.72	.32	4.45
4	1.26	34.30	1.49	41.70	2.84	84.9	2.52	74.6	0.45	8.40	.32	4.45
5	1.05	27.60	1.57	44.20	2.26	66.3	2.38	70.2	0.45	8.40	.31	4.17
6	.97	25.00	1.80	51.60	1.94	56.1	2.21	64.7	0.44	8.08	.31	4.17
7	.90	22.80	1.93	55.80	2.57	76.2	1.86	53.5	0.43	7.77	.31	4.17
8	.84	20.90	1.64	46.50	2.98	89.4	1.68	47.8	0.42	7.46	.30	3.90
9	1.44	40.10	1.52	42.60	2.15	62.8	1.57	44.2	0.41	7.15	.30	3.90
10	1.44	40.10	1.44	40.10	2.16	63.1	1.45	40.4	0.40	6.84	.30	3.90
11	1.42	39.40	1.42	39.80	2.24	65.7	1.40	38.8	0.40	6.84	.30	3.90
12	1.26	34.30	--	--	2.02	58.6	1.33	36.6	0.40	6.84	.28	3.37
13	1.22	33.00	--	--	1.63	46.2	1.24	33.7	0.40	6.84	.28	3.37
14	1.18	31.80	--	--	1.54	43.3	1.03	27.0	0.40	6.84	.28	3.37
15	1.09	28.90	--	--	1.42	39.4	0.92	23.4	0.40	6.84	.28	3.37
16	1.00	26.00	1.58	44.60	1.31	35.9	0.87	21.8	0.40	6.84	.30	3.90
17	1.19	32.10	1.62	45.80	1.22	33.0	0.80	19.6	0.40	6.84	.29	3.63
18	1.15	30.80	--	--	1.20	32.4	0.77	18.6	0.40	6.84	.28	3.37
19	1.22	33.00	2.89	86.50	1.28	35.0	0.73	17.4	0.40	6.84	.27	3.11
20	1.30	35.60	1.99	57.70	1.20	32.4	0.70	16.4	0.40	6.84	e	3.11
21	1.32	36.20	2.45	72.40	1.31	35.9	0.68	15.8	0.40	6.84	.27	3.11
22	--	--	2.16	63.10	1.25	34.0	0.66	15.1	0.40	6.84	.28	3.37
23	--	--	1.91	55.10	1.43	39.8	0.63	14.2	0.40	6.84	.26	2.86
24	1.63	46.20	1.68	47.80	1.48	41.4	0.61	13.5	0.40	6.84	.26	2.86
25	1.50	47.00	1.72	49.00	1.32	36.2	0.60	13.2	e	5.92	.26	2.86
26	1.35	37.20	--	--	1.22	33.0	0.58	12.6	0.35	5.32	.26	2.86
27	--	--	1.52	42.60	1.16	31.1	0.57	12.2	0.34	5.02	.25	2.62
28	--	--	1.48	41.40	1.22	33.0	0.55	11.6	0.33	4.73	.24	2.39
29	--	--	2.22	65.00	1.68	47.8	0.52	10.6	0.32	4.45	.24	2.39
30	--	--	1.91	55.10	1.85	53.2	0.50	10.0	0.34	5.02	.24	2.39
31	--	--	2.08	60.60	--	--	0.48	9.36	--	--	.24	2.39
sec-m da			1492.2		1031.66		206.80		107.46			

TABLE 2.48

Daily Gage Height, in meters, and Discharge, in second-meters,
Wama River near Lekkemt, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	1.05	3.40	.85	2.12	.67	1.16	.65	1.060	.57	.718	1.65	8.35
2	1.05	3.40	.85	2.12	.67	1.16	.65	1.060	.57	.718	1.52	7.18
3	1.05	3.40	.85	2.12	.69	1.25	.65	1.060	.59	.795	1.33	5.49
4	1.05	3.40	.85e	2.12	.67	1.16	.65	1.060	.61	.877	1.80	9.80
5	1.05	3.40	.84e	2.06	.67	1.16	.65	1.060	.62	.920	1.35	5.65
6	1.05	3.40	.83e	2.00	.69	1.25	.65	1.060	.65	1.060	1.34	5.57
7	1.05	3.40	.82e	1.95	.71	1.35	.65	1.060	.66	1.110	1.51	7.09
8	1.05	3.40	.81e	1.89	.72	1.40	.60	.835	.68	1.200	1.30	5.25
9	1.04	3.33	.81	1.89	.73	1.46	.60	.835	.69	1.250	1.05	3.40
10	1.04	3.33	.81	1.89	.73	1.46	.60	.835	.71	1.350	.89	2.36
11	.99	2.99	.78	1.72	.73	1.46	.60	.835	.71	1.350	.70	1.30
12	.96	2.80	.75	1.56	.73	1.46	.59	.795	.71	1.350	1.51	7.09
13	.96	2.80	.75	1.56	.73	1.46	.58	.756	.65	1.060	1.51	7.09
14	.96	2.80	.72	1.40	.73	1.46	.58	.756	.59	.795	1.06	3.47
15	.96	2.80	.70	1.30	.73	1.46	.55	.645	.57	.718	1.66	8.44
16	.96	2.80	.70	1.30	.73	1.46	.55	.645	.55	.645	1.32	5.41
17	.95	2.73	.70	1.30	.73	1.46	.55	.645	.61	.877	1.90	10.80
18	.95	2.73	.67	1.16	.71	1.35	.55	.645	.60	.835	1.24	4.77
19	.95	2.73	.67	1.16	.71	1.35	.55	.645	.67	1.160	1.22	4.61
20	.95	2.73	.67	1.16	.69	1.25	.55	.645	.73	1.460	1.21	4.53
21	.95	2.73	.67	1.16	.69	1.25	.55	.645	.75	1.560	1.59	7.81
22	.95	2.73	.67	1.16	.71	1.35	.55	.645	.81	1.890	1.45	6.55
23	.95	2.73	.67	1.16	.69	1.25	.55	.645	.75	1.560	1.32	5.41
24	.91	2.48	.67	1.16	.65	1.06	.55	.645	.81	1.890	1.31	5.33
25	.91	2.48	.67	1.16	.65	1.06	.55	.645	.75	1.560	1.26	4.93
26	.91	2.48	.67	1.16	.65	1.06	.55	.645	1.55	7.450	1.26	4.93
27	.91	2.48	.67	1.16	.65	1.06	.55	.645	1.22	4.610	1.26	4.93
28	.91	2.48	.67	1.16	.65	1.06	.55	.645	1.12	3.890	1.26	4.93
29	.91	2.48	--	--	.65	1.06	.56	.681	1.02	3.200	1.30	5.25
30	.91	2.48	--	--	.65	1.06	.56	.681	1.05	3.400	1.26	4.93
31	.88	2.30	--	--	.65	1.06	--	--	1.08	3.610	--	--
sec-m da	89.62		43.06		39.31		23.459		54.868		172.65	
i	July		August		September		October		November		December	
1	1.36	5.74	2.19	14.10	3.08	26.7	4.31	50.30	1.38	5.92	1.05	3.40
2	1.40	6.10	2.46	17.60	2.50	18.2	4.60	56.80	1.36	5.74	1.05	3.40
3	1.36	5.74	1.92	11.00	2.12	13.2	4.38	51.90	1.33	5.49	1.06	3.47
4	1.88	10.60	2.06	12.60	2.98	25.2	5.35	75.20	1.32	5.41	1.04	3.33
5	1.90	10.80	2.06	12.60	3.66	37.0	4.55	55.60	1.30	5.25	1.04	3.33
6	1.85	10.30	2.02	12.10	2.62	19.9	3.62	36.30	1.28	5.09	1.04	3.33
7	1.90	10.80	2.06	12.60	3.29	30.1	3.21	28.80	1.26	4.93	1.02	3.20
8	1.84	10.20	2.56	19.00	3.15	27.8	2.98	25.20	1.26	4.93	1.01	3.13
9	1.70	8.80	2.14	13.50	3.76	39.0	2.68	20.70	1.25	4.85	1.00	3.06
10	1.90	10.80	2.04	12.30	3.54	34.8	2.51	18.30	1.25	4.85	1.00	3.06
11	1.92	11.00	2.02	12.10	3.42	32.5	2.44	17.40	1.24	4.77	.98	2.93
12	1.80	9.80	--	--	3.12	27.3	2.39	16.70	1.24	4.77	.96	2.80
13	1.69	8.71	--	--	3.17	28.1	2.33	15.90	1.24	4.77	.94	2.67
14	1.66	8.44	--	--	2.57	19.2	2.14	13.50	1.24	4.77	.94	2.67
15	1.58	7.72	--	--	2.40	16.8	2.02	12.10	1.22	4.61	.94	2.67
16	1.53	7.27	--	--	2.34	16.0	1.92	11.00	1.22	4.61	.92	2.54
17	2.44	17.40	--	--	2.43	17.2	1.88	10.60	1.21	4.53	.91	2.48
18	1.83	10.10	1.81	9.90	2.32	15.7	1.83	10.10	1.20	4.45	.91	2.48
19	1.92	11.00	2.82	22.80	2.35	16.1	1.86	10.40	1.20	4.45	.91	2.48
20	1.75	9.30	3.43	32.70	2.35	16.1	1.83	10.10	1.19	4.38	.91e	2.48
21	1.75	9.30	3.73	38.40	2.22	14.4	1.74	9.20	1.18	4.31	.90	2.42
22	--	--	3.85	40.80	2.18	14.0	1.68	8.62	1.18	4.31	.90	2.42
23	--	--	3.49	33.80	2.44	17.4	1.66	8.44	1.18	4.31	.90	2.42
24	2.98	25.20	2.66	20.40	2.14	13.5	1.63	8.17	1.17	4.24	.88	2.30
25	2.44	17.40	2.48	17.90	2.10	13.0	1.61	7.99	1.20e	4.45	.86	2.18
26	2.12	13.20	--	--	2.02	12.1	1.58	7.72	1.23	4.69	.85	2.12
27	--	--	2.20	14.20	1.94	11.2	1.50	7.00	1.16	4.17	.84	2.06
28	--	--	2.17	13.80	1.92	11.0	1.49	6.91	1.08	3.61	.84	2.06
29	--	--	2.36	16.30	3.48	33.6	1.45	6.55	1.06	3.47	.83	2.00
30	--	--	2.12	13.20	2.61	19.7	1.40	6.10	1.05	3.40	.82	1.95
31	--	--	2.86	23.40	--	--	1.39	6.01	--	--	.82	1.95
sec-m da					636.8		629.61		139.55		82.79	

TABLE 2.49

Daily Gage Height, in meters, and Discharge, in second-meters,
Diddessa River near Arjo, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.79	30.7	.61	16.3	.45	7.23	.46	7.68	r		r	
2	.78	29.8	.60	15.6	.44	6.79	.46	7.68	r		r	
3	.77	28.9	.59	14.9	.44	6.79	.44	6.79	r		r	
4	.76	28.0	.58	14.2	.45	7.23	.44	6.79	r		r	
5	.74	26.2	.58	14.2	.45	7.23	.45	7.23	r		r	
6	.74	26.2	.58	14.2	.44	6.79	r		r		r	
7	.73	25.4	.56	13.0	.46	7.68	r		r		r	
8	.72	24.6	.56	13.0	.46	7.68	r		r		r	
9	.71	23.8	.57	13.6	.46	7.68	r		r		r	
10	.71	23.8	.56	13.0	.46	7.68	r		r		r	
11	.70	23.0	.56	13.0	.50	9.65	r		r		r	
12	.69	22.2	.55	12.4	.50	9.65	r		r		r	
13	.68	21.4	.54	11.8	.56	13.00	r		r		r	
14	.68	21.4	.54	11.8	.64	18.40	r		r		r	
15	.68	21.4	.54	11.8	.65	19.10	r		r		r	
16	.68	21.4	.54	11.8	.60	15.60	r		r		r	
17	.68	21.4	.54	11.8	.55	12.40	r		r		r	
18	.68	21.4	.53	11.2	.53	11.20	r		r		r	
19	.67	20.6	.50	9.7	.51	10.20	r		r		1.42	104.0
20	.67	20.6	.49	9.1	.50	9.65	r		r		1.38	101.2
21	.68	21.4	.48	8.6	.48	8.62	r		r		1.39	102.6
22	.68	21.4	.47	8.1	.47	8.14	r		r		1.41	105.0
23	.66	19.8	.46	7.7	.48	8.62	r		r		1.41	105.0
24	.66	19.8	.46	7.7	.47	8.14	r		r		1.38	101.2
25	.65	19.1	.46	7.7	.47	8.14	r		r		1.32	92.8
26	.65	19.1	.45	7.2	.48	8.62	r		r		1.27	85.8
27	.64	18.4	.46	7.7	.47	8.14	r		r		1.29	88.6
28	.63	17.7	.45	7.2	.46	7.68	r		r		1.25	83.0
29	.62	17.0	--	--	.46	7.68	r		r		1.34	95.6
30	.62	17.0	--	--	.46	7.68	r		r		1.51	119.0
31	.62	17.0	--	--	.46	7.68	--	--	r		--	--
sec-m da	689.9		318.3		280.77							
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	1.58	129	2.76	328	2.98	371	4.94	805.0	1.10	64.2	.81	32.5
2	1.61	133	2.80	336	2.88	351	5.16	858.0	1.08	61.8	.80	31.6
3	1.58	129	2.62	301	2.70	317	4.83	778.0	1.06	59.4	.80	31.6
4	1.56	126	2.65	308	3.27	429	5.05	831.0	1.04	57.0	.78	29.8
5	1.56	126	2.55	288	3.14	403	4.78	767.0	1.00	52.4	.78	29.8
6	1.55	125	2.61	299	3.15	405	4.46	690.0	1.00	52.4	.78	29.8
7	1.74	153	2.72	320	3.12	399	4.06	598.0	.98	50.1	.76	28.0
8	1.67	142	3.19	413	3.28	431	3.84	549.0	.96	47.9	.76	28.0
9	1.72	150	3.18	411	3.33	441	3.68	514.0	.94	45.7	.74	26.2
10	1.84	168	3.14	403	3.21	417	3.24	423.0	.94	45.7	.74	26.2
11	1.96	187	3.11	397	3.13	401	2.66	310.0	.94	45.7	.71	23.8
12	1.94	184	3.08	391	3.49	473	2.36	254.0	.96	47.9	.70	23.0
13	1.97	188	3.02	379	3.38	451	2.14	216.0	.98	50.1	.69	22.2
14	2.03	198	2.69	316	3.30	435	2.00	194.0	.96	47.9	.67	20.6
15	2.07	204	2.56	290	3.21	417	1.90	178.0	.92	43.5	.67	20.6
16	2.14	216	3.05	385	3.37	449	1.80	162.0	.90	41.5	.65	19.1
17	2.46	272	2.90	355	3.33	441	1.70	147.0	.90	41.5	.64	18.4
18	2.44	268	3.01	377	3.13	401	1.62	135.0	.86	37.4	.64	18.4
19	2.61	299	2.97	369	3.55	485	1.56	126.0	.86	37.4	.64	18.4
20	2.53	284	3.13	401	3.29	433	1.50	118.0	.86	37.4	.63	17.7
21	2.39	260	2.95	365	3.19	413	1.46	112.0	.84	35.4	.63	17.7
22	2.51	281	2.85	345	3.70	519	1.41	105.0	.82	33.4	.62	17.0
23	2.46	272	2.62	301	3.68	514	1.38	101.2	.82	33.4	.60	15.6
24	2.57	292	2.41	263	3.37	449	1.34	95.6	.82	33.4	.60	15.6
25	2.58	294	2.29	242	3.22	419	1.30	90.0	.82	33.4	.60	15.6
26	2.55	288	2.56	290	3.12	399	1.26	84.4	.82	33.4	.59	14.9
27	2.53	284	2.22	230	3.70	519	1.24	81.7	.84	35.4	.59	14.9
28	2.43	266	2.14	216	3.73	525	1.22	79.1	.82	33.4	.57	13.6
29	3.03	381	2.89	353	3.47	469	1.18	73.9	.80	31.6	.56	13.0
30	3.04	383	2.51	281	3.59	494	1.16	71.5	.80	31.6	.56	13.0
31	2.83	341	3.46	467	--	--	1.13	67.8	--	--	.56	13.0
sec-m da	7,023		10,420		13,070		9,615.2		1,301.3		659.6	

TABLE 2.50

Daily Gage Height, in meters, and Discharge, in second-meters,
Dabana River near Abasina, Ethiopia, for the Year Ending December 31, 1961

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1									.22	5.0	.86	28.2
2									.20	4.7	.96	34.9
3									.19	4.6	.90	30.7
4									.19	4.6	.72	20.4
5									.17	4.3	.62	15.5
6									.14	3.9	.71	19.9
7									.12	3.7	.90e	30.7
8									.10	3.5	1.05e	41.5
9									.08	3.3	.95	34.2
10							.45	9.7	.06	3.1	.95e	34.2
11							.39	8.2	.04	3.0	1.+	
12							.36	7.6	.02	2.8	1.+	
13							.34	7.1	.00	2.7	.98e	36.3
14							.31	6.6	-.02	2.5	.98e	36.3
15							.30	6.4	-.03	2.5	1.+	
16							.36	7.6	.01	2.7		
17							.36	7.6	.06	3.1		
18							.44	9.5	.14	3.9		
19							.46	10.0	.06	3.1		
20							.46	10.0	.20	4.7		
21							.55	12.7	.90	30.7		
22							.49	10.9	.50	11.2		
23							.47	10.3	.40	8.5		
24							.46	10.0	.40	8.5		
25							.41	8.7	.38	8.0		
26							.35	7.4	.42	9.0		
27							.30	6.4	.60	14.7		
28							.28	6.0	.71	19.9		
29							.24	5.3	.66	17.4		
30							.23	5.2	.60	14.7		
31									.56	13.1		
sec-m da										227.4		
	July		August		September		October		November		December	
	G.H.	Disch.	G.H.	Disch.	G.H.	Disch.	G.H.	Disch.	G.H.	Disch.	G.H.	Disch.
1	1.58	92.6	1.88	133.2	2.66	267.0	2.20	183.0	1.37	70.0	1.06	42.3
2	1.56	90.2	1.83	126.2	2.53	241.0	2.44	224.2	1.35	68.0	1.02	39.1
3	1.56	90.2	1.84	127.6	2.46	227.8	2.61	257.0	1.32	65.0	1.00	37.7
4	1.66	102.4	1.85	129.0	2.43	222.4	2.59	253.0	1.30	63.0	.97	35.6
5	1.66	102.4	1.78	119.2	2.48	231.4	2.54	243.0	1.27	60.2	.95	34.2
6	1.70	108.0	1.71	109.4	2.44	224.2	2.54	243.0	1.25	58.4	.93	32.8
7	1.64	99.8	1.71	109.4	2.42	220.6	2.55	245.0	1.21	54.8	.92	32.1
8	1.59	93.8	1.71	109.4	2.43	222.4	2.58	251.1	1.19	53.0	.92	32.1
9	1.63	98.6	1.70	108.6	2.35	208.0	2.73	281.0	1.18	52.1	.91	31.4
10	1.82	124.8	1.66	102.4	2.33	204.4	2.71	277.0	1.18	52.1	.90	30.7
11	1.69	106.6	1.72	110.8	2.26	192.6	2.86	307.0	1.18	52.1	.89	30.0
12	1.63	98.6	1.76	116.4	2.40	217.0	2.75	285.0	1.17	51.2	.88	29.4
13	1.68	105.2	1.77	117.8	2.41	218.8	2.74	283.0	1.15	49.5	.89	30.0
14	1.78	119.2	1.78	119.2	2.47	229.6	2.64	263.0	1.12	47.1	.87	28.8
15	1.84	127.6	1.85	129.0	2.58	251.0	2.50	235.0	1.10	45.5	.85	27.6
16	1.81	123.4	1.92	138.8	2.64	263.0	2.35	208.0	1.10	45.5	.83	26.4
17	1.87	131.8	2.02	154.2	3.10	364.0	2.21	184.6	1.09	44.7	.82	25.8
18	1.98	147.8	2.10	167.0	3.19	386.5	2.10	167.0	1.08	43.9	.81	25.2
19	2.03	155.8	2.16	176.6	3.02	344.0	2.00	151.0	1.08	43.9	.80	24.6
20	2.10	167.0	2.21	184.6	3.09	361.5	1.91	137.4	1.08	43.9	.79	24.0
21	2.10	167.0	2.22	186.2	2.91	317.5	1.84	127.6	1.08	43.9	.78	23.4
22	2.06	160.6	2.37	211.6	2.85	305.0	1.78	119.2	1.04	40.7	.76	22.4
23	2.09	165.4	2.36	209.8	2.69	273.0	1.80	122.0	1.04	40.7	.76	22.4
24	2.17	178.2	2.34	206.2	2.75	285.0	1.68	105.2	1.12	47.1	.75	21.9
25	2.25	191.0	2.39	215.2	2.54	243.0	1.61	96.2	1.20	53.9	.74	21.4
26	2.16	176.6	2.55	245.0	2.44	224.2	1.56	90.2	1.18	52.1	.72	20.4
27	2.07	162.2	2.60	255.0	2.37	211.6	1.52	85.7	1.24	57.5	.72	20.4
28	2.00	151.0	2.92	320.0	2.50	235.0	1.48	81.3	1.16	50.3	.72	20.4
29	1.95	143.0	2.92	320.0	2.43	222.4	1.46	79.1	1.11	46.3	.71	19.9
30	1.92	138.8	2.84	303.0	2.26	192.6	1.43	76.0	1.06	42.3	.70	19.4
31	1.90	136.0	2.73	281.0			1.39	72.0			.70	19.4
sec-m da	4,052.6		5,341.2		7,606.5		5,732.7		1,538.7		851.2	

TABLE 2.50

Daily Gage Height, in meters, and Discharge, in second-meters,
Dabana River near the mouth--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.69	18.9	.46	10.0	.25	5.5	.15	4.0	.25	5.5	.87	28.8
2	.68	18.4	.45	9.7	.26	5.6	.13	3.8	.42	9.0	1.07	43.1
3	.68	18.4	.43	9.2	.25	5.5	.12	3.7	.27	5.8	r	
4	.66	17.4	.42	9.0	.28	6.0	.12	3.7	.21	4.8	r	
5	.66	17.4	.42	9.0	.35	7.4	.12	3.7	.21	4.8	r	
6	.65	16.9	.41	8.7	.32	6.7	.11	3.6	.37	7.8	r	
7	.64	16.4	.40	8.5	.32	6.7	.09	3.4	.50	11.2	r	
8	.64	16.4	.40	8.5	.32	6.7	.07	3.2	.61	15.1	r	
9	.63	15.9	.39	8.2	.32	6.7	.06	3.1	.77	22.9	r	
10	.62	15.5	.38	8.0	.34	7.1	.06	3.1	.67	17.9	r	
11	.61	15.1	.37	7.8	.35	7.4	.05	3.0	.55	12.7	r	
12	.60	14.7	.35	7.4	.38	8.0	.05	3.0	.49	10.9	r	
13	.60	14.7	.34	7.1	.39	8.2	.04	3.0	.65	16.9	r	
14	.59	14.3	.33	6.9	.39	8.2	.04	3.0	.61	15.1	r	
15	.58	13.9	.33	6.9	.36	7.6	.04	3.0	.48	10.6	r	
16	.58	13.9	.32	6.7	.34	7.1	.04	3.0	.41	8.7	r	
17	.57	13.5	.32	6.7	.30	6.4	.03	2.9	.32	6.7	r	
18	.57	13.5	.31	6.6	.28	6.0	.02	2.8	.27	5.8	r	
19	.56	13.1	.31	6.6	.25	5.5	.01	2.7	.23	5.2	r	
20	.56	13.1	.30	6.4	.23	5.2	.03	2.9	.20	4.7	r	
21	.55	12.7	.30	6.4	.23	5.2	.03	2.9	.26	5.6	r	
22	.54	12.4	.30	6.4	.25	5.5	.06	3.1	.29	6.2	r	
23	.53	12.1	.29	6.2	.23	5.2	.04	3.0	.29	6.2	r	
24	.52	11.8	.29	6.2	.25	5.5	.02	2.8	.37	7.8	r	
25	.52	11.8	.28	6.0	.29	6.2	.01	2.7	.40	8.5	r	
26	.51	11.5	.27	5.8	.24	5.3	.02	2.8	.38	8.0	r	
27	.50	11.2	.26	5.6	.20	4.7	.03	2.9	.60	14.7	r	
28	.50	11.2	.25	5.5	.19	4.6	.03	2.9	.72	20.4	r	
29	.49	10.9	--	--	.18	4.4	.02	2.8	.67	17.9	r	
30	.48	10.6	--	--	.17	4.3	.01	2.7	.65	16.9	r	
31	.47	10.3	--	--	.16	4.2	--	--	.64	16.4	--	--
sec-m da	437.9		206.0		188.6		93.2		330.7			
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	r		1.97	146.2	2.09	165.4	2.37	211.6	1.12	47.1	.78	23.4
2	r		1.88	133.2	2.08	163.8	2.36	209.8	1.10	45.5	.77	22.9
3	1.33	66.0	1.84	127.6	1.96	144.6	2.56	247.0	1.08	43.9	.76	22.4
4	1.52	85.7	1.91	137.4	1.94	141.6	2.51	237.0	1.06	42.3	.75	21.9
5	1.33	66.0	1.85	129.0	2.04	157.4	2.56	247.0	1.04	40.7	.74	21.4
6	1.26	59.3	1.86	130.4	2.15	175.0	2.44	224.2	1.02	39.1	.73	20.9
7	1.47	80.2	1.86	130.4	2.14	173.4	2.37	211.6	1.01	38.4	.72	20.4
8	1.45	78.0	1.88	133.2	2.18	179.8	2.26	192.6	.99	37.0	.71	19.9
9	1.53	86.8	1.85	129.0	2.21	184.6	2.15	175.0	.98	36.3	.70	19.4
10	1.53	86.8	1.80	122.0	2.14	173.4	2.05	159.0	.97	35.6	.68	18.4
11	1.57	91.4	1.81	123.4	2.10	167.0	1.96	144.6	.99	37.0	.67	17.9
12	1.52	85.7	1.83	126.2	2.12	170.2	1.88	133.2	1.08	43.9	.66	17.4
13	1.46	79.1	1.77	117.8	2.08	163.8	1.81	123.4	1.11	46.3	.65	16.9
14	1.42	75.0	1.73	112.2	2.03	155.8	1.74	113.6	1.05	41.5	.64	16.4
15	1.41	74.0	1.81	123.4	1.96	144.6	1.68	105.2	1.00	37.7	.64	16.4
16	1.38	71.0	2.05	159.0	1.95	143.0	1.63	98.6	.97	35.6	.62	15.5
17	1.44	77.0	2.03	155.8	1.95	143.0	1.58	92.6	.95	34.2	.61	15.1
18	1.47	80.2	2.01	152.6	1.94	141.6	1.55	89.0	.96	34.9	.60	14.7
19	1.52	85.7	2.27	194.2	1.98	147.8	1.50	83.5	.94	33.5	.61	15.1
20	1.50	83.5	2.21	184.6	1.97	146.2	1.45	78.0	.92	32.1	.60	14.7
21	1.46	79.1	2.48	231.4	1.98	147.8	1.42	75.0	.90	30.7	.59	14.3
22	1.61	96.2	2.15	175.0	2.10	167.0	1.38	71.0	.88	29.4	.58	13.9
23	1.63	98.6	2.11	168.6	2.46	227.8	1.34	67.0	.87	28.8	.56	13.1
24	1.74	113.6	2.02	154.2	2.41	218.8	1.31	64.0	.89	30.0	.56	13.1
25	1.85	129.0	1.96	144.6	2.45	226.0	1.28	61.1	.87	28.8	.55	12.7
26	2.01	152.6	1.90	136.0	2.40	217.0	1.26	59.3	.85	27.6	.54	12.4
27	1.95	143.0	1.81	123.4	2.39	215.2	1.24	57.5	.84	27.0	.53	12.1
28	1.84	127.6	2.05	159.0	2.33	204.4	1.21	54.8	.82	25.8	.52	11.8
29	1.89	134.6	1.98	147.8	2.37	211.6	1.18	52.1	.80	24.6	.52	11.8
30	2.07	162.2	1.94	141.6	2.34	206.2	1.16	50.3	.78	23.4	.52	11.8
31	2.05	159.0	2.02	154.2	--	--	1.14	48.7	--	--	.54	12.4
sec-m da	2,806.0		4,503.4		5,222.8		2,870.7		2,050.5		1,120.5	

TABLE 2.51

Daily Gage Height, in meters, and Discharge, in second-meters,
Angar River near Lekkemt, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	1.19	28.9	.87	16.6	.63	9.37	.51	6.63	.37	4.09	.78	13.8
2	1.17	28.0	.85	16.0	.62	9.12	.51	6.63	.39	4.41	1.01	21.7
3	1.16	27.6	.83	15.4	.61	8.87	.50	6.42	.40e	4.57	1.07	24.0
4	1.14	26.8	.82	15.0	.61	8.87	.49	6.22	.41e	4.74	1.40	38.5
5	1.14	26.8	.81	14.7	.61	8.87	.48	6.02	.42e	4.91	1.37	37.1
6	1.12	26.0	.80	14.4	.61	8.87	.48	6.02	.43e	5.09	1.31	34.3
7	1.12	26.0	.79	14.1	.62	9.12	.48	6.02	.44e	5.27	1.32	34.7
8	1.10	25.2	.77	13.4	.62	9.12	.47	5.83	.45e	5.45	1.26	32.0
9	1.09	24.8	.76	13.1	.64	9.63	.47	5.83	.46e	5.64	1.41	39.0
10	1.08	24.4	.76	13.1	.65	9.90	.46	5.64	.47e	5.83	1.28	32.9
11	1.07	24.0	.75	12.8	.65	9.90	.44	5.27	.48e	6.02	1.18	28.5
12	1.05	23.2	.74	12.5	.66	10.10	.43	5.09	.49e	6.22	1.51	44.0
13	1.03	22.4	.72	11.9	.68	10.70	.41	4.74	.50e	6.42	1.78	58.6
14	1.02	22.1	.71	11.6	.70	11.30	.41	4.74	.51e	6.63	1.67	52.5
15	1.00	21.3	.71	11.6	.70	11.30	.40	4.57	.52e	6.84	1.35	36.1
16	.99	20.9	.71	11.6	.68	10.70	.40	4.57	.54e	7.28	1.26	32.0
17	.98	20.5	.71	11.6	.68	10.70	.40	4.57	.53	7.06	1.21	29.7
18	.98	20.5	.71	11.6	.63	9.37	.39	4.41	.50	6.42	1.14	26.8
19	.98	20.5	.71	11.6	.61	8.87	.39	4.41	.48	6.02	1.21	29.7
20	.97	20.2	.71	11.6	.59	8.40	.39	4.41	.46	5.64	1.32	34.7
21	.96	19.8	.71	11.6	.58	8.17	.40	4.57	.50	6.42	1.24	31.1
22	.95	19.4	.70	11.3	.57	7.94	.40	4.57	.54	7.28	1.25	31.5
23	.94	19.0	.69	11.0	.57	7.94	.39	4.41	.58	8.17	1.31	34.3
24	.93	18.7	.69	11.0	.57	7.94	.39	4.41	.68	10.70	1.34	35.6
25	.93	18.7	.68	10.7	.55	7.50	.38	4.25	.88	17.00	1.34	35.6
26	.92	18.3	.67	10.4	.55	7.50	.37	4.09	.97	20.20	1.30	33.8
27	.92	18.3	.66	10.1	.56	7.72	.37	4.09	.99	20.90	1.31	34.3
28	.91	18.0	.65	9.9	.54	7.28	.37	4.09	.93	13.70	1.27	32.4
29	.90	17.6	--	--	.52	6.84	.37	4.09	1.00	21.30	1.32	34.7
30	.89	17.3	--	--	.51	6.63	.36	3.93	.93	18.70	1.36	36.6
31	.88	17.0	--	--	.51	6.63	--	--	.87	16.60	--	--
sec-m da	682.2		350.2		275.17		150.54		280.53		1,020.5	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	1.52	44.5	3.15	160	4.22	268	4.57	309.0	1.60	48.7	r	
2	1.76	57.5	2.95	143	3.72	216	5.00	363.0	1.57	47.1	r	
3	1.99	71.4	2.91	140	3.65	209	4.87	346.0	1.54	45.6	r	
4	2.15	81.7	3.57	201	3.96	240	4.60	313.0	1.51	44.0	r	
5	2.19	84.4	3.63	207	3.98	242	4.40	289.0	1.47	42.0	r	
6	1.95	68.9	3.47	191	3.82	226	3.99	243.0	1.45	41.0	r	
7	1.85	62.8	3.34	178	3.84	228	3.67	211.0	1.44	40.5	r	
8	1.89	65.2	3.56	200	4.17	263	3.43	187.0	1.43	40.0	r	
9	2.16	82.4	3.65	209	3.84	228	3.25	169.0	1.41	39.0	r	
10	2.32	93.5	4.01	245	3.83	227	3.09	155.0	1.38	37.5	r	
11	2.51	108.0	3.73	217	3.79	223	2.95	143.0	1.38	37.5	r	
12	2.61	116.0	3.62	206	3.72	216	2.81	132.0	1.46	41.5	r	
13	2.34	95.0	3.54	198	3.56	200	2.69	122.0	1.47	42.0	r	
14	2.24	87.9	3.26	170	3.45	189	2.59	114.0	1.41	39.0	r	
15	2.14	81.0	3.28	172	3.36	180	2.48	105.0	1.36	36.6	.95	19.4
16	2.06	75.8	3.41	185	3.38	182	2.39	98.6	r		.94c	19.0
17	2.34	95.0	3.77	221	3.45	189	2.31	92.8	r		.93	18.7
18	2.55	111.0	3.85	229	3.38	182	2.24	87.9	r		.92	18.3
19	2.55	111.0	4.06	251	3.36	180	2.17	83.1			.91	18.0
20	2.45	103.0	4.39	288	3.66	210	2.10	78.4	r		.90	17.6
21	2.36	96.4	4.09	254	3.62	206	2.04	74.6	r		.90	17.6
22	2.93	141.0	4.02	246	3.59	203	1.98	70.8	r		.89	17.3
23	3.24	169.0	3.82	226	3.66	210	1.93	67.7	r		.88	17.0
24	3.02	149.0	3.55	199	4.00	244	1.89	65.2	r		.88	17.0
25	2.84	134.0	3.72	216	3.88	232	1.84	62.2	r		.86	16.3
26	2.66	120.0	3.72	216	3.61	205	1.83	61.6	r		.85	16.0
27	2.60	115.0	3.40	184	3.80	224	1.80	59.8	r		.84	15.7
28	2.66	120.0	4.05	250	3.62	206	1.75	56.9	r		.84	15.7
29	2.84	134.0	3.93	237	3.85	229	1.70	54.1	r		.83	15.4
30	3.58	202.0	4.05	250	4.20	266	1.66	51.9	r		.82	15.0
31	3.32	176.0	4.18	264	--	--	1.63	50.3	--	--	.84	15.7
sec-m da	3,252.4		6,553		6,523		4,316.9					

TABLE 2.57

Daily Gage Height, in meters, and Discharge, in second-meters,
Dura River near Metekkel, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.60	3.83	.48	2.19	.40	1.38	.36	1.05	.35	.98	.38	1.21
2	.60	3.83	.48	2.19	.40	1.38	.35	.98	.36	1.05	.38	1.21
3	.59	3.67	.48	2.19	.41	1.47	.35	.98	.34	.91	.39	1.29
4	.58	3.51	.47	2.08	.40	1.38	.34	.91	.34	.91	.46	1.97
5	.58	3.51	.47	2.08	.40	1.38	.34	.91	e	.91	.48	2.19
6	.57	3.36	.46	1.97	.40	1.38	.34	.91	.34	.91	.48	2.19
7	.56	3.21	.45	1.36	.40	1.38	.34	.91	.37	1.13	.46	1.97
8	.56	3.21	.45	1.86	.40	1.38	.34	.91	.35	.98	.46	1.97
9	.56	3.21	.44	1.76	.40	1.38	.33	.84	.34	.91	.50	2.42
10	.54	2.93	.44	1.76	.40	1.38	.33	.84	.37	1.13	.48	2.19
11	.53	2.79	.45	1.86	.40	1.38	.34	.91	.32	.78	.46	1.97
12	.54	2.93	.44	1.76	.40	1.38	.33	.84	.35	.98	.46	1.97
13	.53	2.79	.43	1.66	.40	1.38	.33	.84	.36	1.05	.45	1.86
14	.54	2.93	.43	1.66	.39	1.29	.34	.91	.35	.98	.46	1.97
15	.52	2.66	.42	1.56	.40	1.38	.34	.91	.36	1.05	.47	2.08
16	.53	2.79	.43	1.66	.40	1.38	.33	.84	.35	.98	.48	2.19
17	.53	2.79	.43	1.66	.39	1.29	.33	.84	.36	1.05	.52	2.66
18	.52	2.66	.43	1.66	.38	1.21	.33	.84	.36	1.05	.50	2.42
19	.52	2.66	.42	1.56	.38	1.21	.32	.78	.42	1.56	.55	3.07
20	.51	2.54	.42	1.56	.38	1.21	.33	.84	.46	1.97	.52	2.66
21	.51	2.54	.42	1.56	.37	1.13	.33	.84	.42	1.56	.50	2.42
22	.50	2.42	.42	1.56	.37	1.13	.32	.78	.37	1.13	.53	2.79
23	.51	2.54	.41	1.47	.36	1.05	.32	.78	.36	1.05	.56	3.21
24	.51	2.54	.41	1.47	.36	1.05	.32	.78	.41	1.47	.54	2.93
25	.50	2.42	.41	1.47	.36	1.05	.31	.72	.38	1.21	e	3.07
26	.50	2.42	.41	1.47	.36	1.05	.31	.72	.37	1.13	e	3.21
27	.45	1.86	.41	1.47	.36	1.05	.31	.72	.37	1.13	e	3.36
28	.49	2.30	.40	1.38	.36	1.05	.31	.72	.42	1.56	.58	3.51
29	.48	2.19	--	--	.35	.98	.32	.78	.44	1.76	.69	5.49
30	.49	2.30	--	--	.37	1.13	.32	.78	.45	1.86	.78	7.44
31	.48	2.19	--	--	.36	1.05	--	--	.40	1.38	--	--
sec-m da	87.53		48.39		38.72		25.41		36.51		78.89	
Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	July		August		September		October		November		December	
1	.86	9.51	1.67	50.78	2.68	167.31	1.91	71.55	.86	9.51	.58	5.29
2	.88	10.09	1.70	53.14	2.28	111.75	1.82	63.28	.85	9.23	.67	5.09
3	.86	9.51	1.86	66.90	2.16	97.44	1.86	66.90	.84	8.95	.66	4.89
4	.34	8.95	1.98	78.32	2.18	99.75	1.93	73.46	.84	8.95	.66	4.89
5	.92	11.34	1.94	74.42	2.14	95.17	1.85	65.99	.87	9.80	.64	4.51
6	1.02	14.70	2.04	84.36	2.06	86.45	1.82	63.28	.86	9.51	.64	4.51
7	1.02	14.70	2.08	88.58	2.10	90.75	1.90	70.61	.83	8.68	.63	4.33
8	1.01	14.35	2.12	92.94	2.22	104.48	1.86	66.90	.80	7.90	.62	4.16
9	1.01	14.35	2.21	103.29	2.17	98.59	1.71	53.94	.79	7.67	.61	3.99
10	1.06	16.16	2.13	94.05	2.22	104.48	1.62	47.03	.78	7.44	.60	3.83
11	1.08	16.95	2.14	95.17	2.26	109.30	1.49	38.15	.87	9.80	.60	3.83
12	1.04	15.43	2.24	106.88	2.21	103.29	1.40	32.50	.82	11.34	.59	3.67
13	1.05	15.80	2.16	97.44	2.12	92.94	1.36	30.16	.88	10.09	.58	3.51
14	1.08	16.95	e106.88	1.86	66.90	1.30	26.91	.85	9.23	.58	3.51	
15	1.10	17.74	e109.63	1.90	70.61	1.28	25.87	.84	8.95	.57	3.36	
16	1.16	20.27	2.30	114.22	2.08	88.58	1.20	22.00	.82	8.41	.56	3.21
17	1.20	22.00	2.26	109.30	1.92	72.50	1.10	17.74	.80	7.90	.56	3.21
18	1.22	22.91	2.24	106.88	2.07	87.51	1.58	44.20	.78	7.44	.55	3.07
19	1.18	21.10	2.42	129.63	1.91	71.55	1.35	29.60	.76	7.00	.54	2.93
20	1.15	19.80	2.47	136.38	1.86	66.90	1.15	19.80	.77	7.22	.53	2.79
21	1.21	22.45	2.61	156.61	1.87	67.82	1.12	18.55	.76	7.00	.52	2.66
22	1.26	24.85	2.53	144.81	2.02	82.31	1.18	21.10	.80	7.90	.51	2.54
23	1.32	27.97	2.38	124.40	2.04	84.36	1.30	26.91	.80	7.90	.50	2.42
24	1.28	25.87	2.29	112.98	2.18	99.75	1.05	15.80	.77	7.22	.50	2.42
25	1.28	25.87	2.34	119.26	2.26	109.30	.98	13.32	.74	6.56	.50	2.42
26	1.35	29.60	2.14	95.17	2.17	98.59	.96	12.65	.73	6.34	.50	2.42
27	1.48	37.50	2.07	87.51	2.06	86.45	1.49	38.15	.72	6.12	.49	2.30
28	1.90	70.61	2.22	104.48	1.98	78.32	.96	12.65	.70	5.70	.48	2.19
29	1.98	78.32	2.42	129.63	1.84	65.08	.93	11.66	.70	5.70	.48	2.19
30	1.70	53.14	2.02	82.31	1.86	66.90	.90	10.70	.68	5.29	.50	2.42
31	1.72	54.74	2.04	84.36	--	--	.88	10.09	--	--	.48	2.19
sec-m da	763.51		3,140.71		2,725.13		1,121.45		240.75		104.75	

TABLE 2.58

Daily Gage Height, in meters, and Discharge, in second-meters,
 Dabus River near Asosa, Ethiopia--Year Ending December 31, 1961

Day	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.
	January	February	March	April	May	June
1						
2						
3						
4						
5						
6						
7						
8						.67 21.04
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25				.57	13.85	
26						
27						
28						
29						
30						
31						
<hr/>						
sec-m da	July	August	September	October	November	December
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12				478.68		
13						
14						
15						
16						
17						
18	96.66					
19						
20						
21						
22						
23						74.1
24	138.49					
25						
26						
27						
28						
29						
30						
31						
<hr/>						
sec-m da						

TABLE 2.58

Daily Gage Height, in meters, and Discharge, in second-meters,
Dabus River near Asosa, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.			
	January		February		March		April		May			
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25								0.79	26.5			
26												
27												
28												
29												
30												
31												
sec-m da	July		August		September		October		November		December	
1												
2			2.31	223								
3							3.27	510				
4												
5												
6												
7									2.26	212		
8												
9	1.96	155	2.38	240								
10									2.19	198		
11												
12											1.53	92
13												
14									2.10	180		
15												
16			2.44	253								
17												
18												
19							2.81	355				
20					3.12	460						
21	2.06	172										
22							2.74	333				
23			2.60	294			2.69	320				
24					3.23	500						
25											1.34	
26												
27	2.20	200					2.62	300	1.90	144		
28												
29												
30			2.70	321								
31												
sec-m da	July		August		September		October		November		December	

TABLE 2.59

Daily Gage Height, in meters, and Discharge, in second-meters,
 Abbay River at Shogali, Ethiopia--Year Ending December 31, 1959

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1									1.03e	197	1.00br	192
2									1.00e	192	1.00br	192
3									.97e	187	1.19br	227
4									.95e	184	1.18br	225
5									.92br	178	1.38br	265
6									.72br	148	1.45br	279
7									.72br	148	1.26br	241
8									.68br	142	1.27br	243
9									.63br	135	1.43br	275
10									.61br	132	2.10br	435
11									.55br	124	2.16br	450
12									.52br	120	1.95br	397
13									.58br	128	1.67br	327
14									.68br	142	1.62br	315
15									.92br	178	1.71br	337
16									1.72br	340	2.04br	420
17									1.55br	299	1.95br	397
18									1.48br	285	2.54br	562
19									2.20br	460	2.64br	592
20									1.56br	301	2.85br	655
21									1.46br	281	2.48br	544
22									1.76br	350	2.70br	610
23									1.65br	322	2.66br	598
24									1.62br	315	2.53br	559
25									1.37br	263	2.73br	619
26									1.35br	259	2.65br	595
27									1.24br	237	2.56br	568
28									1.07br	204	2.60br	580
29									.97br	187	2.70br	610
30									.94br	182	2.70br	610
31									.94br	182	--	--
sec-m da									6,802		12,919	
	July		August		September		October		November		December	
1	2.84	652	7.53	3,530	10.09	6,160	7.67	3,650	6.05br	2,380	3.58br	950
2	2.93	682	8.25	4,180	9.88	5,910	7.88	3,640	e	2,240	3.54br	930
3	2.98	702	9.55	5,510	9.93	5,970	8.21	4,140	5.65br	2,100	3.51br	915
4	3.21	794	8.58	4,480	9.93	5,970	8.08	4,020	e	2,050	3.60br	940
5	3.73	1,020	8.13	4,070	11.72	8,210	7.93	3,890	5.49br	2,000	3.58br	950
6	4.13	1,180	7.96	3,910	12.18	8,850	7.68	3,660	e	1,860		
7	4.31	1,320	7.92	3,880	11.51	7,910	7.47	3,480	5.02br	1,720		
8	4.44	1,380	7.80	3,770	11.01	7,260	7.66	3,640	e	1,680		
9	4.30	1,310	7.74	3,720	10.25	6,350	7.60	3,590	4.90br	1,650		
10	4.29	1,300	8.41	4,320	10.22	6,310	7.68	3,660	4.78br	1,580		
11	4.26	1,290	8.91	4,810	10.24	6,340	7.48	3,480	4.68br	1,520		
12	4.37	1,340	9.05	4,960	10.39	6,520	7.15	3,220	4.60br	1,470		
13	4.39	1,360	9.86	5,880	10.06	6,120	7.02	3,120	4.53br	1,430		
14	4.58	1,460	11.12	7,410	9.98	6,030	7.22	3,280	4.42br	1,370		
15	5.16	1,810	9.93	5,970	9.91	5,940	7.31	3,350	4.34br	1,330		
16	6.12	2,430	9.61	5,580	9.60	5,570	7.18	3,240	4.25br	1,280		
17	6.53	2,720	9.33	5,260	9.35	5,280	6.97	3,080	4.18br	1,250		
18	6.97	3,080	9.20	5,120	9.23	5,150	6.91	3,030	4.12br	1,220		
19	7.05	3,140	9.56	5,520	9.19	5,510	6.89	3,010	4.08br	1,200		
20	6.80	2,940	9.36	5,300	8.92	4,820	6.89	3,010	4.09br	1,200		
21	6.70	2,860	9.24	5,160	8.94	4,840	6.86	2,990	4.18br	1,250		
22	6.23	2,510	9.50	5,450	9.01	4,910	6.85	2,980	4.24br	1,280		
23	6.47	2,680	10.50	6,650	8.63	4,660	6.77	2,920	4.22br	1,270		
24	7.04	3,130	11.81	8,330	8.55	4,450	6.74	2,890	4.09br	1,200		
25	7.20	3,260	11.22	7,540	8.47	4,370	6.84	2,970	4.02br	1,170		
26	7.51	3,510	10.26	6,360	8.25	4,180	6.89	3,010	3.94br	1,130		
27	7.70	3,680	10.95	7,190	8.07	4,010	6.86	2,990	3.84br	1,080		
28	7.57	3,560	11.50	7,900	7.86	3,820	6.94	3,110	3.76br	1,040		
29	7.15	3,220	11.70	8,180	7.73	3,710	6.64e	2,810	3.69br	1,000		
30	7.83	3,800	11.72	8,210	7.87	3,830	6.34br	2,590	3.63br	980		
31	7.83	3,800	10.85	7,070	--	--	6.11e	2,430	--	--		
sec-m da	67,920		175,220		168,960		101,070		43,930			

TABLE 2.59

Daily Gage Height, in meters, and Discharge, in second-meters,
Abbay River at Shogali, Ethiopia--Year Ending December 31, 1960

Day	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.
	January	February	March	April	May	June
1						
2					.60br 131	
3					.71br 146	
4					.74br 151	
5						
6				.77br 156		
7				.77br 156		
8						
9						
10						
11						
12						
13						1.92 390
14						2.02 415
15						1.92 390
16						2.13 442
17						2.16 450
18						2.46 538
19						2.38 514
20						2.79 637
21						3.19 786
22						3.41 874
23						3.18 782
24						2.96 694
25						2.88 664
26						2.97 698
27						2.86 658
28						3.11 754
29						3.21 794
30						4.18 1,250
31						-- --

sec-m da

	July	August	September	October	November	December
1	4.02 1,170	9.09 5,000	11.14 7,430			
2	3.81 1,060	9.29 5,220	10.45 6,590			
3	3.95 1,140	8.73 4,630	9.72 5,710			
4	4.52 1,420	8.73 4,630	9.60 5,570			2.76br 628
5	4.37 1,340	9.51 5,460	9.20 5,120			
6	4.39 1,360	10.90 7,130	9.06 4,970			
7	4.40 1,360	10.28 6,390	9.94 5,980			
8	4.57 1,450	9.12 5,030	9.17 5,090			
9	4.69 1,520	8.77 4,670	8.94 4,840			
10	4.37 1,340	8.58 4,480	9.12 5,030			
11	4.51 1,420	8.45 4,360	9.17 5,090			
12	4.95 1,680	8.31 4,230	8.86 4,760			
13	6.34 2,590	8.37 4,280				
14	6.01 2,360	8.27 4,190				
15	5.93 2,300	9.10 5,010				
16	5.82 2,220	10.06 6,120				
17	6.45 2,660	10.48 6,630				
18	6.60 2,700	9.54 5,500				
19	6.30 2,560	9.40 5,340				
20	6.76 2,910	10.37 6,490				
21	6.67 2,840	10.76 6,960				
22	8.18 4,110	11.67 8,140				
23	7.58 3,570	11.13 7,420				
24	7.75 3,720	11.53 7,940				
25	9.16 5,080	10.11 6,180				
26	9.09 5,000	9.82 5,830				
27	8.39 4,300	9.68 5,670				
28	8.12 4,060	9.94 5,980				
29	9.28 5,210	9.36 5,300				
30	9.19 5,510	9.57 5,530				
31	8.96 4,860	9.68 5,670				
sec-m da	84,900	175,410				

TABLE 2.59

Daily Gage Height, in meters, and Discharge, in second-meters,
 Abbay River at Shogali, Ethiopia--Year Ending December 31, 1961

Day	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.
	January	February	March	April	May	June
1			.72br 148	.73br 150	1.06br 202	e 220
2			.70br 145	.70br 145	.94br 182	e 220
3			.70br 145	.66br 139	.77br 156	e 220
4			.69br 144	.69br 144	.68br 142	1.19br 227
5			.68br 142	.79br 158	.67br 141	e 200
6			.66br 139	1.06br 202	.98br 189	.85br 168
7			.63br 135	1.18br 225	.94br 182	1.14br 217
8			.60br 131	1.12br 213	.78br 157	1.21br 231
9			.59br 130	1.28br 245	.66br 139	1.69br 332
10			.56br 125	1.32br 253	.55br 124	1.65br 322
11			.54br 123	1.18br 225	.51br 118	1.34br 257
12		1.36br 261	.50br 117	1.12br 213	.44br 110	1.42br 273
13		1.37br 263	.48br 115	1.15br 219	.38br 103	1.66br 325
14		1.32br 253	.46br 112	1.21br 231	.36br 101	1.67br 327
15		1.24br 237	.45br 111	1.36br 261	.36br 101	1.84br 370
16		1.19br 227	.44br 110	1.20br 229	.32br 96	1.73br 342
17		1.16br 221	.42br 107	1.00br 192	.26br 90	3.16br 774
18		1.10br 209	.41br 106	.94br 182	.24br 87	2.80br 640
19		1.04br 199	.41br 106	.84br 166	.18br 81	2.57br 571
20		.94br 182	.42br 107	.82br 163	--	4.16br 1,240
21		.92br 178	.43br 109	.80br 160	--	3.22br 798
22	1.35	259	.43br 109	.74br 151	--	3.52br 920
23		.85br 168	.44br 110	.88br 172	--	3.48br 902
24		.84br 166	.46br 112	1.12br 213	--	3.30br 830
25		.80br 160	.59br 130	1.48br 285	--	3.21br 794
26		.72br 148	.78br 157	1.50br 289	--	3.34br 846
27		.74br 151	.90br 175	1.34br 257	--	3.24br 806
28		.73br 150	.93br 180	1.22br 233	--	3.73 1,020
29		--	.94br 182	1.20br 229	--	4.09 1,200
30		--	.85br 168	1.16br 221	--	4.10 1,210
31		--	.79br 158	--	--	--
sec-m da			4,088	6,165		16,802

	July	August	September	October	November	December
1	4.30 1,310	8.81 4,710	10.85 7,070	8.55 4,450	5.28 1,880	3.96 1,140
2	4.47 1,400	8.37 4,280	10.57 6,730	8.64 4,540	5.21 1,840	3.93 1,120
3	4.19 1,260	7.93 3,890	9.94 5,980	8.99 4,890	5.16 1,810	3.90 1,110
4	4.12 1,220	8.00 3,950	9.71 5,700	9.43 5,370	5.10 1,770	3.88 1,100
5	4.63 1,490	8.52 4,420	11.10 7,380	9.93 5,970	5.04 1,730	3.85 1,080
6	4.48 1,400	8.60 4,500	11.24 7,560	10.26 6,360	4.98 1,700	3.82 1,070
7	e 1,500	8.64 4,540	11.83 8,360	10.10 6,170	4.91 1,660	3.79 1,060
8	e 1,600	8.88 4,780	10.72 6,910	9.73 5,730	4.84 1,610	3.76 1,040
9	e 1,700	10.79 7,000	9.91 5,940	9.43 5,370	4.78 1,580	3.72 1,020
10	e 1,800	11.04 7,300	9.53 5,490	9.21 5,130	4.71 1,540	3.68 1,000
11	e 2,000	9.94 5,980	9.65 5,630	8.98 4,880	4.66 1,510	3.65 985
12	e 2,200	9.82 5,830	9.47 5,420	8.68 4,580	4.61 1,480	3.61 965
13	e 2,400	10.18 6,270	9.50 5,450	8.47 4,370	4.56 1,450	3.56 940
14	e 2,700	10.38 6,510	9.78 5,790	8.25 4,180	4.52 1,420	3.52 920
15	e 3,000	10.70 6,890	9.68 5,670	7.81 3,780	4.46 1,390	3.48 902
16	7.36 3,390	9.77 5,770	9.26 5,190	7.43 3,440	4.42 1,370	3.42 878
17	6.45 2,660	9.66 5,640	9.19 5,510	7.13 3,200	4.38 1,350	3.37 858
18	7.37 3,400	9.17 5,090	10.04 6,100	6.81 2,950	4.34 1,330	3.32 838
19	7.60 3,590	9.51 5,460	9.83 5,850	6.54 2,730	4.30 1,310	3.28 822
20	7.38 3,400	10.13 6,210	9.31 5,240	6.25 2,520	4.26 1,290	3.24 806
21	7.95 3,900	10.30 6,410	9.24 5,160	6.00 2,550	4.22 1,270	3.19 786
22	8.21 4,140	11.19 7,500	8.92 4,820	5.55 2,040	4.19 1,260	3.14 766
23	8.65 4,550	10.87 7,090	8.77 4,670	5.70 2,140	4.16 1,240	3.09 746
24	8.51 4,410	10.74 6,940	8.63 4,530	5.67 2,120	4.12 1,220	3.04 726
25	10.03 6,090	11.12 7,410	8.76 4,660	5.64 2,100	4.09 1,200	2.99 706
26	10.27 6,370	10.84 7,060	8.82 4,720	5.57 2,050	4.06 1,190	2.93 682
27	9.12 5,030	10.69 6,880	8.53 4,430	5.54 2,030	4.04 1,180	2.88 664
28	9.44 5,380	10.50 6,650	8.44 4,350	5.48 2,000	4.02 1,170	2.81 643
29	8.71 4,610	11.40 7,770	8.68 4,580	5.44 1,970	4.00 1,160	2.75 625
30	8.26 4,180	11.37 7,730	8.79 4,690	5.40 1,950	3.98 1,150	2.69 607
31	8.41 4,320	11.80 8,320	--	5.34 1,910	--	2.61 583
sec-m da	96,400	188,780	169,580	113,270	43,060	27,188

TABLE 2.59

Daily Gage Height, in meters, and Discharge, in second-meters,
Abbey River at Shogali, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	2.55	565									e	300
2	2.51	553									e	300
3	2.47	541									e	300
4	2.43	529									e	500
5	2.38	514									e	500
6	2.35	505									e	700
7	2.31	493									2.80	640
8	2.28	484									2.41	523
9	2.25	475									2.13	442
10	2.23	469									2.30	490
11	2.20	460									2.42	526
12											3.09	746
13											3.36	854
14											3.47	898
15											2.64	592
16											2.66	598
17											2.82	646
18											2.98	702
19											2.68	604
20											2.87	661
21											2.76	628
22											2.74	622
23											2.60	580
24											3.00	710
25											3.03	722
26											3.13	762
27											2.97	698
28											3.12	758
29											2.84	652
30											2.96	694
31											--	--
sec-m da												18,348

	July		August		September		October		November		December	
1	3.35	854	7.73	3,710	9.32	5,250	8.23	4,160				
2	3.67	995	7.99	3,940	9.25	5,180	9.09	5,000				
3	3.50	910	8.00	3,950	10.30	6,410					2.95br	690
4	3.87	1,100	8.95	4,850	9.68	5,670						
5	4.43	1,380	9.01	4,910	9.44	5,380						
6	4.25	1,280	8.53	4,430	8.91	4,810						
7	4.24	1,280	8.02	3,970	9.21	5,130						
8	4.40	1,360	8.35	4,260	9.39	5,330						
9	4.72	1,540	9.09	5,000	9.45	5,400						
10	4.56	1,450	8.63	4,530	9.47	5,420						
11	4.64	1,490	9.31	5,240	9.33	5,260						
12	4.92	1,660	9.51	5,460	9.29	5,220						
13	5.11	1,780	8.66	4,560	8.75	4,650						
14	4.97	1,690	9.01	4,910	8.53	4,430						
15	5.00	1,710	8.95	4,850	8.34	4,260						
16	4.99	1,700	8.83	4,730	8.25	4,180						
17	5.17	1,810	9.22	5,140	8.22	4,150						
18	5.05	1,740	9.71	5,700	8.19	4,120						
19	5.23	1,850	10.18	6,270	8.13	4,070						
20	5.28	1,880	9.39	5,330	8.37	4,280						
21	5.47	1,990	9.73	5,730	8.49	4,390						
22	6.01	2,360	9.97	6,010	8.25	4,180						
23	6.80	2,940	9.63	5,610	8.20	4,130						
24	6.49	2,690	9.78	5,790	8.37	4,280						
25	6.70	2,860	10.48	6,630	8.43	4,340						
26	7.47	3,480	10.03	6,090	8.48	4,380						
27	6.96	3,070	9.08	4,990	8.44	4,350	4.75br	1,560				
28	7.27	3,320	9.55	5,510	8.43	4,340						
29	7.60	3,590	9.71	5,700	8.22	4,150						
30	7.63	3,620	9.72	5,710	8.11	4,050						
31	7.79	3,760	9.86	5,880	--	--						
sec-m da	65,139		159,390		141,190							

TABLE 2.60

Daily Gage Height, in meters, and Discharge, in second-meters,
Beles River near Metekkel, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1	.66r	4.90	.54r	2.78	.47r	1.85	.41r	1.22	.41	1.220	.39	1.05
2	.65r	4.70	.54r	2.78	.47r	1.85	.41r	1.22	.39	1.050	.38	.99
3	.65r	4.70	.54r	2.78	e	1.85	.40r	1.12	.37	.930	.38	.99
4	.65r	4.70	.54r	2.78	.47r	1.85	.40r	1.12	.37	.930	.41	1.22
5	.65r	4.70	.53r	2.63	e	1.81	.40	1.12	.38	.990	.48	1.96
6	.64r	4.50	.53r	2.63	e	1.76	.40	1.12	.39	1.050	.57	3.23
7	.64r	4.50	.53r	2.63	.46r	1.74	.40	1.12	.43	1.420	.58	3.38
8	.64r	4.50	.52r	2.48	e	1.74	.39	1.05	.43	1.420	.57	3.23
9	.64r	4.50	.52r	2.48	e	1.74	.39	1.05	.41	1.220	.51	2.33
10	.63r	4.30	.52r	2.48	.46r	1.74	.39	1.05	.39	1.050	.52	2.48
11	.63r	4.30	.51r	2.33	.45r	1.63	.38	.99	.38	.990	.52	2.48
12	.62r	4.10	.51r	2.33	e	1.63	.38	.99	.39	1.050	.48	1.96
13	.61r	3.90	.51r	2.33	e	1.63	.38	.99	.40	1.120	.54	2.78
14	.61r	3.90	.50r	2.18	e	1.63	.38	.99	.41	1.220	.48	1.96
15	.60r	3.70	.50r	2.18	e	1.63	.37	.93	.44	1.520	.47	1.85
16	.59r	3.54	.50r	2.18	e	1.63	.37	.93	.44	1.520	.52	2.48
17	.59r	3.54	.49r	2.07	.45r	1.63	.36	.87	.42	1.320	.50	2.18
18	.59r	3.54	.49r	2.07	.45r	1.63	.36	.87	.41	1.220	.69	5.50
19	.59r	3.54	e	2.05	e	1.60	.36	.87	.40	1.120	.78rv	7.62
20	.59r	3.54	e	2.03	e	1.57	.36	.87	.48	1.960	.70rv	5.70
21	.58r	3.38	e	2.01	e	1.54	.36	.87	.45	1.630	.63rv	4.30
22	.58r	3.38	e	1.99	e	1.51	.36	.87	.42	1.320	.97rv	13.40
23	.57r	3.23	e	1.96	e	1.47	.36	.87	.43	1.420	.90rv	11.20
24	.57r	3.23	.48r	1.96	e	1.43	.36	.87	.43	1.420	.66rv	4.90
25	.56r	3.08	.48r	1.96	e	1.38	.36	.87	.44	1.520	.74rv	6.66
26	.56r	3.08	e	1.93	e	1.33	.36	.87	.43	1.420	.94rv	12.40
27	.55r	2.93	e	1.89	e	1.28	.36	.87	.41	1.220	1.10rv	18.50
28	.55r	2.93	.47r	1.85	.41r	1.22	.36	.87	.40	1.120	1.22rv	24.00
29	.55r	2.93	--	--	.41r	1.22	.36	.87	.39	1.050	1.08rv	17.70
30	.54r	2.78	--	--	e	1.22	.39	1.05	.40	1.120	1.35rv	31.00
31	.54r	2.78	--	--	.41r	1.22	--	--	.40	1.120	--	--
sec-m da		117.33	63.75		48.96		29.37		38.68		199.43	
	July		August		September		October		November		December	
1	1.23	24.5	2.29	110	2.38	120.0	1.93	72.7	.72	6.18	.55	2.93
2	1.49	39.4	2.10	89	2.47	131.0	1.79	61.2	.70	5.70	.55	2.93
3	1.56	44.2	2.50	137	2.42	126.0	1.94	73.6	.69	5.50	.54	2.78
4	1.23	24.5	3.07	218	2.63	153.0	1.76	58.8	.68	5.30	.53	2.63
5	1.36	31.6	3.00	208	2.73	167.0	1.62	48.4	.71	5.94	.53	2.63
6	1.87	67.6	2.50	137	2.53	140.0	1.47	38.2	.70	5.70	.52	2.48
7	1.60	47.0	2.20	100	2.49	135.0	1.35	31.0	.75	6.90	.52	2.48
8	1.53	42.1	2.56	143	2.79	176.0	1.28	27.1	.74	6.66	.51	2.33
9	1.52	41.4	2.85	183	3.29	256.0	1.21	23.5	.70	5.70	.50	2.18
10	1.64	49.8	2.35	117	2.57	144.0	1.15	20.5	.68	5.30	.50	2.18
11	1.91	70.9	2.43	127	2.40	124.0	1.12	19.3	.67	5.10	.50	2.18
12	1.73	56.5	2.74	168	2.26	106.0	1.07	17.3	.78	7.62	.49	2.07
13	1.81	62.8	2.03	82	2.31	113.0	1.03	15.7	.85	9.65	.49	2.07
14	1.42	35.2	1.69	54	1.94	73.6	1.00	14.6	.86	9.96	.48	1.96
15	1.44	36.4	2.53	140	2.20	100.0	.97	13.4	.74	6.66	.48	1.96
16	1.50	40.0	4.29	470	2.19	98.0	.95	12.7	.71	5.94	.47	1.85
17	1.38	32.8	3.54	301	2.25	105.0	.93	12.1	.70	5.70	.47	1.85
18	1.56	44.2	3.20	241	2.16	95.0	.99	14.2	.72	6.18	.46	1.74
19	1.54	42.8	3.11	225	1.95	74.5	.92	11.8	.69	5.50	.45	1.63
20	1.82	63.6	2.79	176	2.12	91.0	.89	10.9	.67	5.10	.45	1.63
21	1.72	55.8	3.39	274	2.04	83.0	.86	10.0	.66	4.90	.44	1.52
22	1.92	71.8	2.80	178	2.87	187.0	.85	9.7	.64	4.50	.44	1.52
23	2.08	87.0	2.26	106	2.76	170.0	.83	9.0	.63	4.30	.43	1.42
24	2.22	102.0	2.21	101	2.35	117.0	.81	8.4	.62	4.10	.43	1.42
25	1.90	70.0	2.48	133	2.50	137.0	.82	8.7	.61	3.90	.43	1.42
26	1.76	58.8	3.69	331	2.06	85.0	.88	10.6	.60	3.70	.43	1.42
27	2.14	93.0	2.62	152	1.90	70.0	.93	12.1	.58	3.38	.42	1.32
28	1.92	71.8	3.66	325	1.87	67.6	.82	8.7	.57	3.23	.42	1.32
29	2.69	162.0	3.54	301	1.89	69.2	.78	7.6	.57	3.23	.42	1.32
30	1.89	69.2	2.67	158	1.77	59.6	.76	7.1	.56	3.08	.42	1.32
31	2.02	81.0	3.02	210	--	--	.74	6.7	--	--	.42	1.32
sec-m da		1,819.7	5,694		3,573.5		695.6		164.61		59.81	

TABLE 2.62

Daily Gage Height, in meters, and Discharge, in second-meters,
Abbey River at Sudan border--Year Ending December 31, 1961

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1											.42	203
2											.40	197
3											.42	203
4											.40	197
5											.42	203
6											.36	185
7											.42	203
8											.51	230
9											.45	212
10											.81	334
11											.66	--
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24									.12	--	2.12	1,007
25									.10	117	1.97	913
26									.02	100	2.01	937
27									.12	121	1.82	823
28									.25	154	1.82	823
29									.14	126	2.70	1,414
30									.32	173	2.59	1,332
31									.47	218	--	--
sec-m da	July		August		September		October		November		December	
1	2.90	1,570	6.86	6,004	8.45	8,420	6.31	5,253	3.31	1,909		
2	2.78	1,476	6.45	5,435	8.05	7,780	6.40	5,370	3.25	1,850		
3	2.80	1,491	5.92	4,746	7.69	7,225	6.49	5,487	3.14	1,762		
4	2.73	1,437	5.95	4,785	7.38	6,760	6.87	6,018	3.12	1,746		
5	2.88	1,554	6.70	5,780	8.76	8,916	7.30	6,640	3.09	1,722		
6	3.04	1,682	6.72	5,808	8.68	8,788	7.77	7,345	3.03	1,674		
7	3.11	1,738	6.74	5,836	8.99	9,303	7.54	7,000	2.94	1,602		
8	3.38	1,972	7.09	6,326	8.71	8,836	7.48	6,910	2.88	1,554		
9	3.62	2,188	8.05	7,780	8.00	7,700	7.09	6,326	2.81	1,499		
10	4.19	2,740	8.62	8,692	7.33	6,685	6.93	6,102				
11	4.02	2,570	7.94	7,604	7.25	6,565	6.75	5,850				
12	4.07	2,620	7.55	7,015	7.46	6,880	6.57	5,598				
13	4.32	2,870	7.70	7,240	7.18	6,460	6.27	5,201				
14	e 3,000		8.04	7,764	7.33	6,685	6.04	4,902				
15	4.66	3,236	8.37	8,292	7.53	6,985	5.67	4,421				
16	5.51	4,213	7.71	7,255	7.02	6,228	5.37	4,044				
17	6.24	5,162	7.48	6,910	6.83	5,962	5.15	3,780				
18	6.32	5,266	7.25	6,565	7.43	6,835	4.96	3,566				
19	5.31	3,972	7.32	6,670	7.74	7,300	4.77	3,357				
20	5.87	4,681	7.74	7,300	7.09	6,326	4.61	3,181				
21	5.86	4,668	7.89	7,525	7.03	6,242	4.42	2,972				
22	5.91	4,73	8.66	8,756	6.80	5,920	4.23	2,780				
23	6.54	5,556	8.56	8,596	6.66	5,724	4.14	2,690				
24	6.53	5,542	8.13	7,908	6.56	5,584	4.09	2,640				
25	7.44	6,850	8.12	7,892	6.65	5,710	4.01	2,560				
26	8.07	7,812	e 8,400		6.75	5,850	3.85	2,400				
27	7.60	7,090	8.29	8,164	6.46	5,448	3.70	2,260				
28	7.42	6,820	8.09	7,844	6.13	5,019	3.60	2,170				
29	6.92	6,088	8.44	8,404	6.25	5,175	3.54	2,116				
30	6.31	5,253	8.58	8,628	6.66	5,724	3.48	2,062				
31	6.23	5,149	9.20	--	--	--	3.42	2,008				
sec-m da	120,999		215,924		203,035		133,009					

TABLE 2.62

Daily Gage Height, in meters, and Discharge, in second-meters,
 Abbay River at Sudan border--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1											.85	349
2											.70	294
3											.60	260
4											.92	377
5											.92	377
6											1.54	667
7											1.78	800
8											1.44	615
9											1.18	490
10											1.18	490
11											1.17	486
12											1.54	667
13											1.80	811
14											2.02	943
15											1.71	760
16											1.47	631
17											1.80	811
18											1.94	894
19											1.76	788
20											1.70	754
21											1.71	760
22											1.64	721
23											1.59	694
24											1.74	777
25											1.77	794
26											1.98	919
27											1.68	743
28											1.91	876
29											1.73	771
30											1.66	732
31											--	--
sec-m da												20,051
	July		August		September		October		November		December	
1	1.83	829	5.66	4,408	7.17	6,445	5.93	4,759	2.60	1,339	1.62	710
2	2.22	1,073	6.06	4,928	6.97	6,158	6.70	5,780	2.55	1,302	1.59	694
3	2.15	1,027	6.13	5,019	7.49	6,925	7.01	6,214	2.49	1,259	1.57	683
4	2.23	1,079	6.65	5,710	7.45	6,835	6.99	6,186	2.45	1,230	1.58	688
5	2.73	1,437	7.06	6,284	7.23	6,535	7.07	6,298	2.37	1,174	1.56	678
6	2.84	1,523	6.89	6,046	6.80	5,920	7.03	6,242	2.32	1,140	1.53	662
7	3.08	1,714	6.22	5,136	6.84	5,976	6.37	5,331	2.28	1,113	1.50	646
8	2.90	1,570	6.33	5,279	6.99	6,186	5.85	4,655	2.24	1,086	1.47	631
9	2.98	1,634	6.95	6,102	7.17	6,445	5.48	4,176	2.21	1,066	1.44	615
10	3.03	1,674	6.80	5,920	7.30	6,640	5.19	3,828	2.18	1,046	1.41	600
11	3.05	1,690	6.82	5,948	7.00	6,200	5.06	3,676	2.14	1,020	1.38	585
12	3.07	1,706	7.39	6,775	7.04	6,256	4.73	3,313	2.11	1,001	1.37	580
13	3.43	2,017	6.80	5,920	6.55	5,570	4.49	3,049	2.11	1,001	1.33	561
14	3.33	1,927	6.84	5,976	6.14	5,032	4.25	2,800	2.12	1,007	1.30	546
15	3.36	1,954	7.09	6,326	5.93	4,759	4.07	2,620	2.14	1,020	1.26	527
16	3.33	1,927	6.88	6,032	5.97	4,811	3.93	2,480	2.14	1,020	1.23	513
17	3.48	2,062	7.33	6,685	6.05	4,915	3.80	2,350	2.08	981	1.21	504
18	3.47	2,053	7.47	6,895	6.04	4,902	3.71	2,269	2.02	943	1.18	490
19	3.45	2,035	7.74	7,300	5.95	4,785	3.57	2,143	1.98	919	1.16	481
20	3.56	2,134	7.46	6,880	6.17	5,071	3.47	2,053	1.95	900	1.14	472
21	3.68	2,242	7.31	6,655	6.38	5,344	3.37	1,963	1.92	882	1.14	472
22	4.10	2,650	7.85	7,465	6.15	5,045	3.27	1,866	1.88	858	1.09	450
23	4.86	3,456	7.30	6,640	6.24	5,162	3.18	1,794	1.85	841	1.07	441
24	4.44	2,994	7.27	6,595	6.37	5,331	3.10	1,730	1.82	823	1.05	432
25	4.78	3,368	7.84	7,450	6.30	5,240	3.03	1,674	1.80	811	1.03	423
26	5.26	3,912	7.94	7,604	6.35	5,305	3.02	1,666	1.78	800	1.02	419
27	5.21	3,852	7.02	6,228	6.31	5,253	2.86	1,538	1.77	794	1.00	410
28	5.27	3,924	7.01	6,214	6.24	5,162	2.92	1,586	1.72	766	.98	402
29	5.54	4,252	7.53	6,985	5.96	4,798	2.84	1,523	1.68	743	.96	393
30	5.70	4,460	7.34	6,700	5.82	4,616	2.75	1,453	1.65	727	.94	385
31	5.80	4,590	7.64	7,150	--	--	2.68	1,399	--	--	.93	381
sec-m da	72,765		195,255		167,622		98,414		29,610		16,474	

TABLE 2.63

Daily Gage Height, in meters, and Discharge, in second-meters,
Dindir River near Abu Mendi-Metemma Road--Year Ending December 31, 1962

Day	G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.		G.H. Disch.	
	January		February		March		April		May		June	
1					o		o		o		.05	.010
2					o		o		o		.04	.005
3					o		o		o		.04	.005
4					o		o		o		.03	.002
5					o		o		o		.02	.000
6					o		o		o		.80	24.900
7					o		o		o		.58	11.400
8					o		o		o		.35	3.250
9					o		o		o		.36	3.480
10					o		o		o		.33	2.790
11					o		o		o		.32	2.560
12					o		o		o		.31	2.330
13					o		o		.13	.292	.27	1.680
14					o		o		.10	.100	.24	1.260
15					o		o		.09	.070	.30	2.100
16					o		o		.07	.030	.49	7.460
17					o		o		.06	.020	.52	8.700
18					o		o		.05	.010	.54	9.600
19				o	o		o		.21	.870	.83	27.300
20		.121		o	o		o		.14	.356	.86	29.700
21				o	o		o		.12	.228	.73	19.900
22				o	o		o		.10	.100	1.03	45.300
23				o	o		o		.10	.100	.83	27.300
24				o	o		o		.09	.070	.66	15.400
25				o	o		o		.09	.070	.56	10.500
26				o	o		o		.08	.040	.60	12.300
27				o	o		o		.08	.040	.42	5.080
28				o	o		o		.07	.030	.85	28.900
29			--	--	o		o		.06	.020	.90	32.900
30			--	--	o		o		.05	.010	.67	16.000
31	.07	.033	--	--	o		--	--	.05	.010	--	--
sec-m da												352.112
	July		August		September		October		November		December	
1	.57	10.95	2.02	203.0	2.01	201.0	1.38	87.7	.40	4.42	.19	.676
2	.65	14.80	1.58	117.8	2.16	234.0	1.89	175.0	.39	4.18	.19	.676
3	.85	28.90	1.80	197.0	1.90	177.0	1.56	114.6	.36	3.48	.18	.612
4	.70	17.80	2.09	219.0	2.06	211.0	1.34	82.1	.35	3.25	.18	.612
5	.93	35.60	1.59	119.4	2.25	256.0	1.21	65.2	.35	3.25	.18	.612
6	1.55	113.00	1.38	87.7	1.89	175.0	1.23	67.6	.33	2.79	.17	.548
7	1.04	46.30	1.47	100.5	1.79	155.1	1.04	46.3	.33	2.79	.17	.548
8	.70	17.80	1.62	124.4	3.10	522.0	1.01	43.4	.32	2.56	.16	.484
9	.55	10.05	1.96	189.0	3.04	498.0	.93	35.6	.30	2.10	.16	.484
10	.68	16.60	1.31	77.9	2.38	291.0	.87	30.5	.29	1.96	.15	.420
11	1.62	124.40	1.19	62.8	2.32	275.0	.83	27.3	.30	2.10	.15	.420
12	1.01	43.40	1.25	70.0	1.94	185.0	.79	24.1	.30	2.10	.14	.356
13	.86	29.70	1.11	53.4	1.70	138.0	.75	21.3	.30	2.10	.13	.292
14	.71	18.50	1.00	42.5	1.75	147.5	.72	19.2	.34	3.02	.12	.228
15	1.20	64.00	1.90	177.0	2.18	240.0	.70	17.8	.37	3.71	.12	.228
16	1.06	48.30	2.42	301.0	2.08	216.0	.68	16.6	.32	2.56	.12	.228
17	1.09	51.30	2.19	243.0	1.88	173.0	.65	14.8	.32	2.56	.11	.164
18	.94	36.50	1.90	177.0	1.95	187.0	.64	14.3	.35	3.25	.11	.164
19	.96	38.50	2.54	334.0	1.78	153.2	.64	14.3	.31	2.33	.11	.164
20	1.62	124.40	2.53	331.0	1.90	177.0	.61	12.8	.29	1.96	.10	.100
21	.98	40.50	2.47	315.0	1.75	147.5	.57	11.0	.28	1.82	.10	.100
22	1.83	163.00	1.96	189.0	2.09	219.0	.55	10.1	.27	1.68	.10	.100
23	1.88	173.00	1.57	116.2	2.09	219.0	.53	9.2	.25	1.40	.09	.070
24	1.52	108.20	1.52	108.2	1.77	151.3	.51	8.3	.24	1.26	.09	.070
25	1.27	72.60	2.17	237.0	1.71	139.9	.49	7.5	.23	1.13	.09	.070
26	1.08	50.30	3.20	562.0	1.44	96.1	.49	7.5	.22	1.00	.09	.070
27	1.06	48.30	2.12	226.0	1.48	102.0	.48	7.1	.21	.87	.09	.070
28	1.09	51.30	2.22	250.0	1.27	72.6	.53	9.2	.21	.87	.08	.040
29	1.92	181.00	2.83	423.0	1.31	77.9	.48	7.1	.20	.74	.08	.040
30	1.17	60.40	2.12	226.0	1.48	102.0	.44	5.8	.20	.74	.07	.030
31	1.54	111.40	2.74	394.0	--	--	.42	5.1	--	--	.07	.030
sec-m da	1,950.80		6,233.8		5,939.1		1,018.1		67.98		8.706	

TABLE 2.65

Daily Gage Height, in meters, and Discharge, in second-meters,
Rahad River near Metemma, Ethiopia--Year Ending December 31, 1962

Day	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.	G.H. Disch.
	January	February	March	April	May	June
1				o	o	o
2				o	o	o
3				o	o	o
4				o	o	o
5				o	o	o
6				o	o	o
7				o	o	.98 8.21
8				o	o	1.01 8.80
9				o	o	1.15 14.70
10				o	o	.91 5.89
11		.44v .220	o	o	o	1.13 13.70
12			o	o	o	.94 6.76
13			o	o	o	.86 4.76
14			o	o	o	.87 4.97
15			o	o	o	.85 4.55
16			o	o	o	.76 2.90
17			o	o	o	.80 3.50
18			o	o	o	.75 2.75
19	.50v .336g		o	o	o	.71 2.19
20			o	o	o	.91 5.89
21			o	o	o	.97 7.63
22			o	o	o	1.15 14.70
23			o	o	o	1.36 26.20
24			o	o	o	1.58 43.20
25			o	o	o	1.21 17.25
26			o	o	o	1.02 9.20
27		.37v .010	o	o	o	1.01 8.80
28			o	o	o	1.25 17.45
29			o	o	o	1.05 10.40
30			o	o	o	1.16 15.20
31			o	o	o	-- --

sec-m da

	July	August	September	October	November	December
1	1.16 15.2	2.18 111	2.95 265	2.22 117.0	.83 4.13	.62 1.25
2	1.26 17.5	2.11 102	3.85 545	2.22 117.0	.81 3.71	.61 1.15
3	1.87 71.7	2.21 116	2.91 256	2.14 105.0	.80 3.50	.60 1.05
4	1.30 22.4	2.79 226	2.87 245	2.04 93.2	.79 3.35	.60 1.05
5	1.66 50.4	2.81 231	3.09 304	1.92 77.6	.78 3.20	.59 .99
6	1.98 85.4	2.42 151	2.94 262	1.86 70.6	.78 3.20	.58 .92
7	1.77 61.0	2.46 159	2.79 226	1.73 57.0	.75 2.75	.57 .86
8	1.92 77.6	2.38 144	3.33 374	1.62 46.8	.76 2.90	.56 .79
9	1.26 17.5	2.56 179	3.81 530	1.54 39.7	.77 3.05	.56 .79
10	1.12 13.2	2.38 144	3.17 326	1.46 33.3	.77 3.05	.55 .73
11	2.33 134.0	2.33 134	2.90 254	1.40 29.0	.78 3.20	.55 .73
12	1.48 34.9	2.41 149	2.68 203	1.35 25.5	.76 2.90	.54 .66
13	1.23 17.4	2.21 116	2.66 199	1.29 17.7	.77 3.05	.54 .66
14	1.43 31.1	2.24 119	2.51 169	1.24 17.4	.77 3.05	.54 .66
15	1.76 60.0	2.96 268	2.88 248	1.21 17.3	.76 2.90	.53 .60
16	1.69 53.1	3.67 479	2.77 221	1.18 16.2	.74 2.61	.52 .53
17	1.81 65.1	3.47 416	2.59 185	1.14 14.2	.74 2.61	.52 .53
18	1.98 85.4	3.25 350	2.49 165	1.13 13.7	.76 2.90	.52 .53
19	1.86 70.6	3.40 395	2.42 151	1.15 14.7	.75 2.75	.52 .53
20	1.80 64.0	4.10 647	2.52 171	1.08 11.6	.73 2.47	.51 .47
21	1.59 44.1	3.58 449	2.48 163	1.03 9.6	.72 2.33	.51 .47
22	1.53 38.9	3.09 304	2.86 242	1.01 8.8	.70 2.05	.50 .40
23	2.32 133.0	2.76 219	2.90 254	.99 8.2	.69 1.95	.50 .40
24	2.06 95.8	2.60 187	2.82 233	.97 7.6	.68 1.85	.50 .40
25	2.01 89.3	2.86 242	2.52 171	.94 6.8	.67 1.75	.50 .40
26	1.90 75.0	3.38 389	2.42 151	.92 6.2	.67 1.75	.49 .38
27	1.70 54.0	2.99 277	2.43 153	.93 6.5	.66 1.65	.49 .38
28	1.44 31.8	2.98 274	2.26 123	.92 6.2	.64 1.45	.49 .38
29	1.60 45.0	3.35 380	2.28 127	.89 5.4	.64 1.45	.49 .38
30	1.61 45.9	2.84 237	2.34 136	.87 5.0	.63 1.35	.48 .34
31	1.73 57.0	3.28 359	-- --	.85 4.6	-- --	.48 .34
sec-m da	1,757.3	7,953	7,052	1,009.2	78.86	19.70

TABLE 2.70

Miscellaneous Measurements
1962 and 1963

Station Number (Figure 2.1)	River	Place	Latitude in Degrees North	Longitude in Degrees East	Date	Flow in Cubic Meters per sec.
301	Amarti	No.1 damsite NW Finchaa gage	9°42'	37°17'	Aug. 28/62	18.58
					Nov. 11/62	1.60
					Mar. 2/63	0.24
					Apr. 24/63	0.23
					May 25/63	1.05
302	Neshi	Near Shambo	9°44'	37°15'	Aug. 28/62	23.0
					Oct. 4/62	20.6
					Oct. 21/62	5.35
					Nov. 11/62	1.59
					Mar. 4/63	0.42
					Apr. 24/63	0.62
					May 25/63	1.18
581	Hoha	15 kms north of Asosa	10°08'	39°38'	July 18/62	1.24
					July 21/62	0.71
					July 1962	3.71
					July 28/62	1.59
					July 30/62	1.16
					Aug. 7/62	1.55
					Aug. 11/62	1.87
					Aug. 15/62	1.94
					Aug. 22/62	2.46
630	Aujemis	Near Abu Mendi	11°57'	35°58'	Jan. 20/62	0.645
					Aug. 14/62	20.1
					Nov. 10/62	4.44
631	Galegu	Galegu	12°15'	35°52'	Jan. 18/62	0.074
					July 15/62	3.91
					July 25/62	4.36
					Aug. 10/62	14.96
633	Sid	Near Mouth	12°01'	36°15'	Aug. 11/62	15.06
					Nov. 10/62	0.597
651	Dibaba	Near Dibaba	12°24'	36°00'	July 15/62	0.983
					July 25/62	1.19
					Aug. 10/62	2.08
					Nov. 10/62	0.542
701	Tomete	37 kms N. Asosa	10°18'	34°38'	July 10/62	0.159
					Aug. 11/62	0.202
					Aug. 21/62	0.336
					Aug. 28/62	0.541
					Aug. 28/62	0.532