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THE GEOGRAPHY OF AGRICULTURE IN IRRIGATED AREAS

of

THE MIDDLE EUPHRATES VALLEY

VOLUME II

MAPS, DIAGRAMS AND PHOTOGRAPHS

THESIS SUBMITTED FOR THE DEGREE OF Ph.D. (IN GEOGRAPHY)

of

THE UNIVERSITY OF DURHAM

N. K. AL-BARAZI



FEBRUARY 1960

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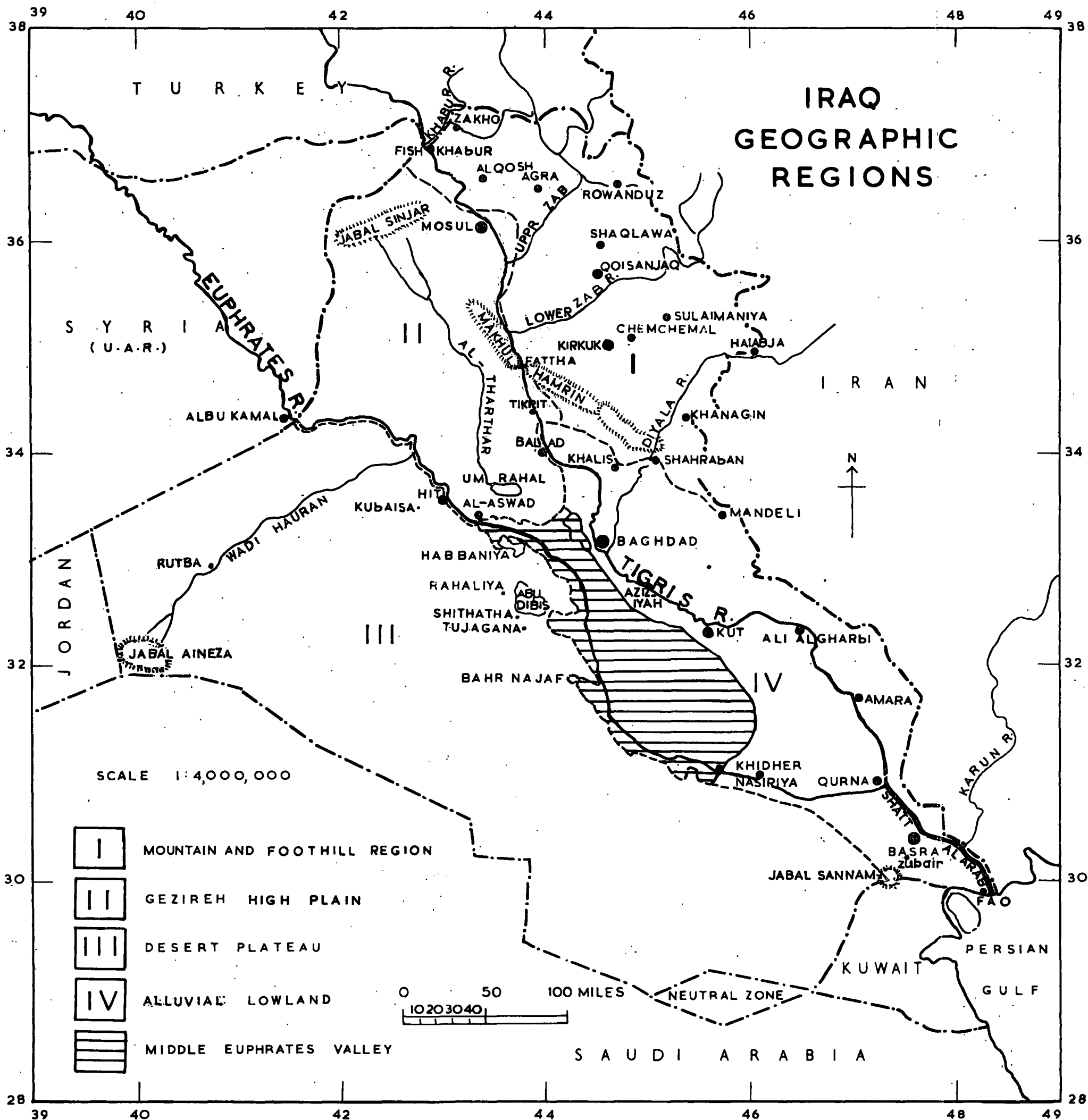


FIG. 1

TOPOGRAPHY AND DRAINAGE MAP OF THE MIDDLE EUPHRATES VALLEY

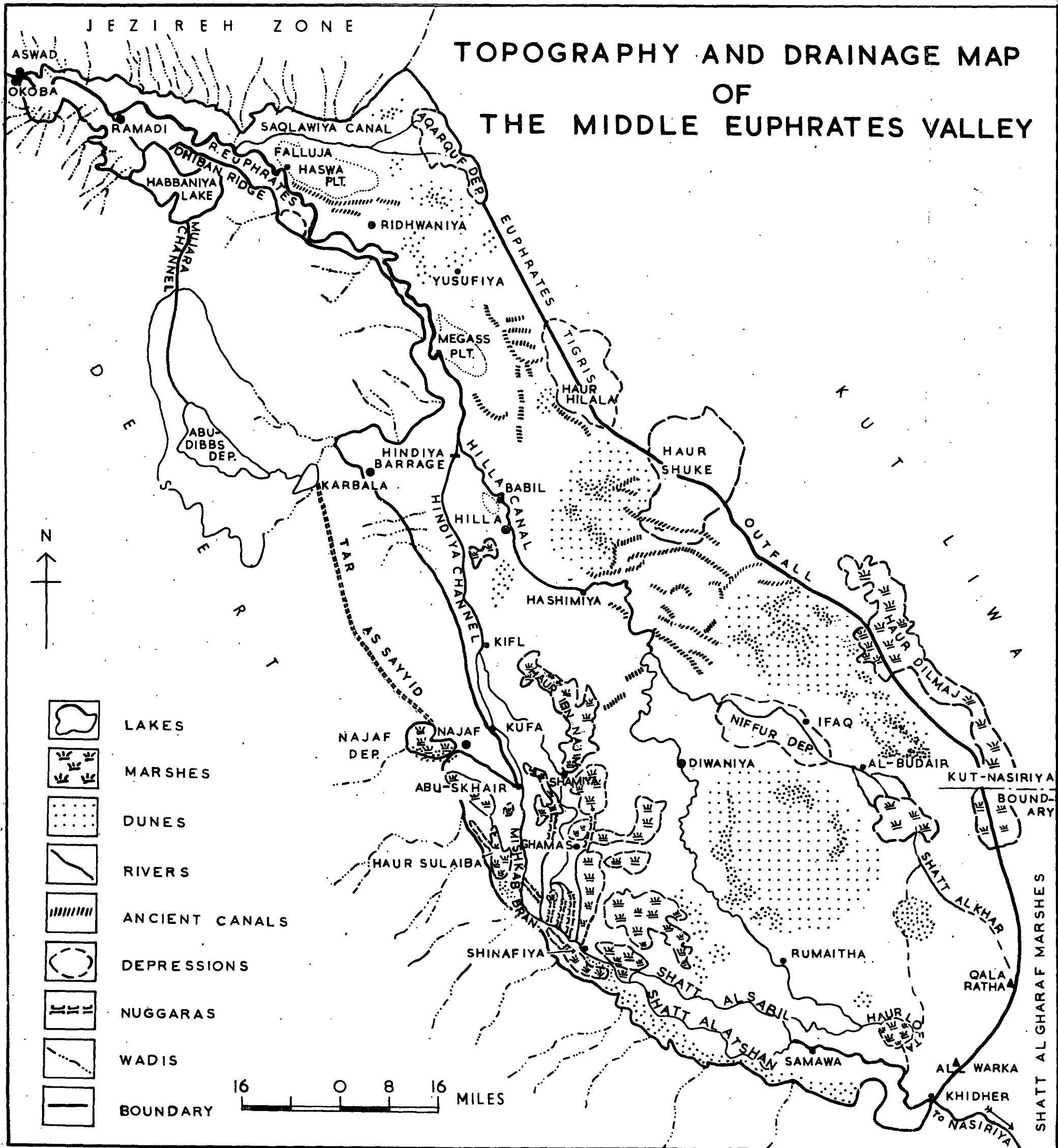


FIG. 2

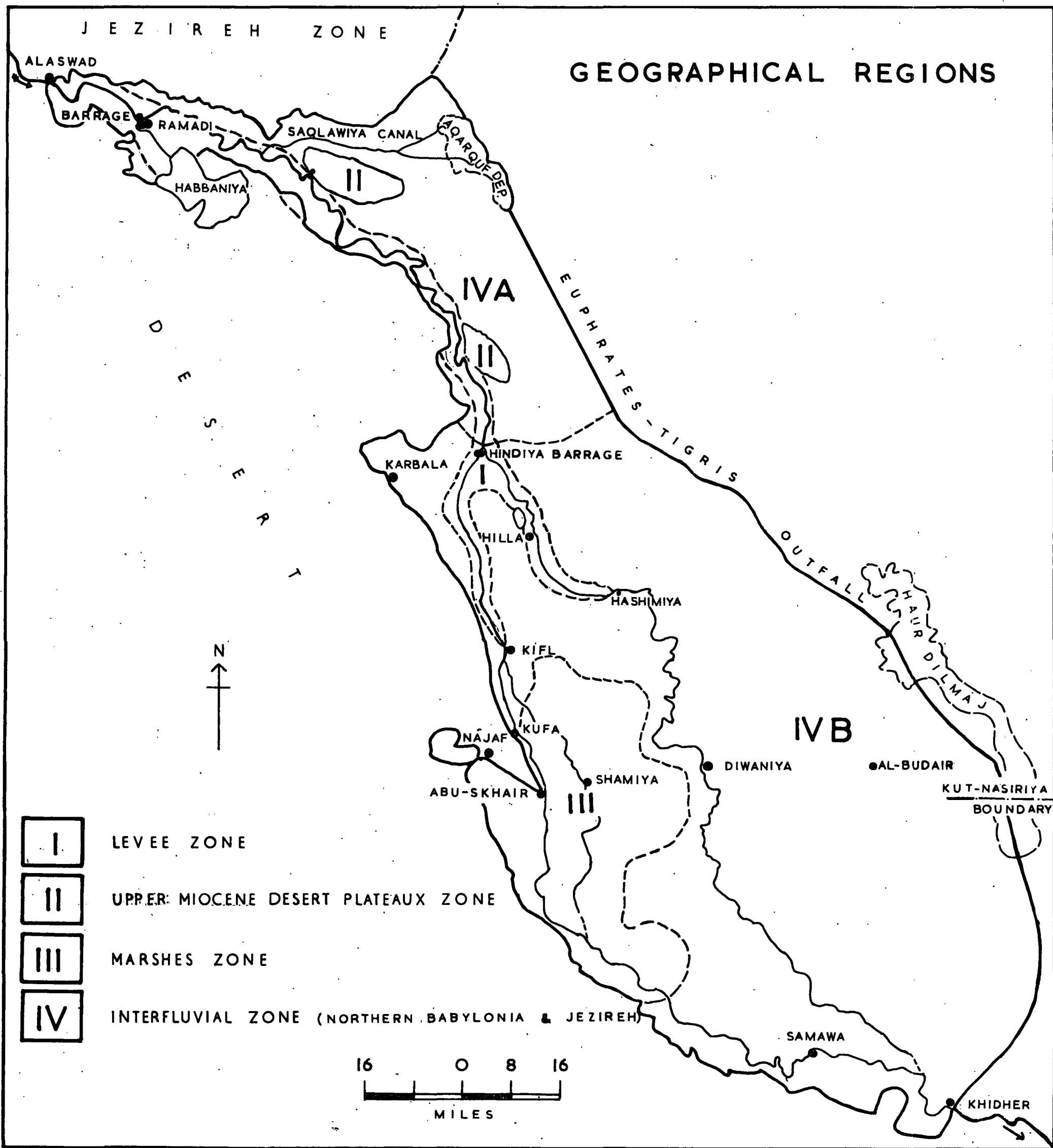


FIG. 3

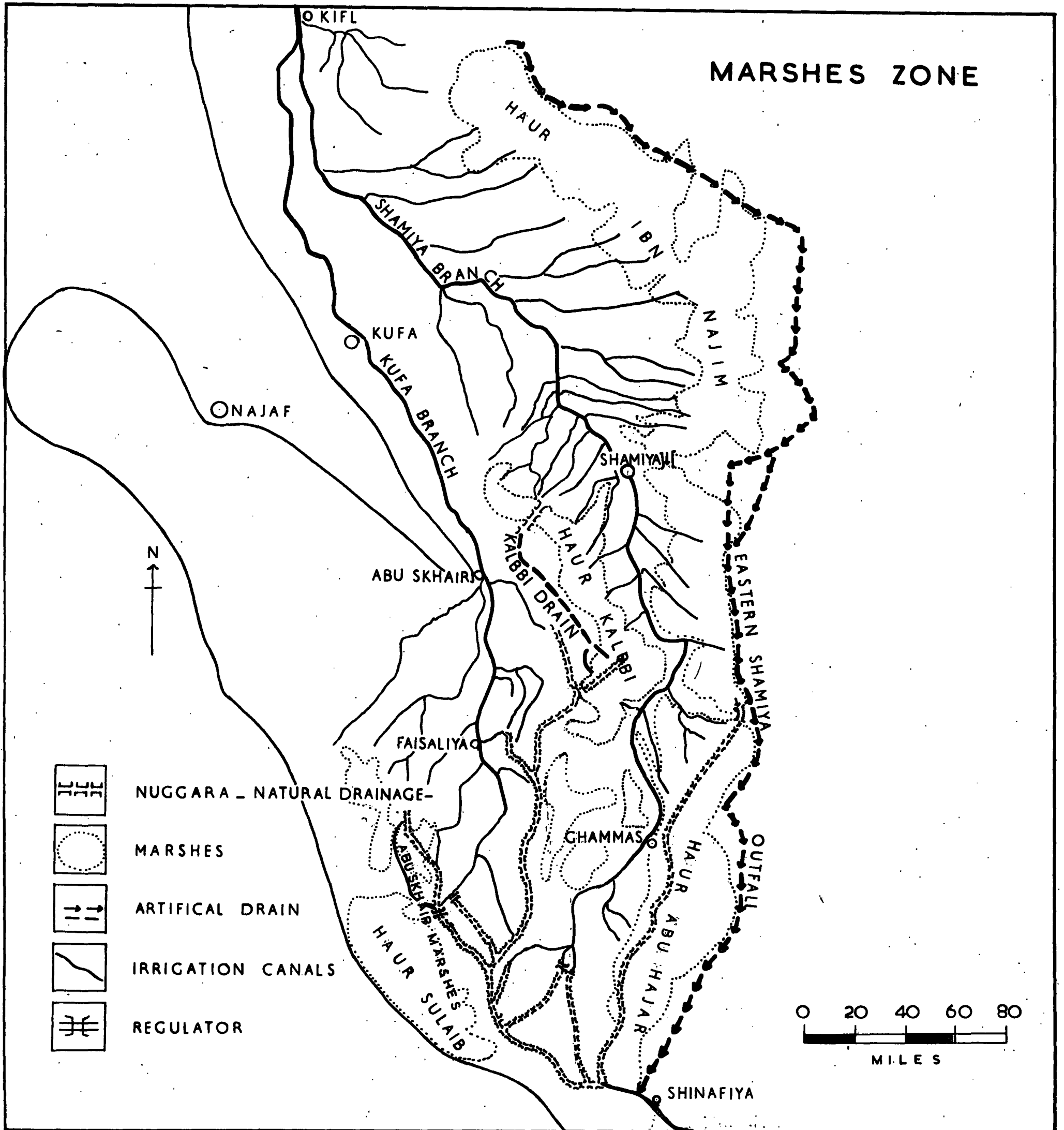
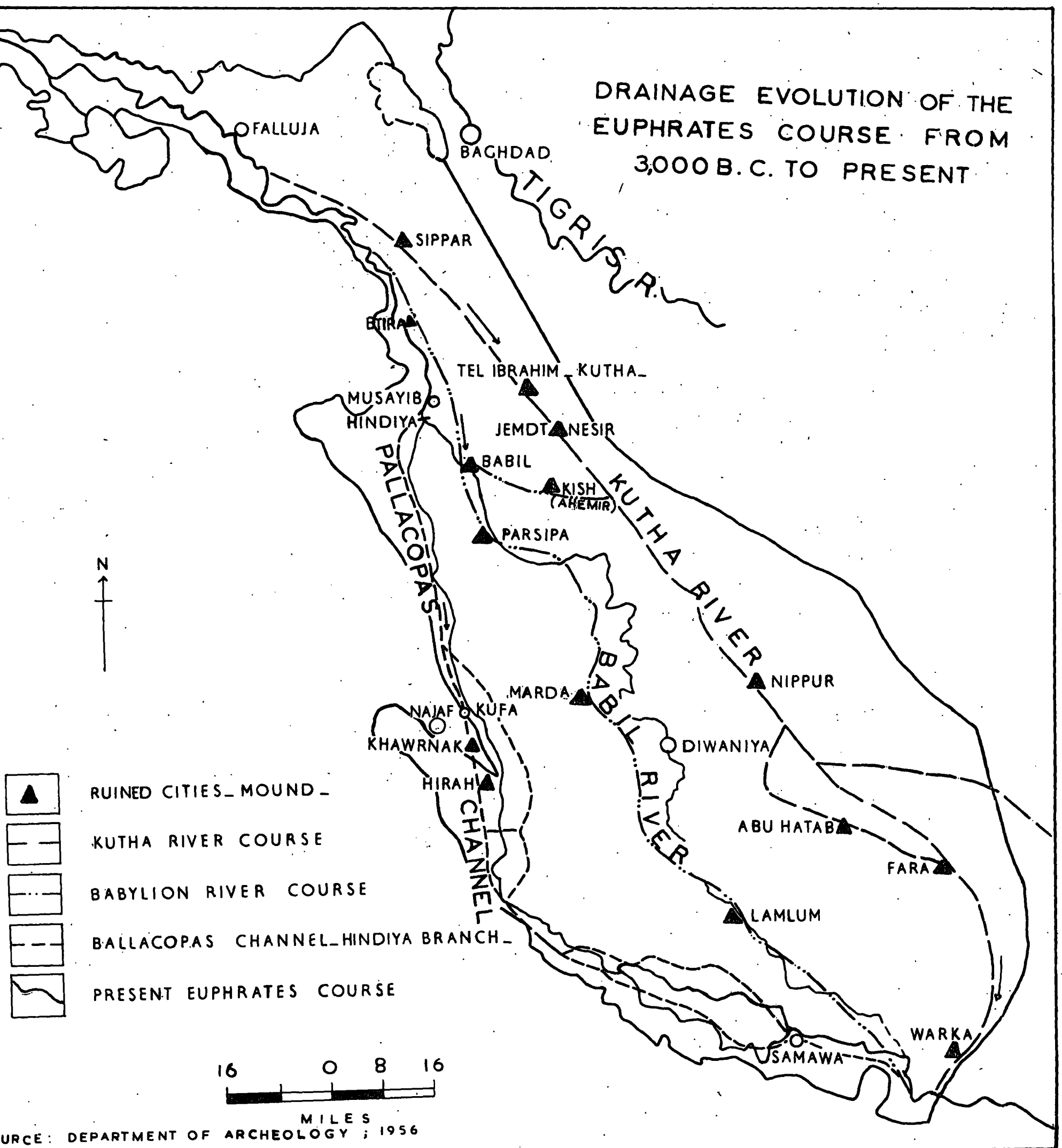


FIG. 4

DRAINAGE EVOLUTION OF THE EUPHRATES COURSE FROM 3,000 B.C. TO PRESENT



SOURCE: DEPARTMENT OF ARCHEOLOGY ; 1956

FIG. 5

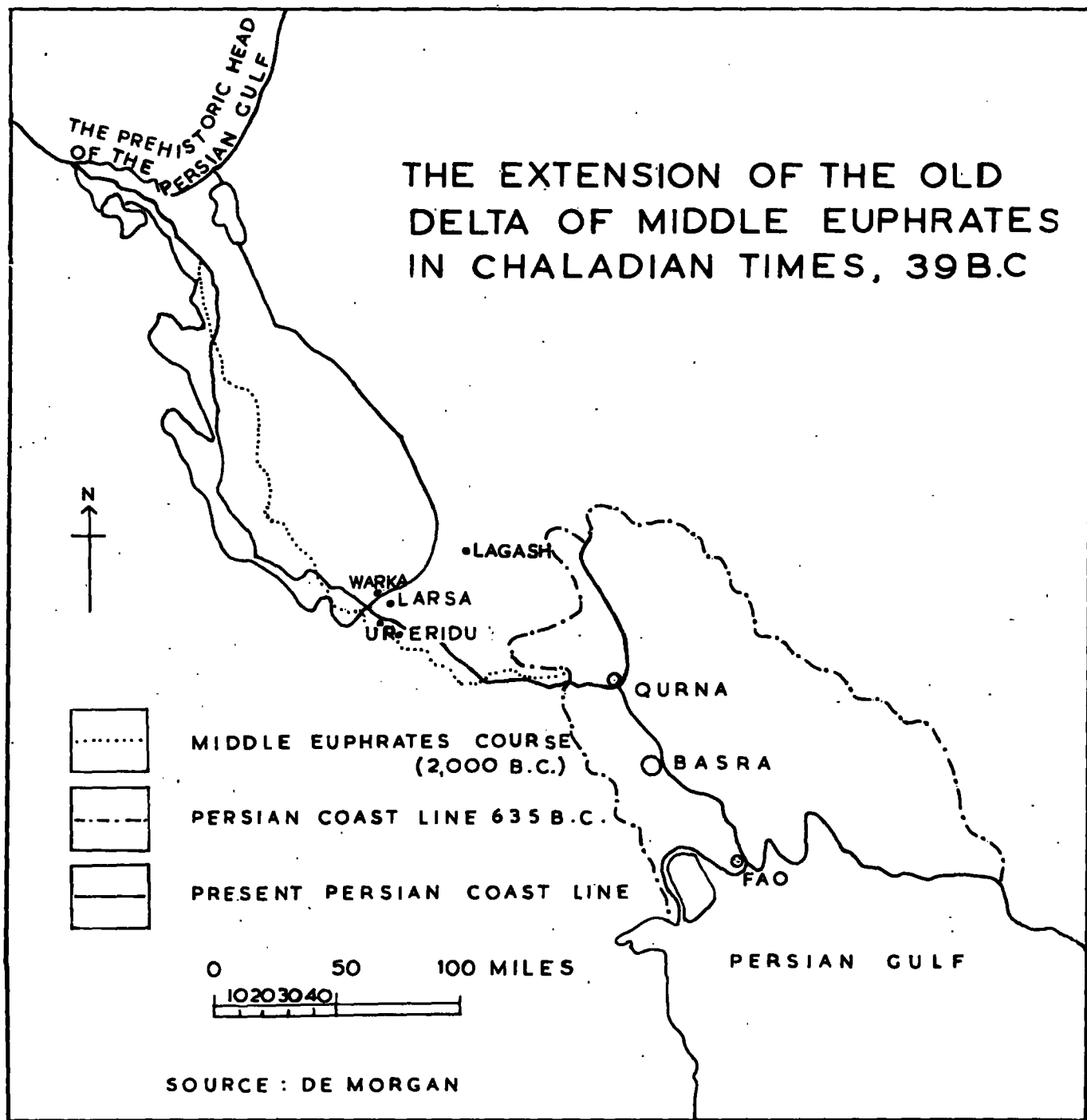


FIG. 6

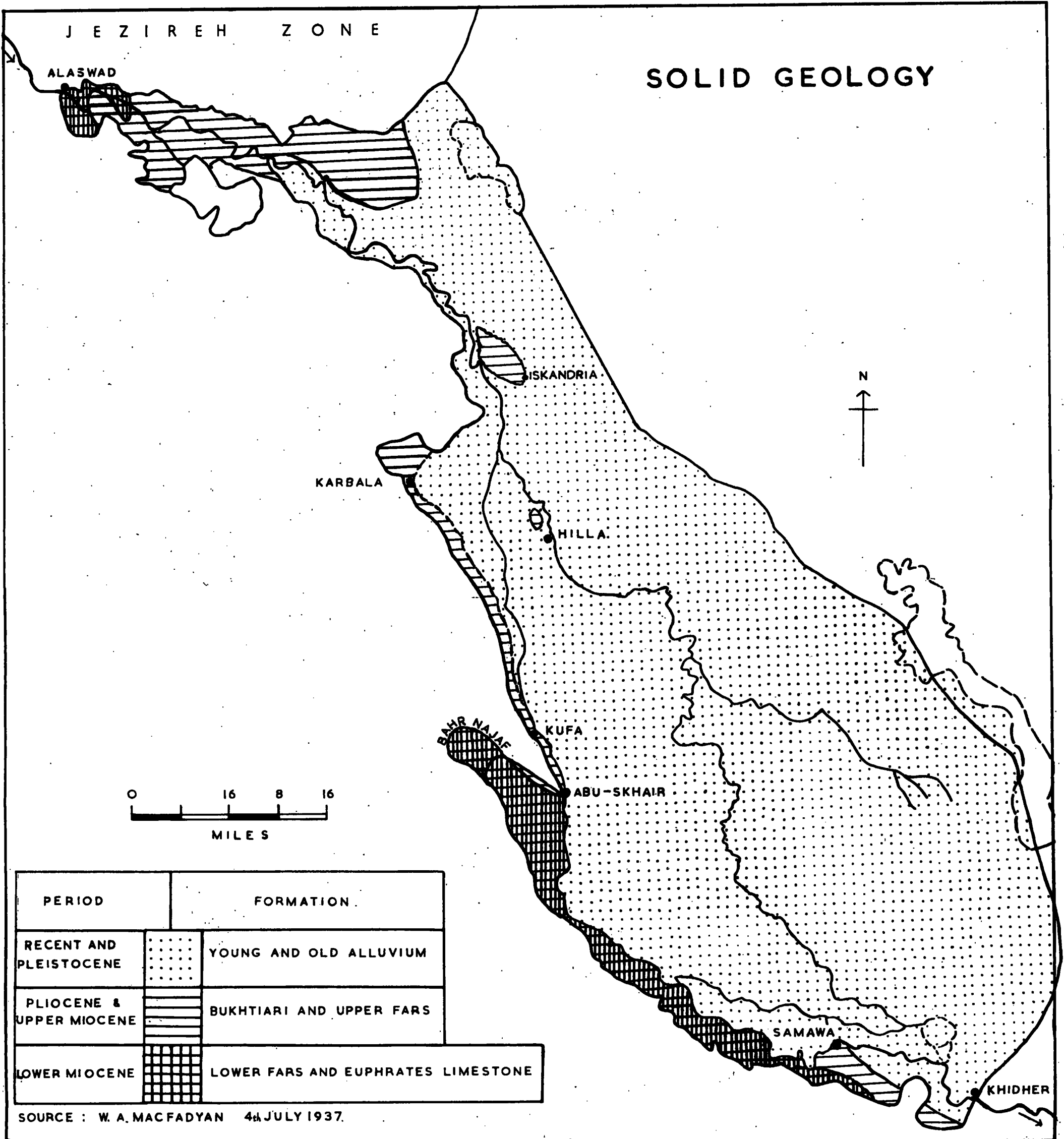
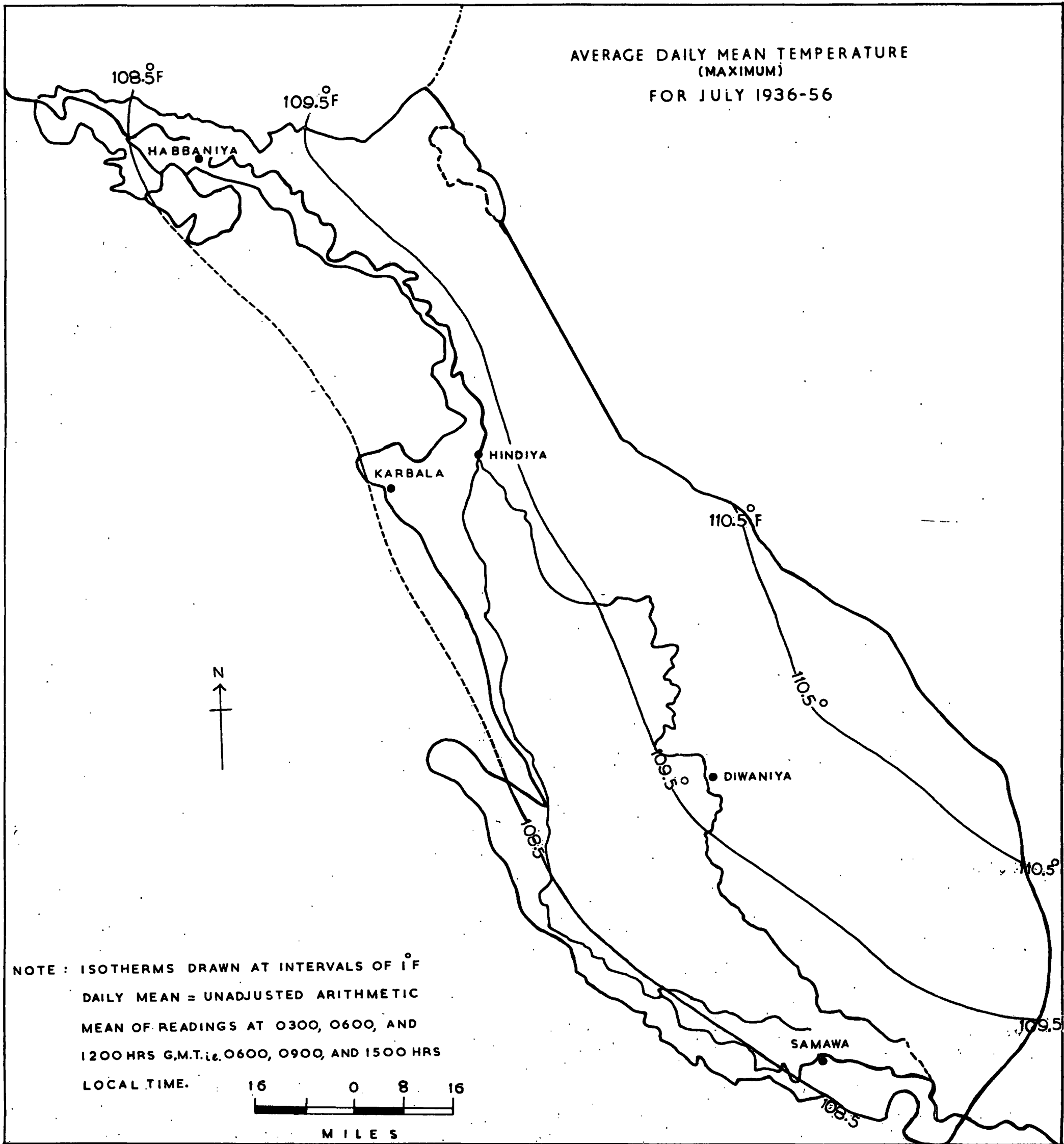


FIG. 7

AVERAGE DAILY MEAN TEMPERATURE
(MAXIMUM)
FOR JULY 1936-56

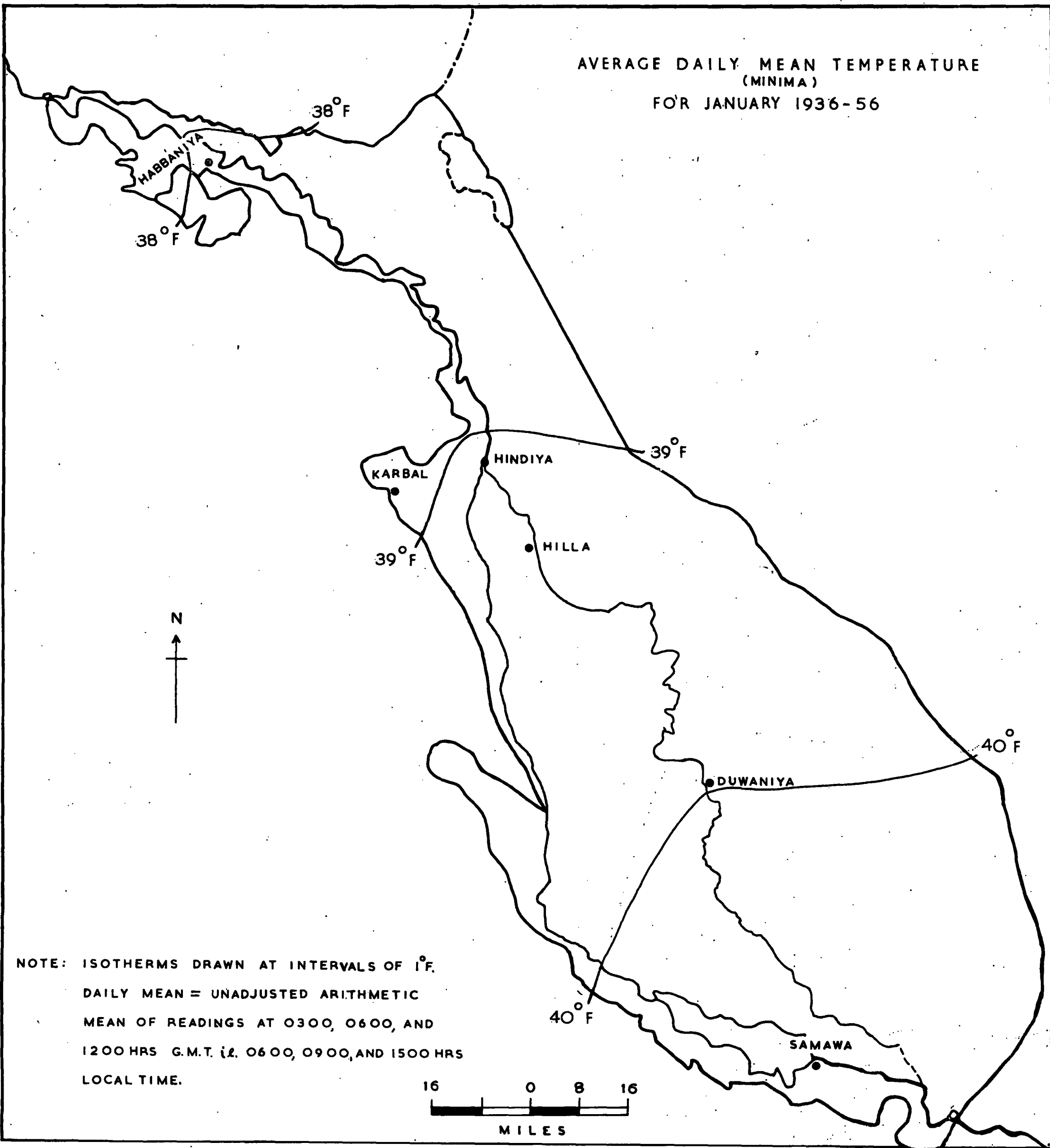


NOTE : ISOTHERMS DRAWN AT INTERVALS OF 1° F
DAILY MEAN = UNADJUSTED ARITHMETIC
MEAN OF READINGS AT 0300, 0600, AND
1200 HRS G.M.T. & 0600, 0900, AND 1500 HRS
LOCAL TIME.



FIG 8

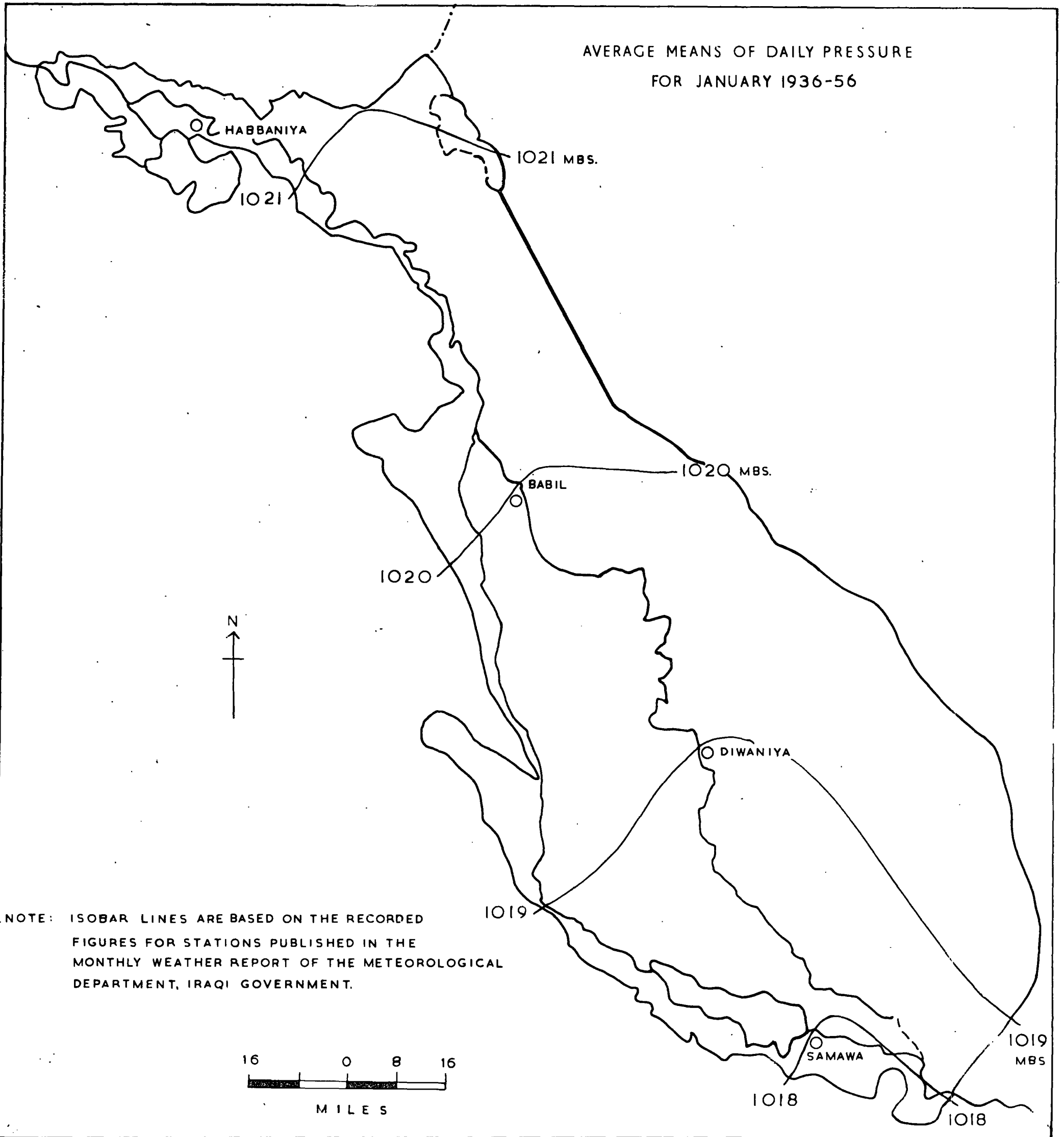
AVERAGE DAILY MEAN TEMPERATURE
(MINIMA)
FOR JANUARY 1936-56



NOTE: ISOTHERMS DRAWN AT INTERVALS OF 1° F.
DAILY MEAN = UNADJUSTED ARITHMETIC
MEAN OF READINGS AT 0300, 0600, AND
1200 HRS G.M.T. (i.e. 0600, 0900, AND 1500 HRS
LOCAL TIME.

FIG. 9

AVERAGE MEANS OF DAILY PRESSURE
FOR JANUARY 1936-56



NOTE: ISOBAR LINES ARE BASED ON THE RECORDED
FIGURES FOR STATIONS PUBLISHED IN THE
MONTHLY WEATHER REPORT OF THE METEOROLOGICAL
DEPARTMENT, IRAQI GOVERNMENT.

FIG. 10

999 MBS.

998 MBS.

AVERAGE MEANS OF DAILY PRESSURE
FOR JULY, 1936-56

HABBANIYA

KARBALA



1000 MBS.

DIWANIYA

998 MBS.

NOTE: ISOBAR LINES ARE BASED ON THE RECORDED
FIGURES FOR STATIONS PUBLISHED IN THE
MONTHLY WEATHER REPORT OF THE METEOROLOGICAL
DEPARTMENT, IRAQI GOVERNMENT.

16 0 8 16



MILES

1000 MBS.

SAMAWA

999 MBS.

FIG. 11

AVERAGE FREQUENCY AND WIND DIRECTION
 AT HABBANIYA, AND DIWANIYA STATIONS
 JANUARY 1936-56

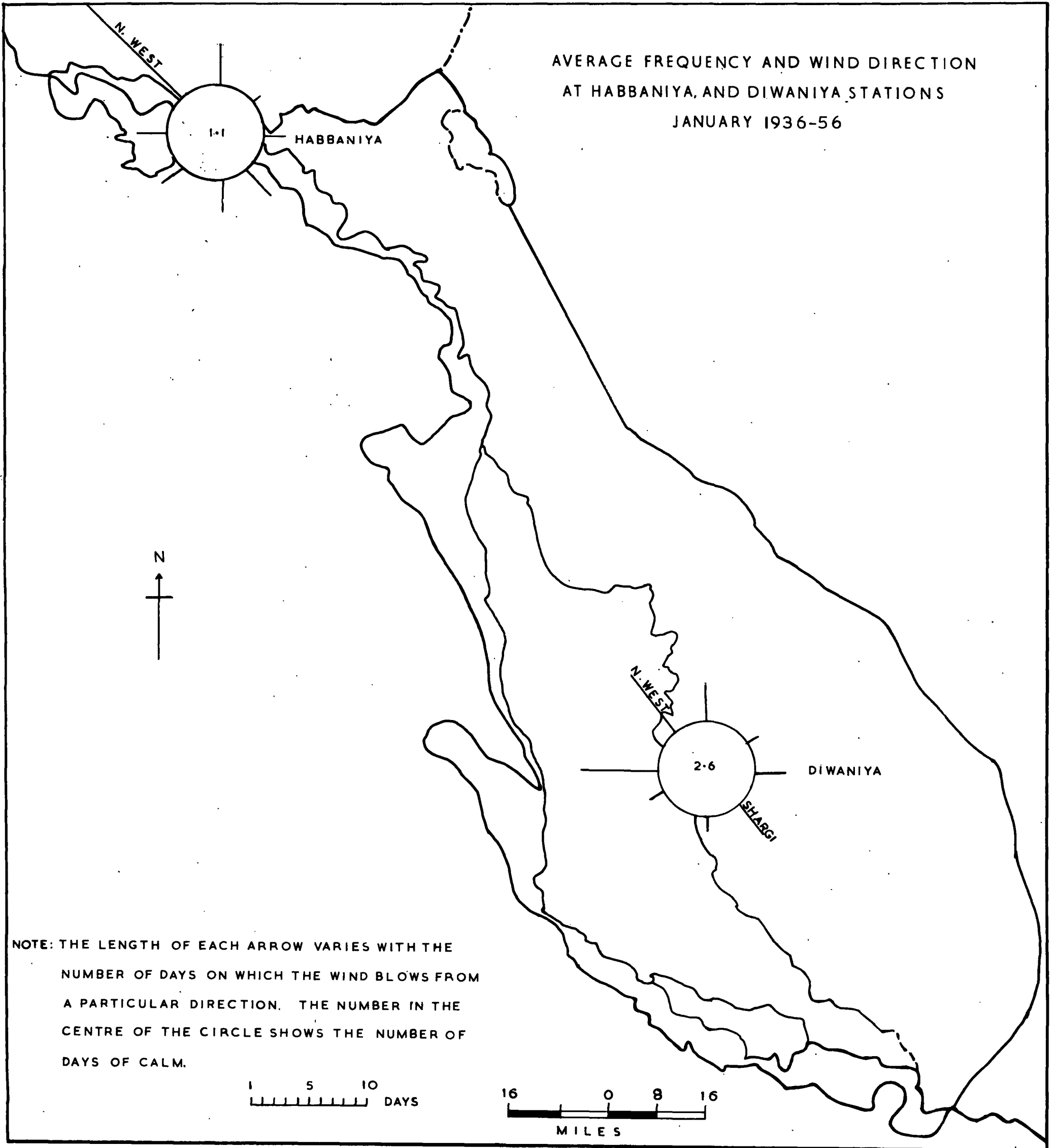


FIG. 12

AVERAGE FREQUENCY AND WIND DIRECTION
AT HABBANIYA, AND DIWANIYA STATIONS, FOR
JULY 1936-56



NOTE: THE LENGTH OF EACH ARROW VARIES WITH THE
NUMBER OF DAYS ON WHICH THE WIND BLOWS FROM
A PARTICULAR DIRECTION. THE NUMBER IN THE CENTRE
OF THE CIRCLE SHOWS THE NUMBER OF DAYS OF CALM.

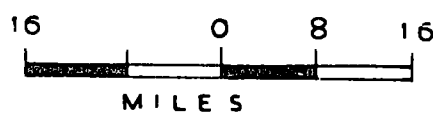


FIG. 13

AVERAGE ANNUAL RAINFALL
1936-1956

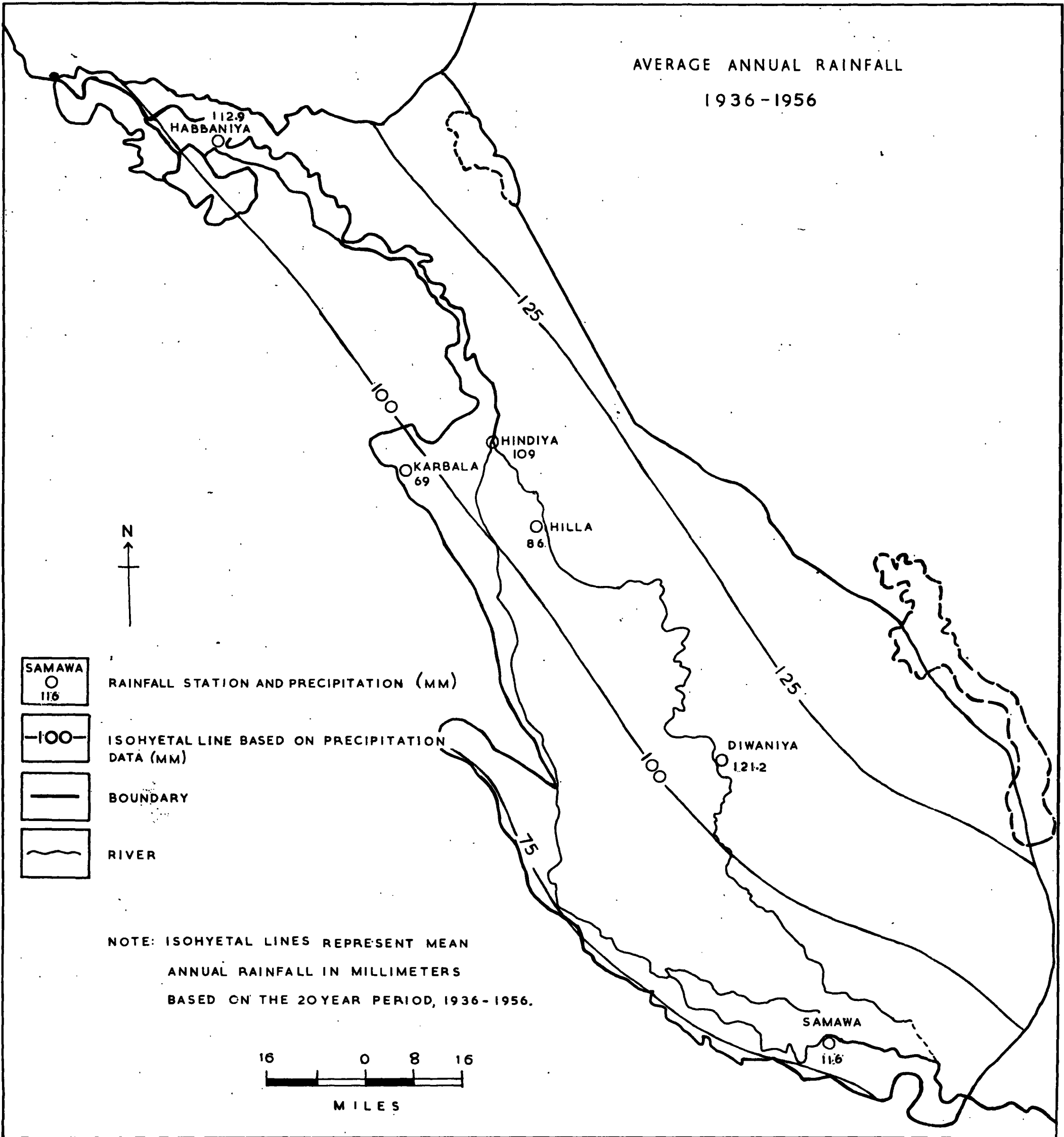


FIG. 14

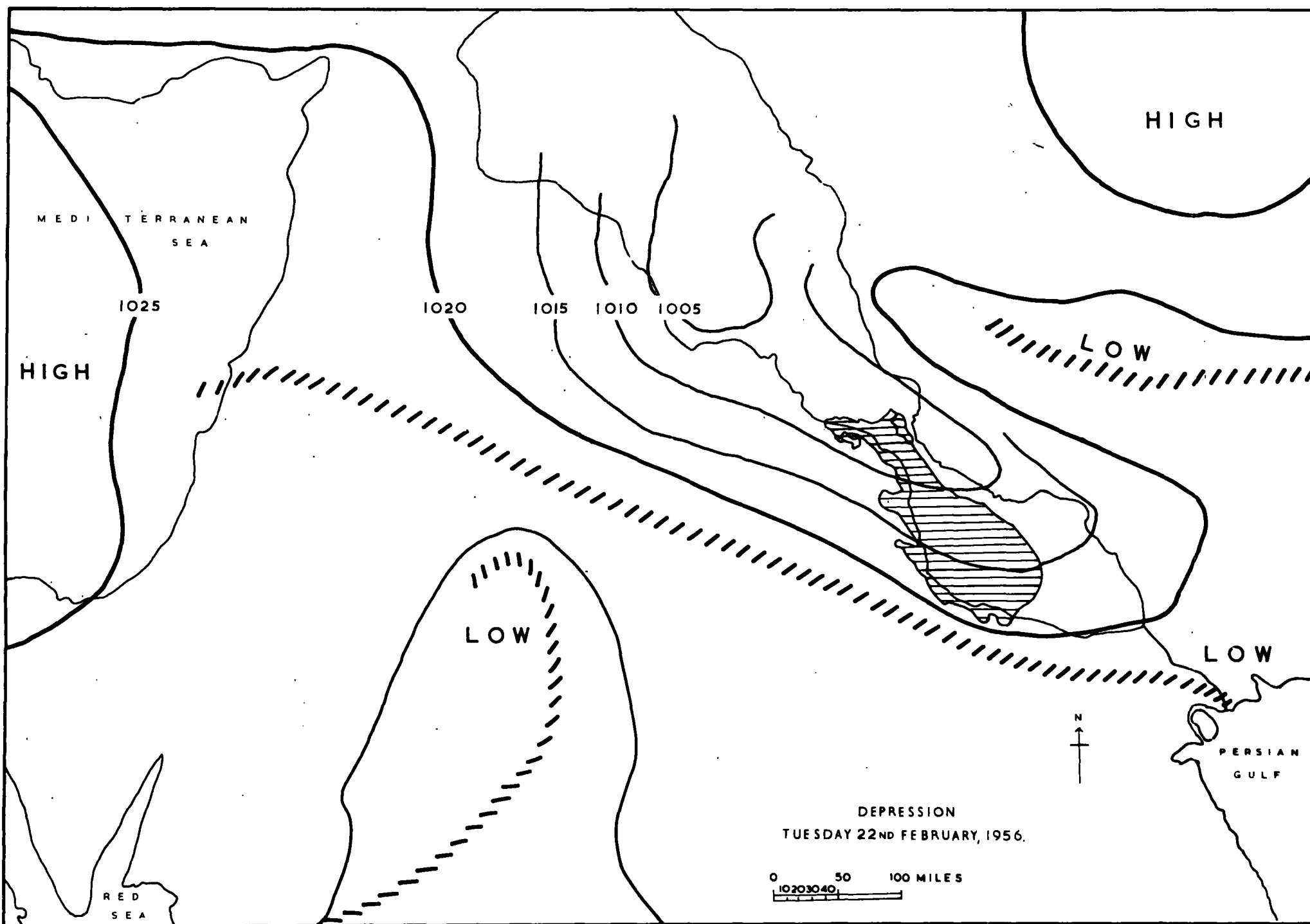


FIG-15

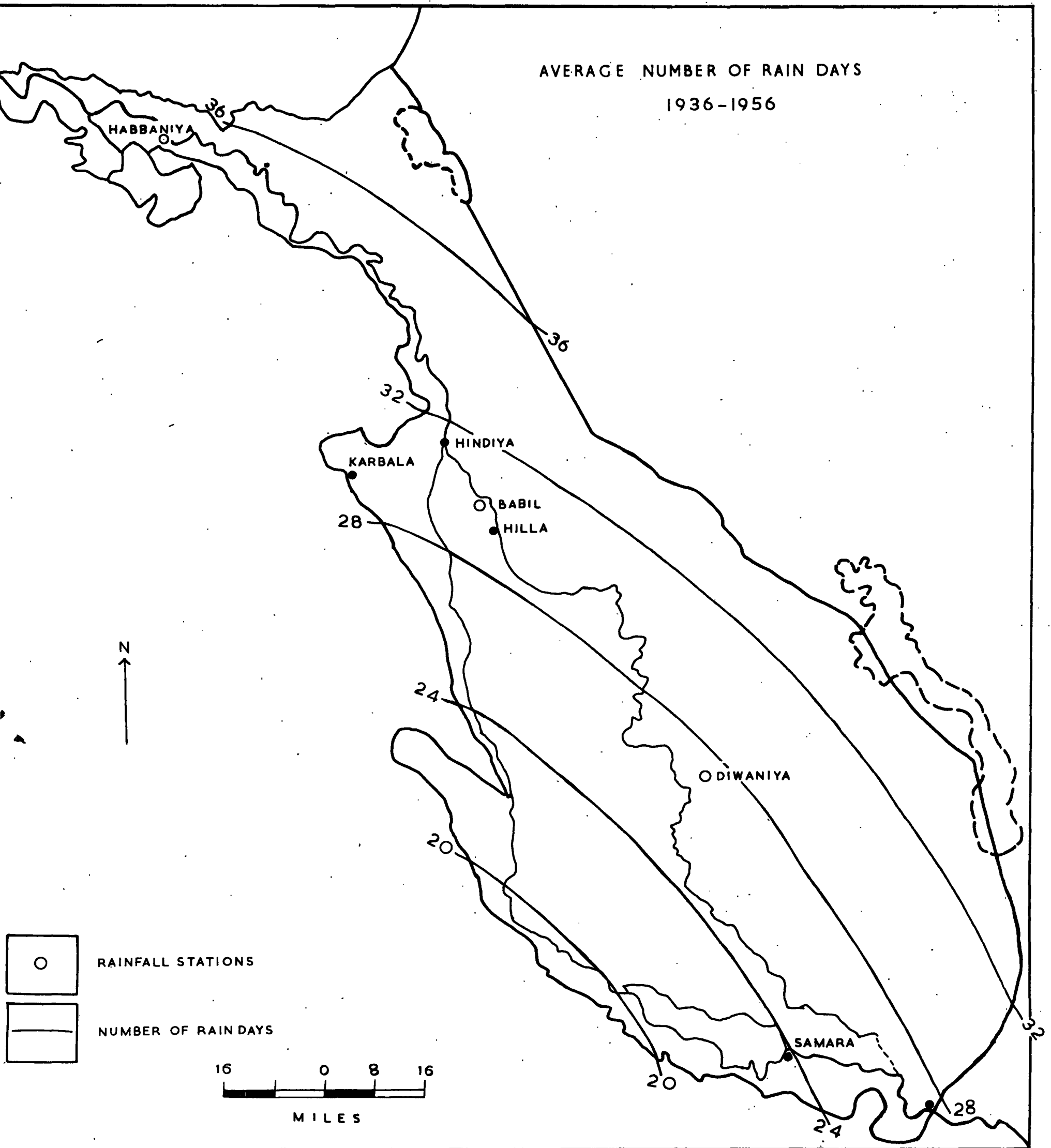


FIG. 16

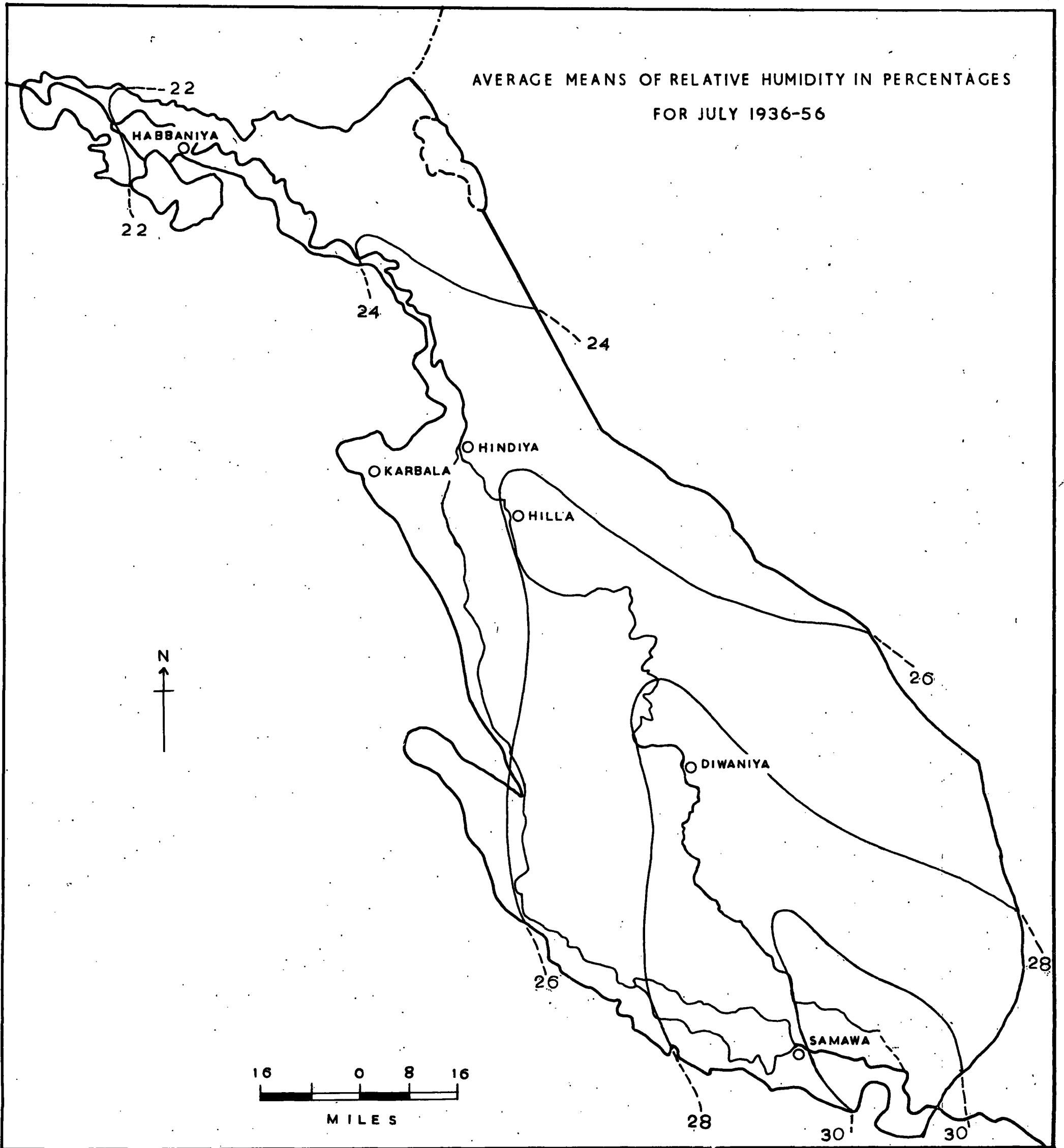


FIG. 17

MEANS OF RELATIVE HUMIDITY IN PERCENTAGES
FOR JANUARY 1936-56

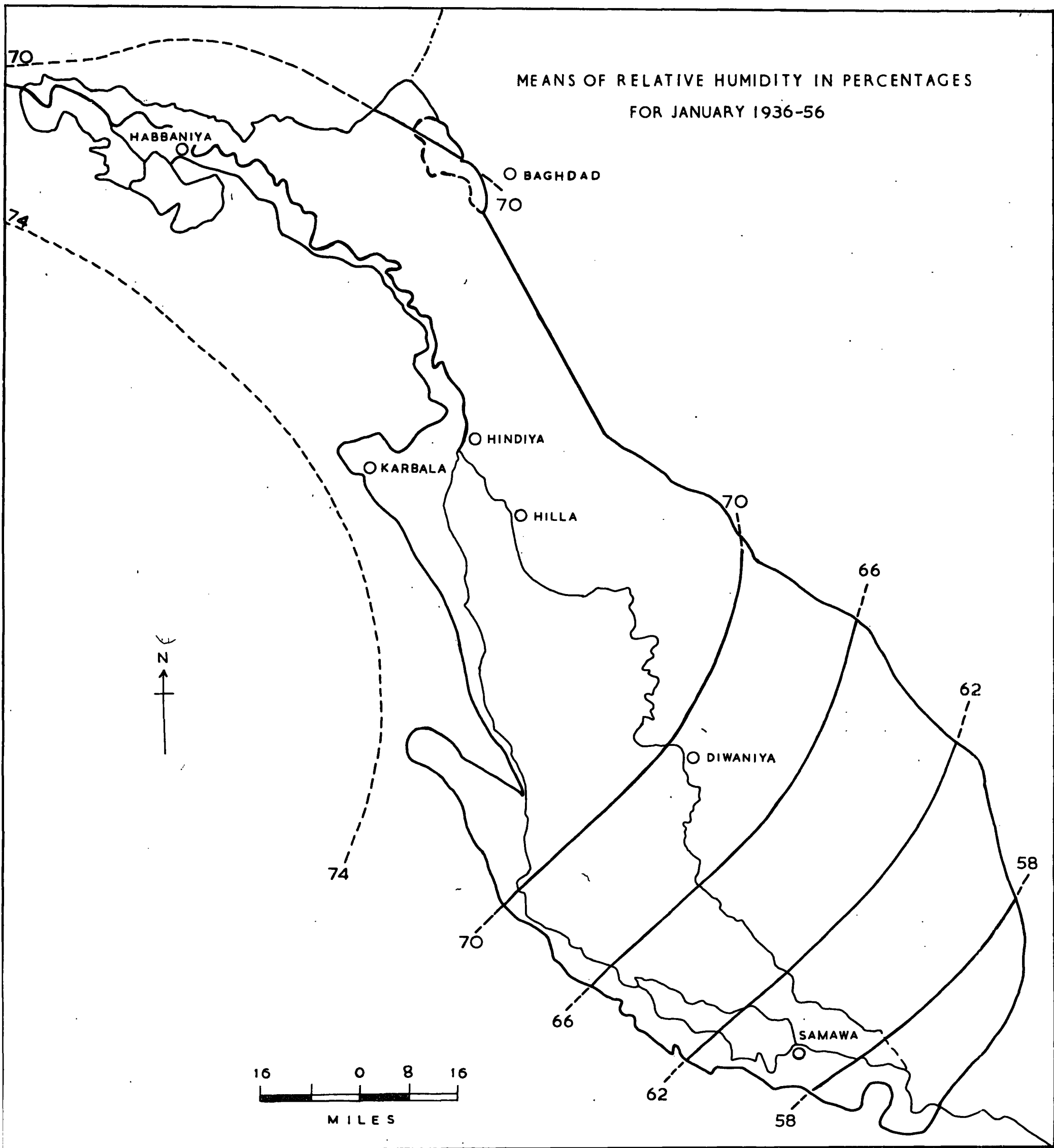
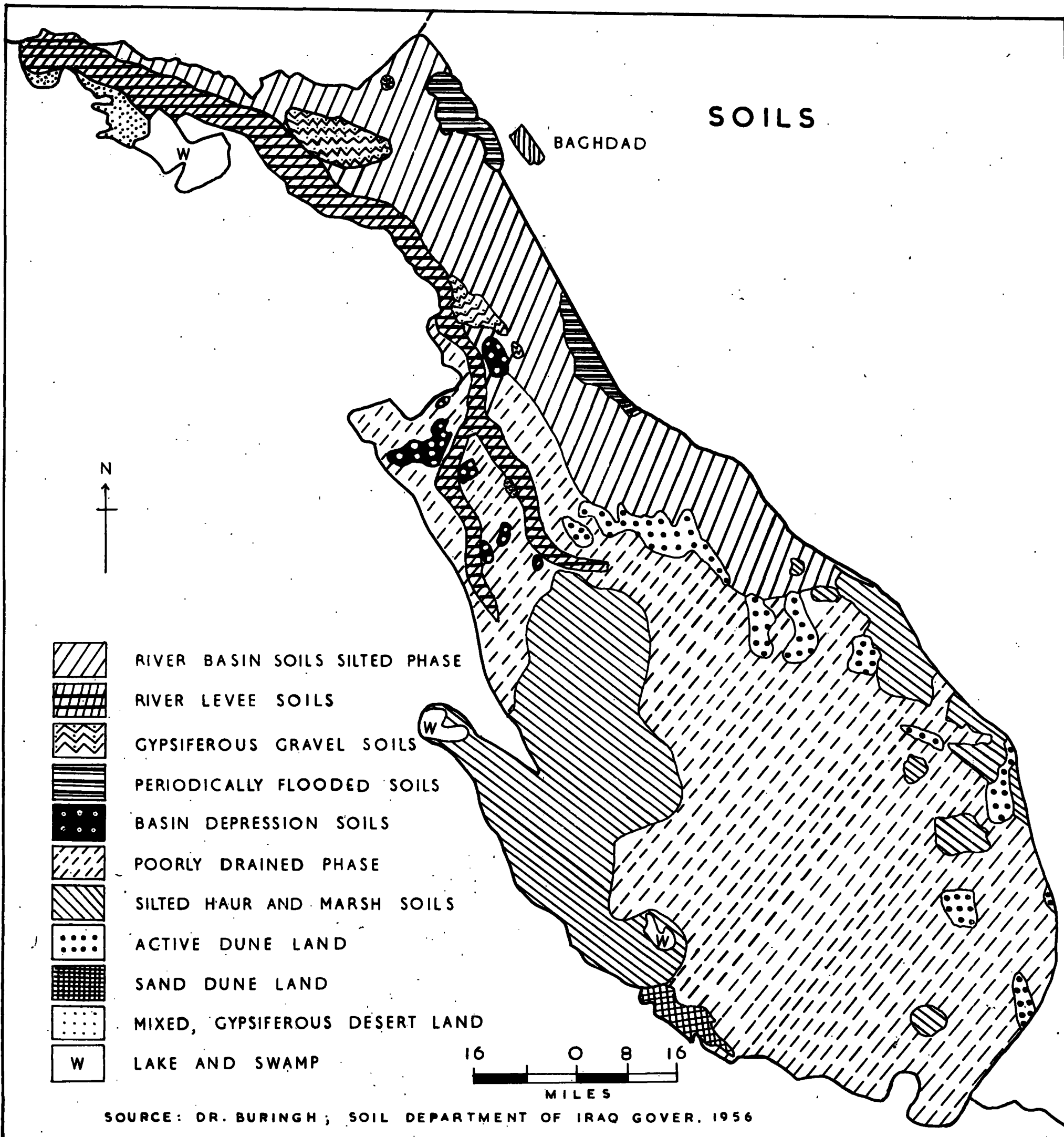









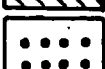

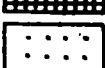
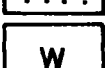
FIG. 18



SOILS

BAGHDAD



-  RIVER BASIN SOILS SILTED PHASE
-  RIVER LEVEE SOILS
-  GYPSIFEROUS GRAVEL SOILS
-  PERIODICALLY FLOODED SOILS
-  BASIN DEPRESSION SOILS
-  POORLY DRAINED PHASE
-  SILTED HAUR AND MARSH SOILS
-  ACTIVE DUNE LAND
-  SAND DUNE LAND
-  MIXED, GYPSIFEROUS DESERT LAND
-  LAKE AND SWAMP



SOURCE: DR. BURINGH ; SOIL DEPARTMENT OF IRAQ GOVER. 1956

FIG. 19

LAND CLASSIFICATION, 1957

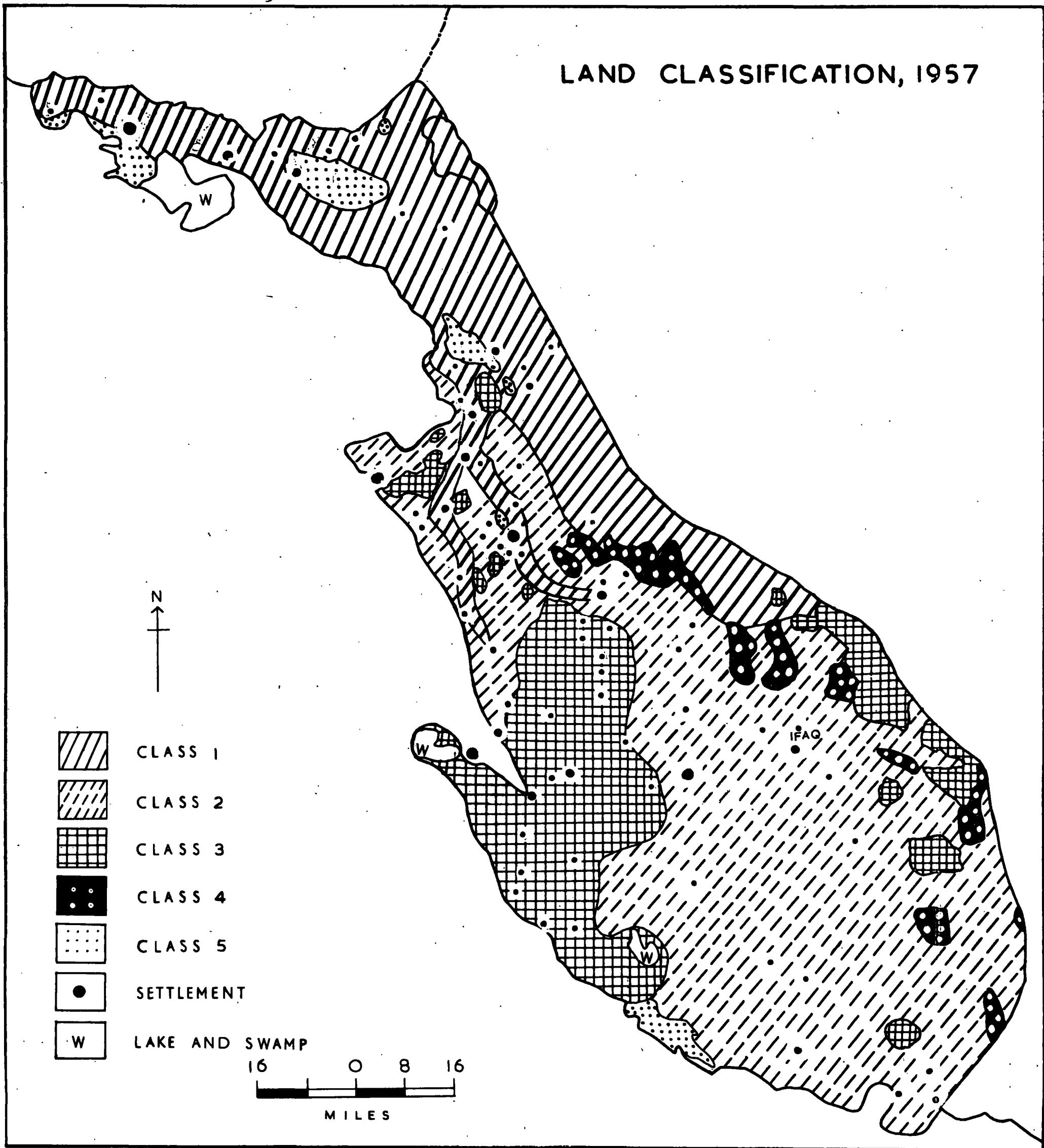
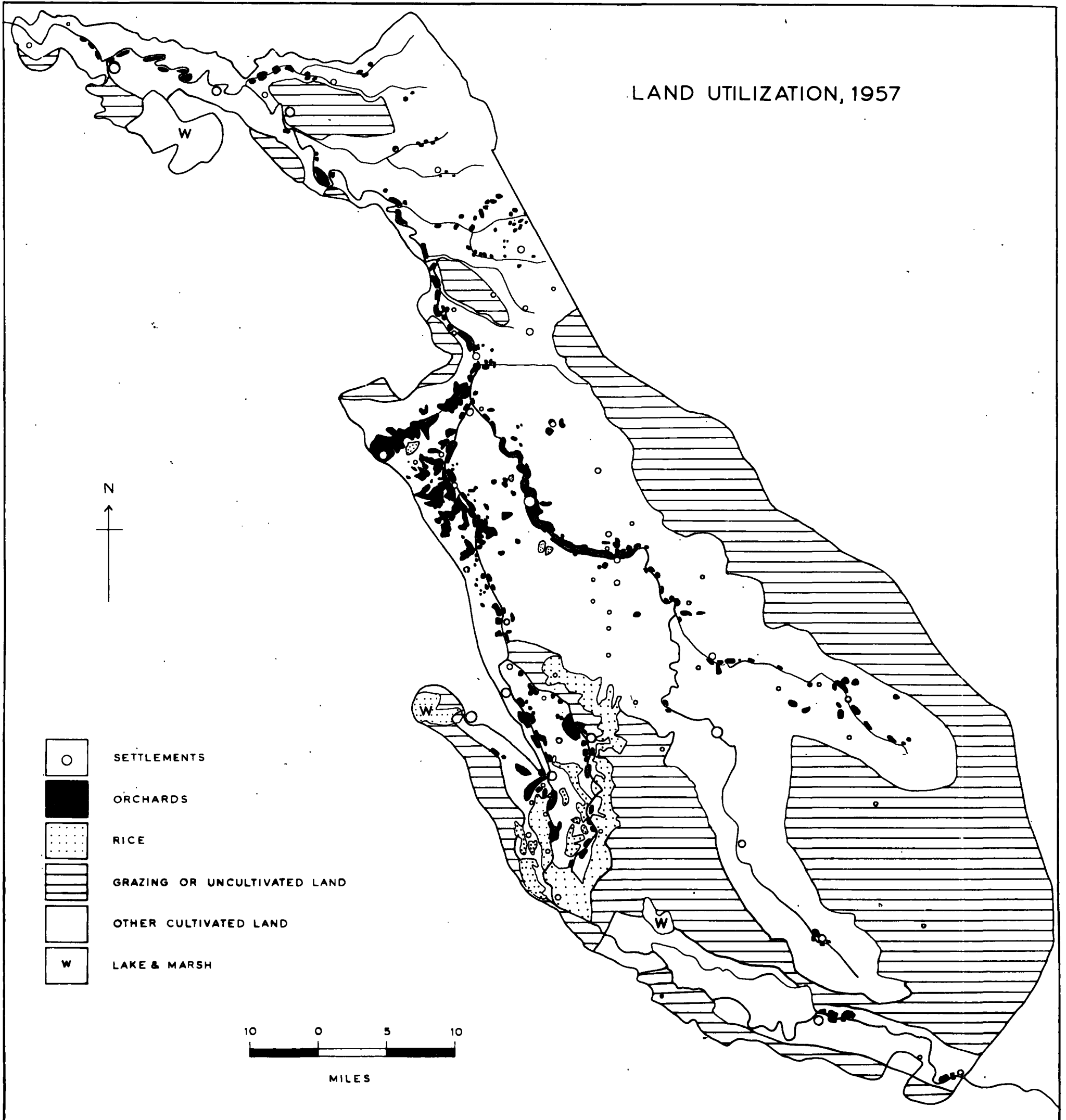








FIG. 20

LAND UTILIZATION, 1957

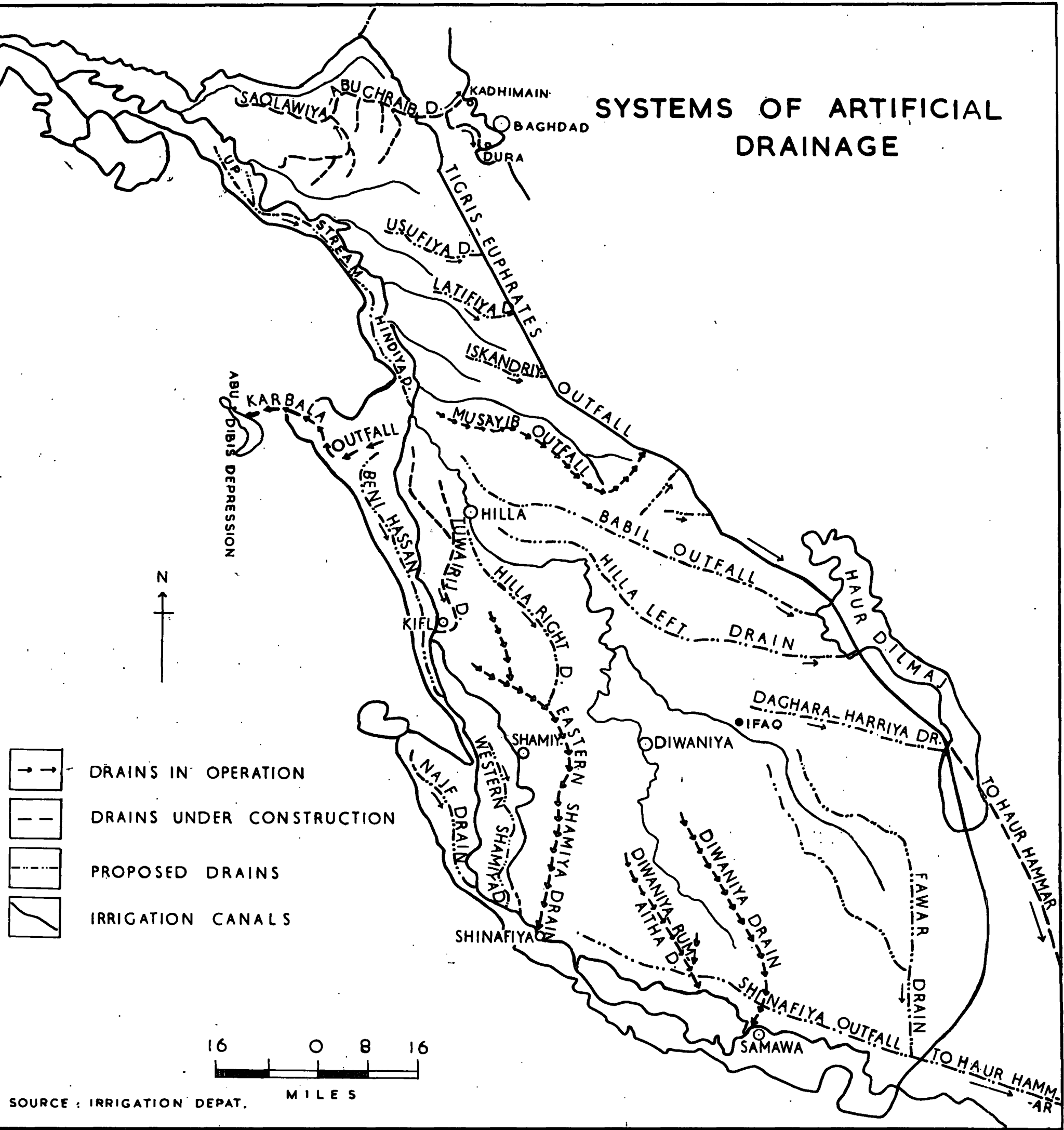


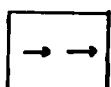
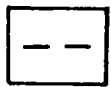
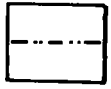

-  SETTLEMENTS
-  ORCHARDS
-  RICE
-  GRAZING OR UNCULTIVATED LAND
-  OTHER CULTIVATED LAND
-  LAKE & MARSH

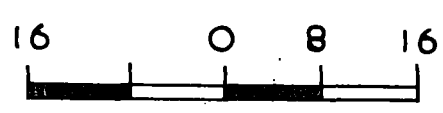
10 0 5 10
MILES

FIG. 21

SYSTEMS OF ARTIFICIAL DRAINAGE



-  DRAINS IN OPERATION
-  DRAINS UNDER CONSTRUCTION
-  PROPOSED DRAINS
-  IRRIGATION CANALS



SOURCE : IRRIGATION DEPAT.

FIG. 22

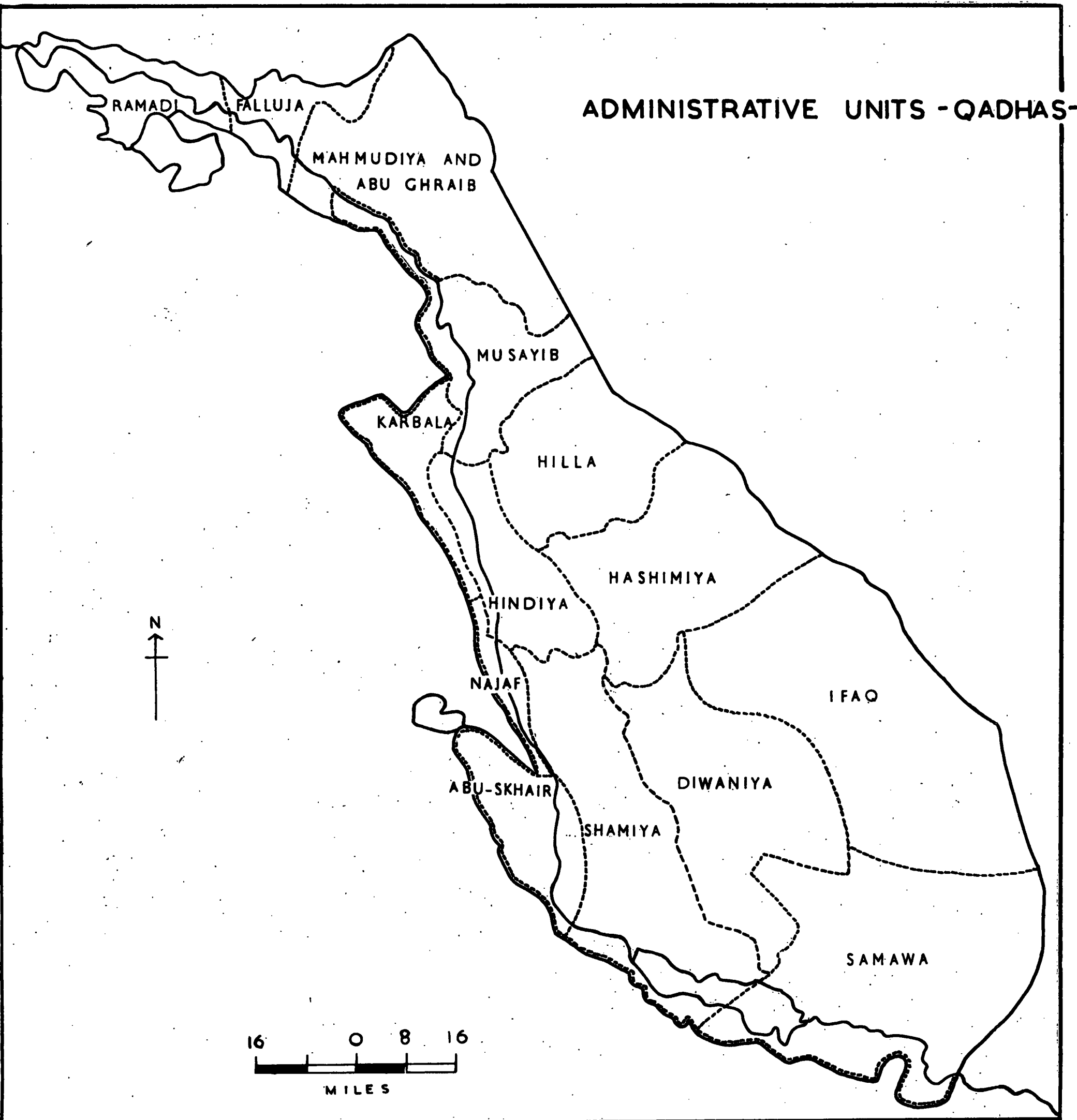
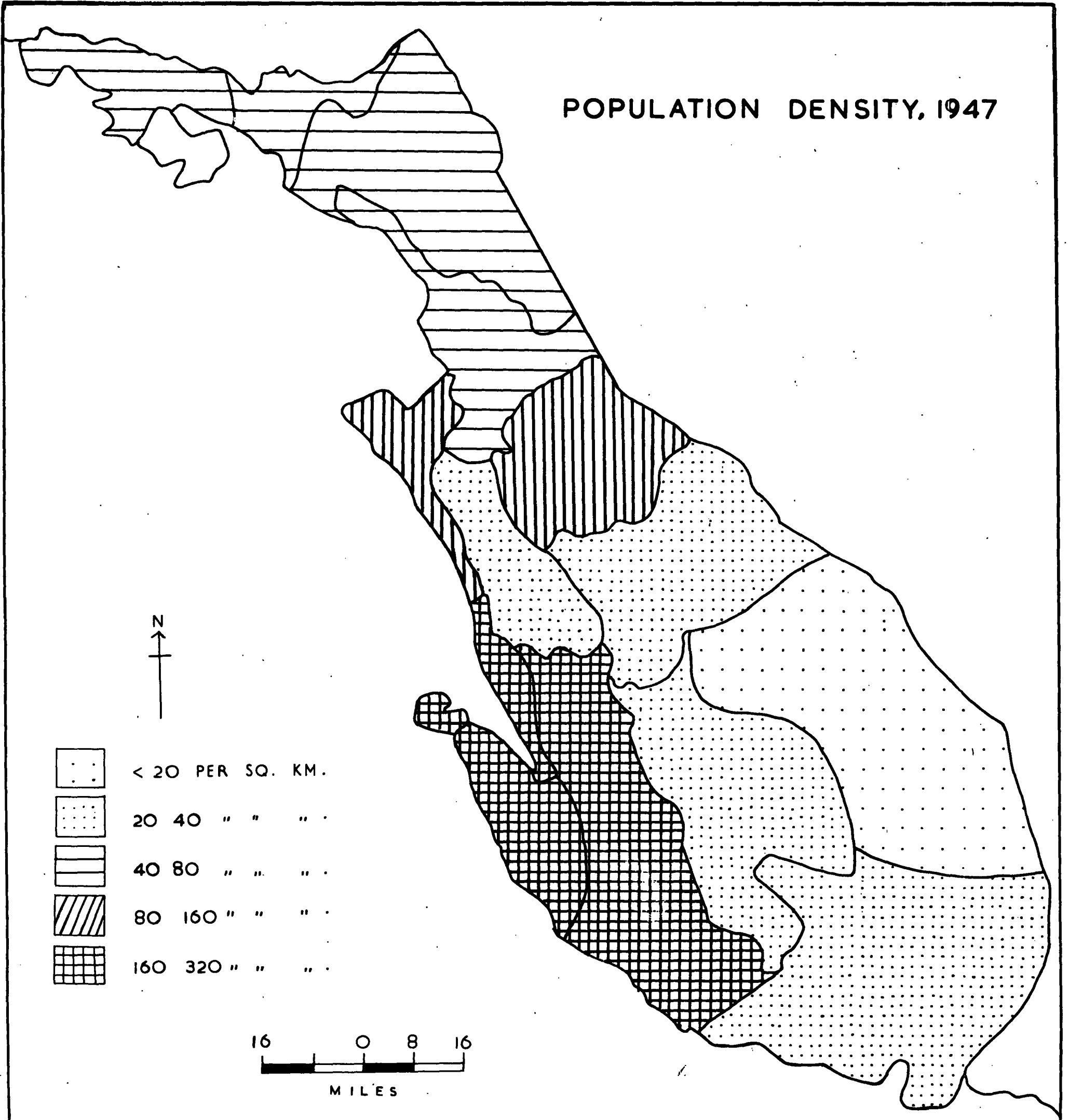


FIG. 23

POPULATION DENSITY, 1947








	< 20 PER SQ. KM.
	20 40 " " " "
	40 80 " " " "
	80 160 " " " "
	160 320 " " " "



FIG. 24

POPULATION DENSITY, 1957

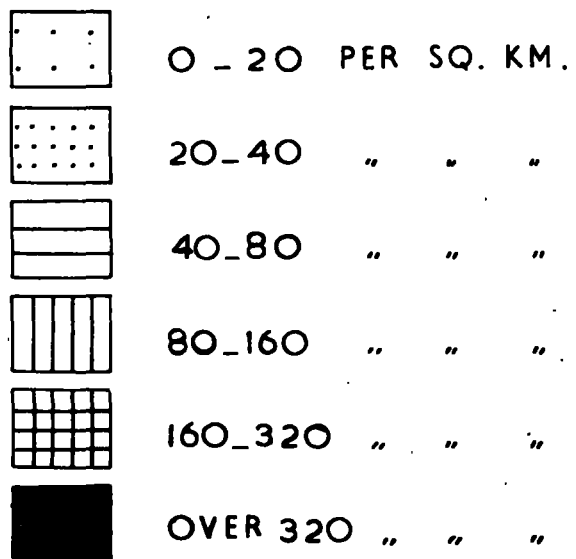


FIG. 25(A)

AREAS OF SOIL SALINITY (LOCATION OF PROJECT AREAS)

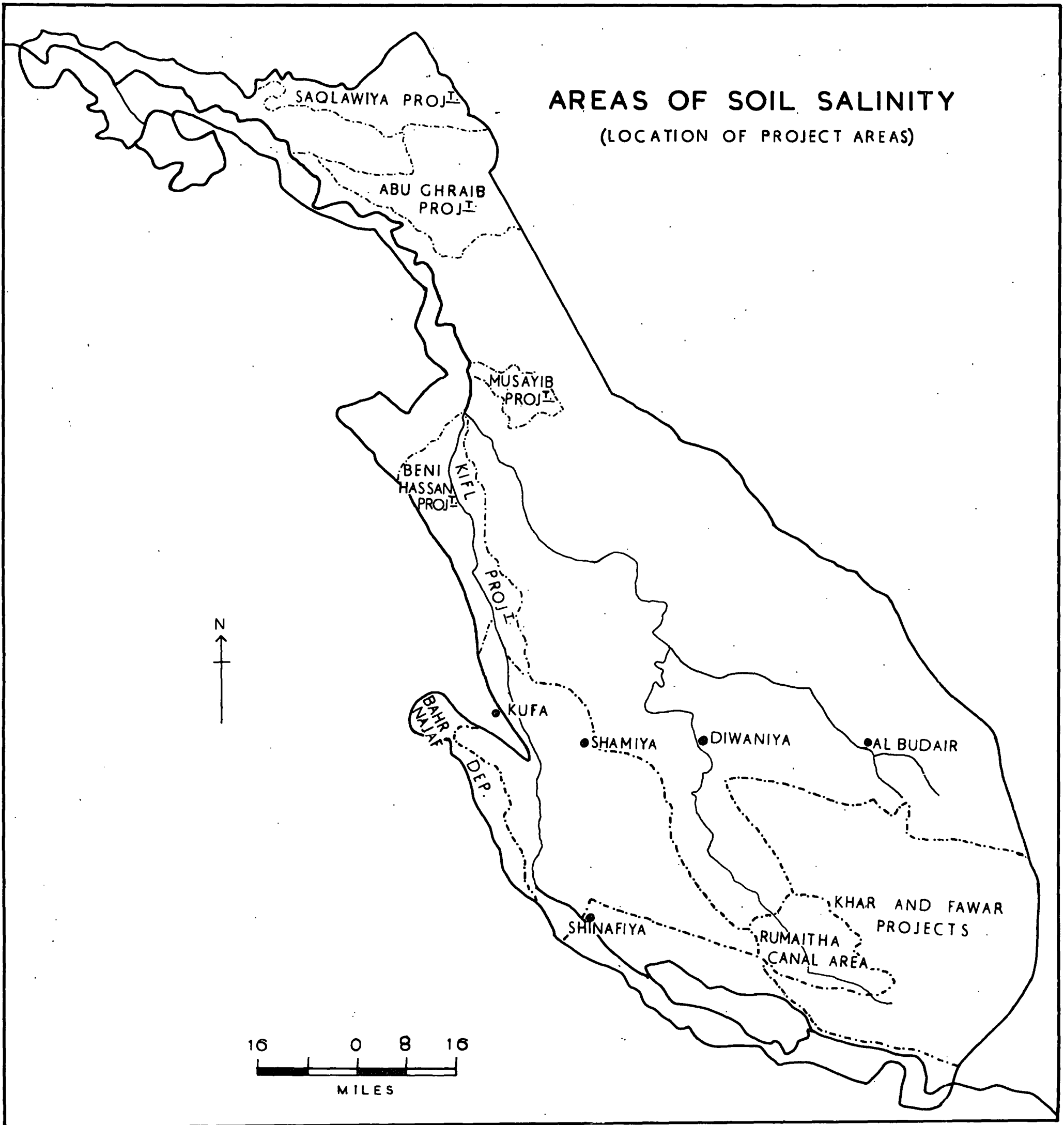


FIG. 25(B)

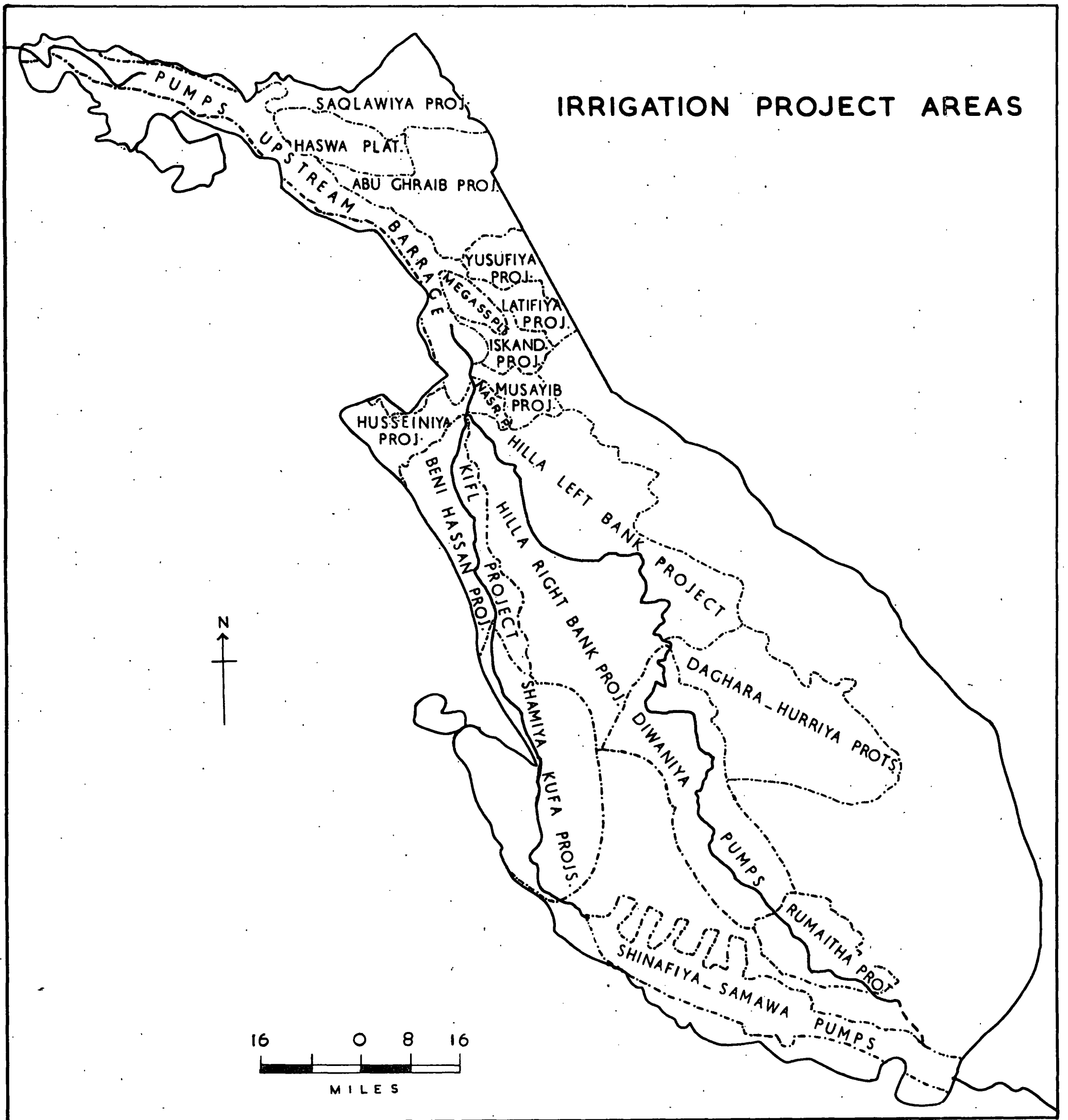
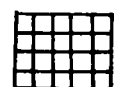


FIG. 26

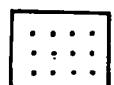
METHODS OF IRRIGATION EMPLOYED



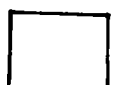
FLOODING IRRIGATION AREAS



PUMPING IRRIGATION AREAS



CHANNEL IRRIGATION AREAS



NON IRRIGATION AREA



MILES

FIG. 27

PROPOSED IRRIGATION PROJECTS

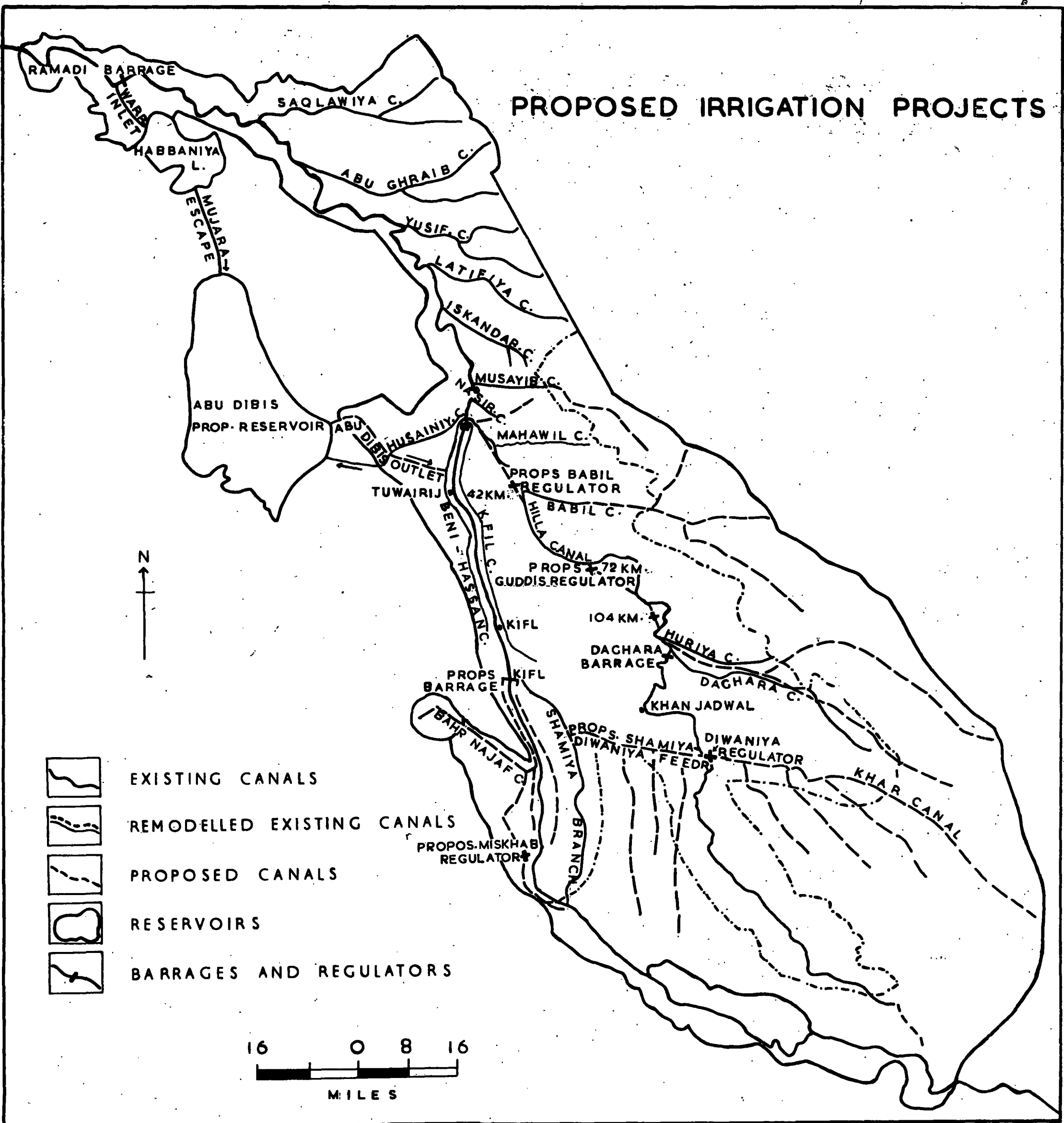


FIG. 28

PROPOSED IRRIGATION PROJECT AREAS

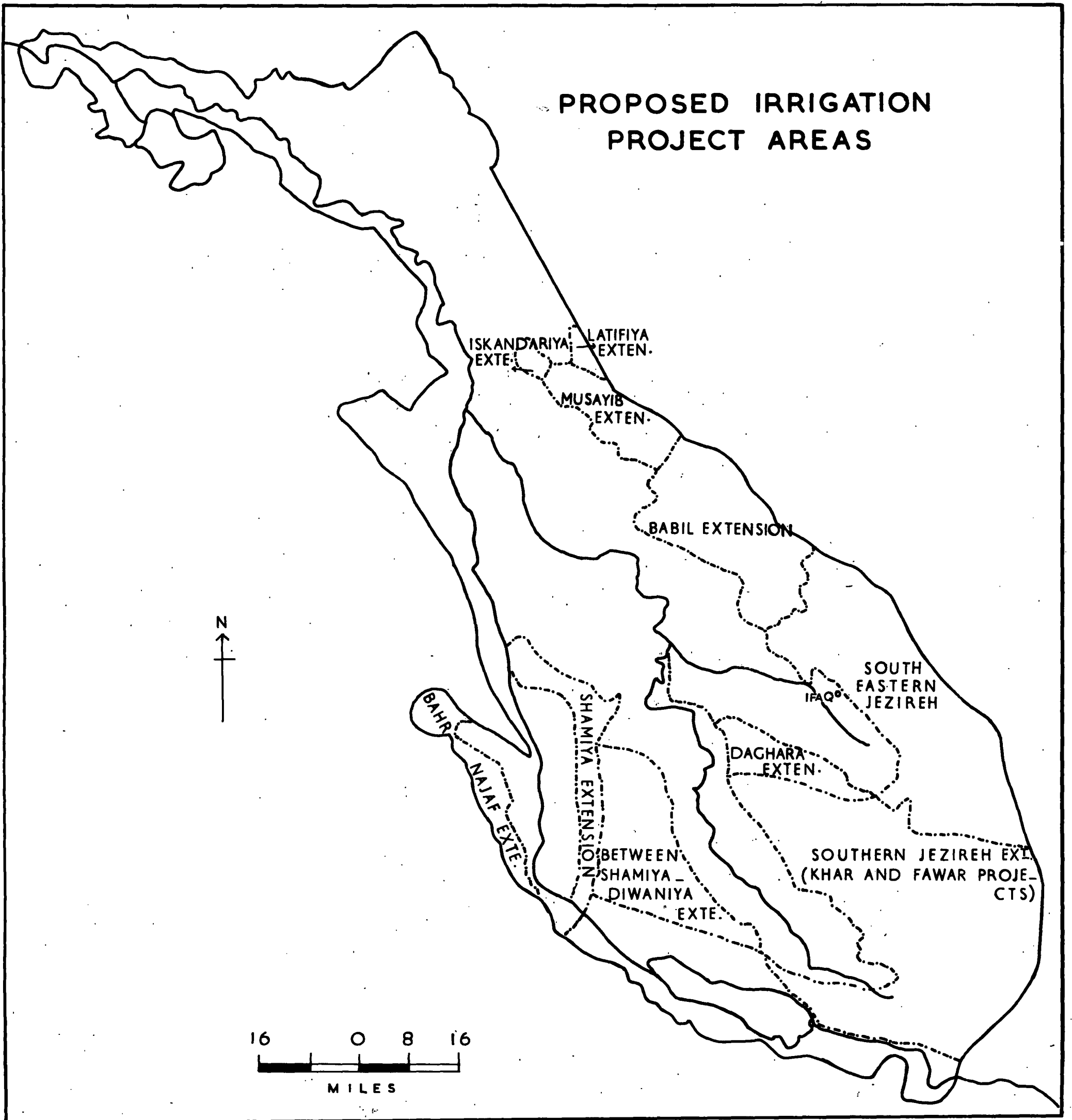


FIG. 29

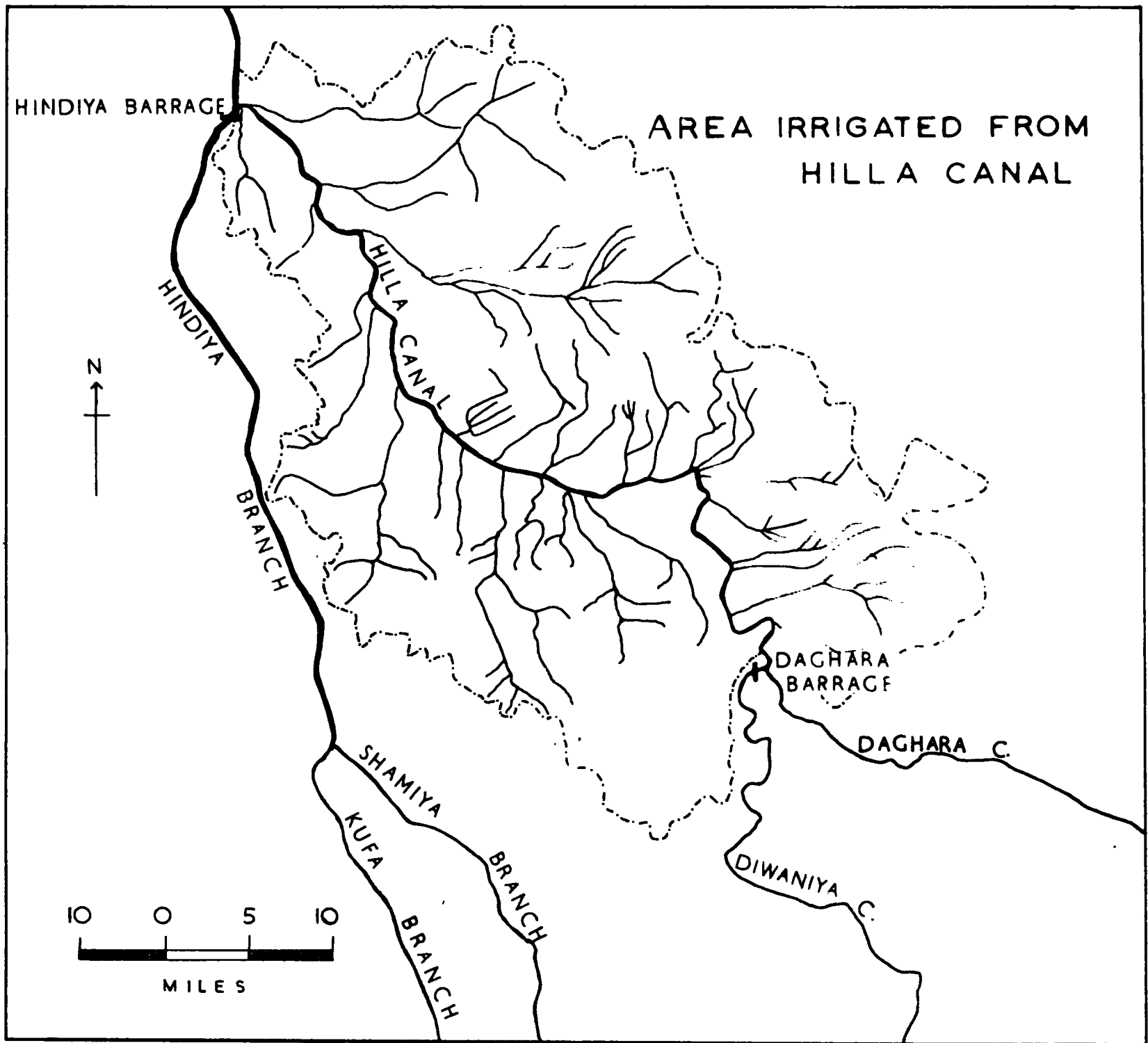


FIG. 30

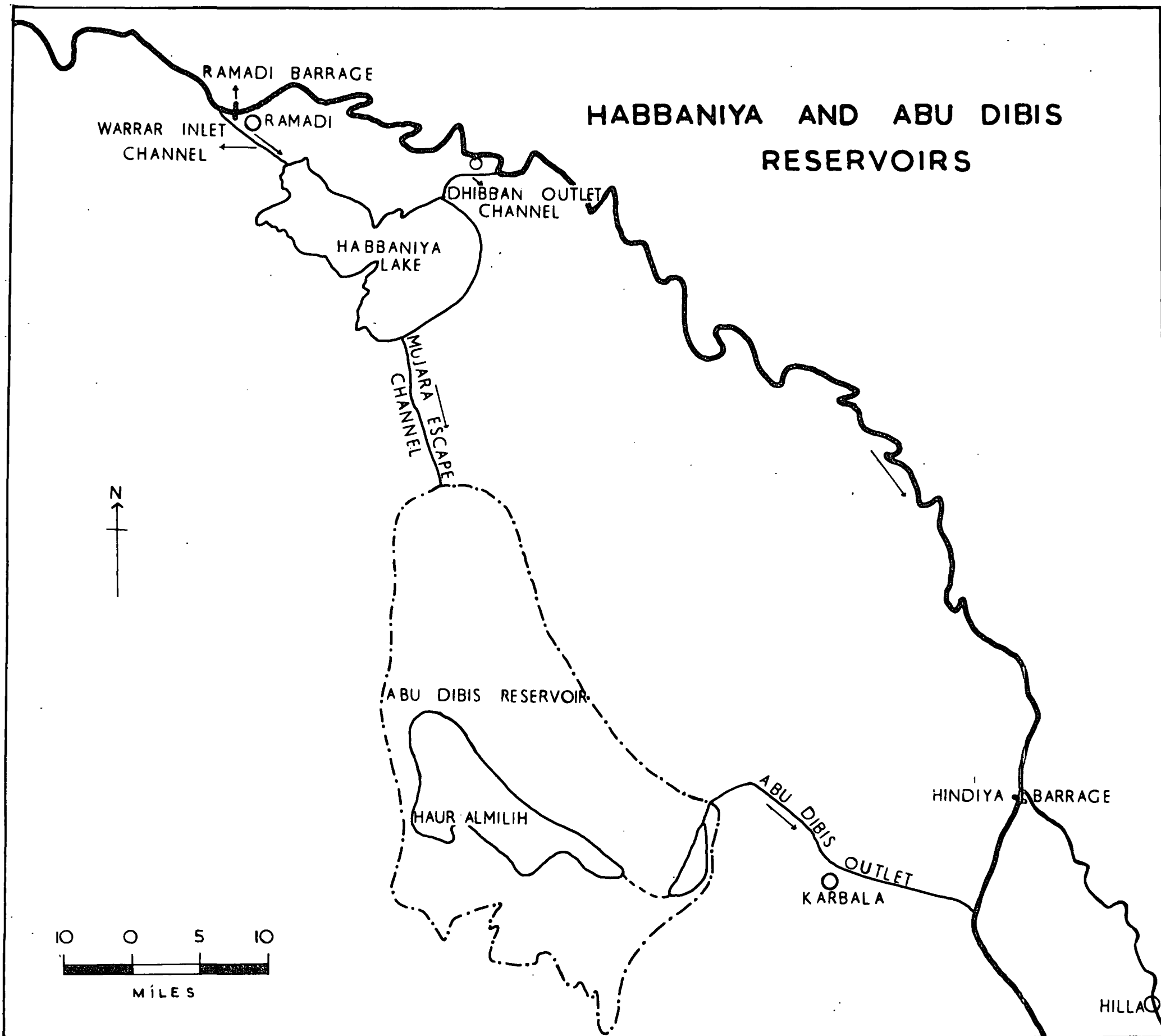


FIG. 31

AGRICULTURAL REGIONS

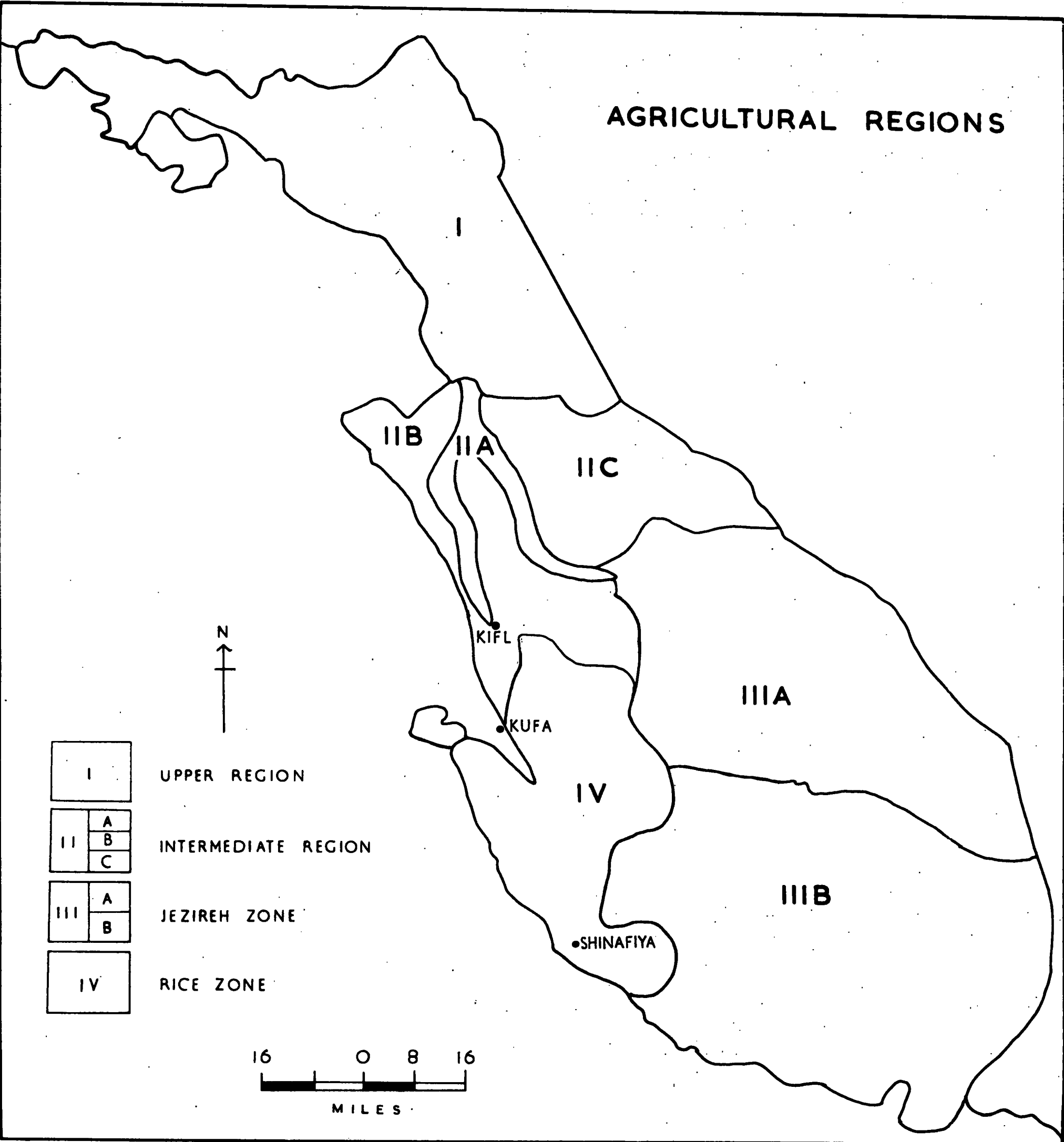


FIG. 32

DISTRIBUTION OF BARLEY
BY QADHAS, 1957
(IN MESHARAS)

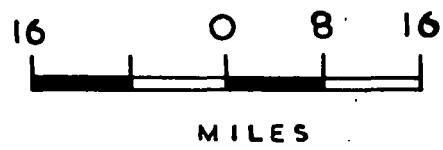
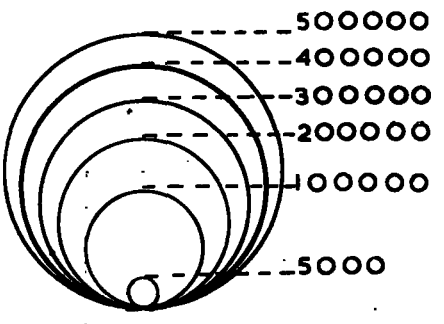


FIG. 33

DISTRIBUTION OF WHEAT
BY QADHAS, 1957
(IN MESHARAS)

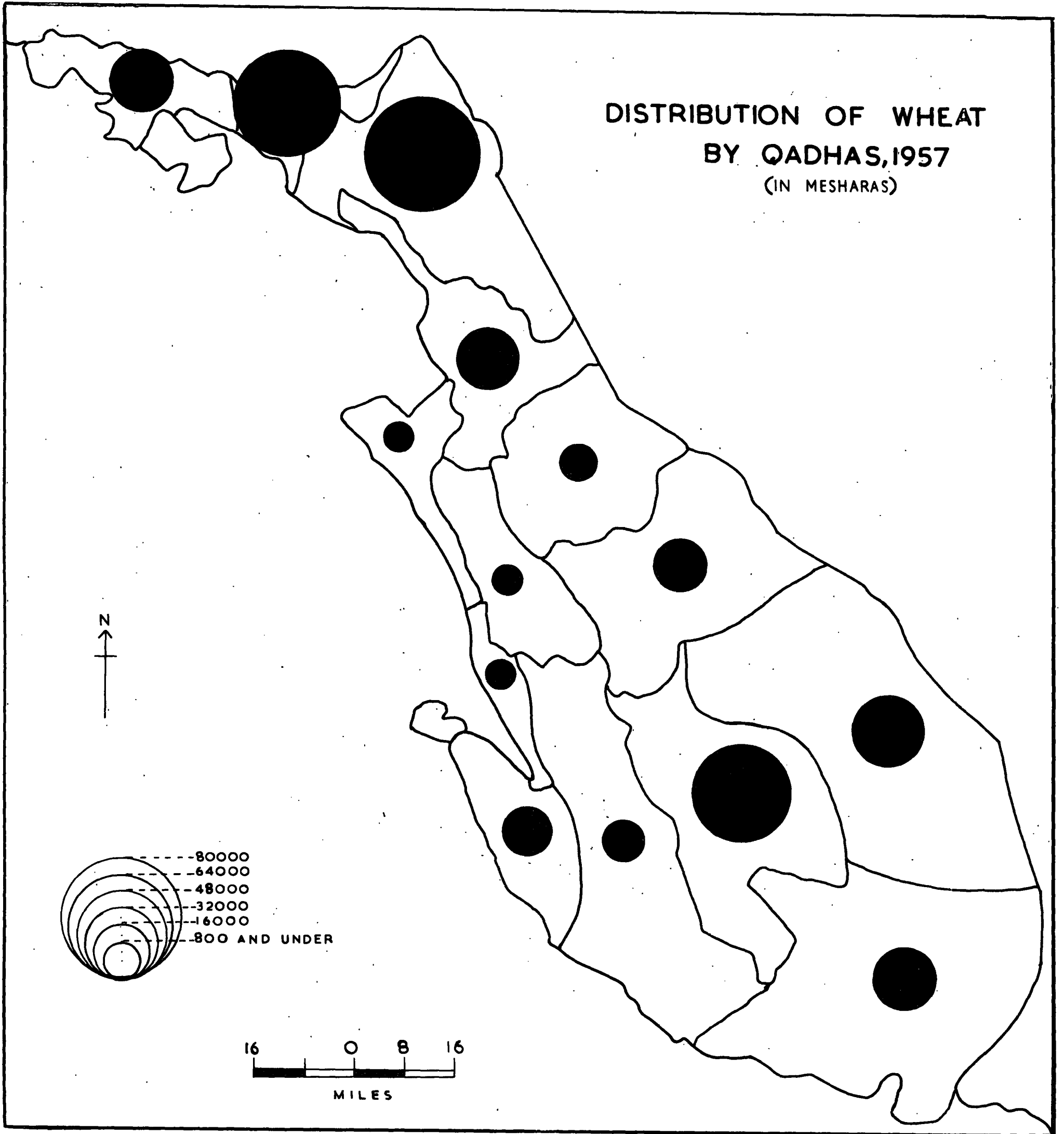


FIG. 34

DISTRIBUTION OF RICE BY
QADHAS, 1957
(IN MESHARAS)

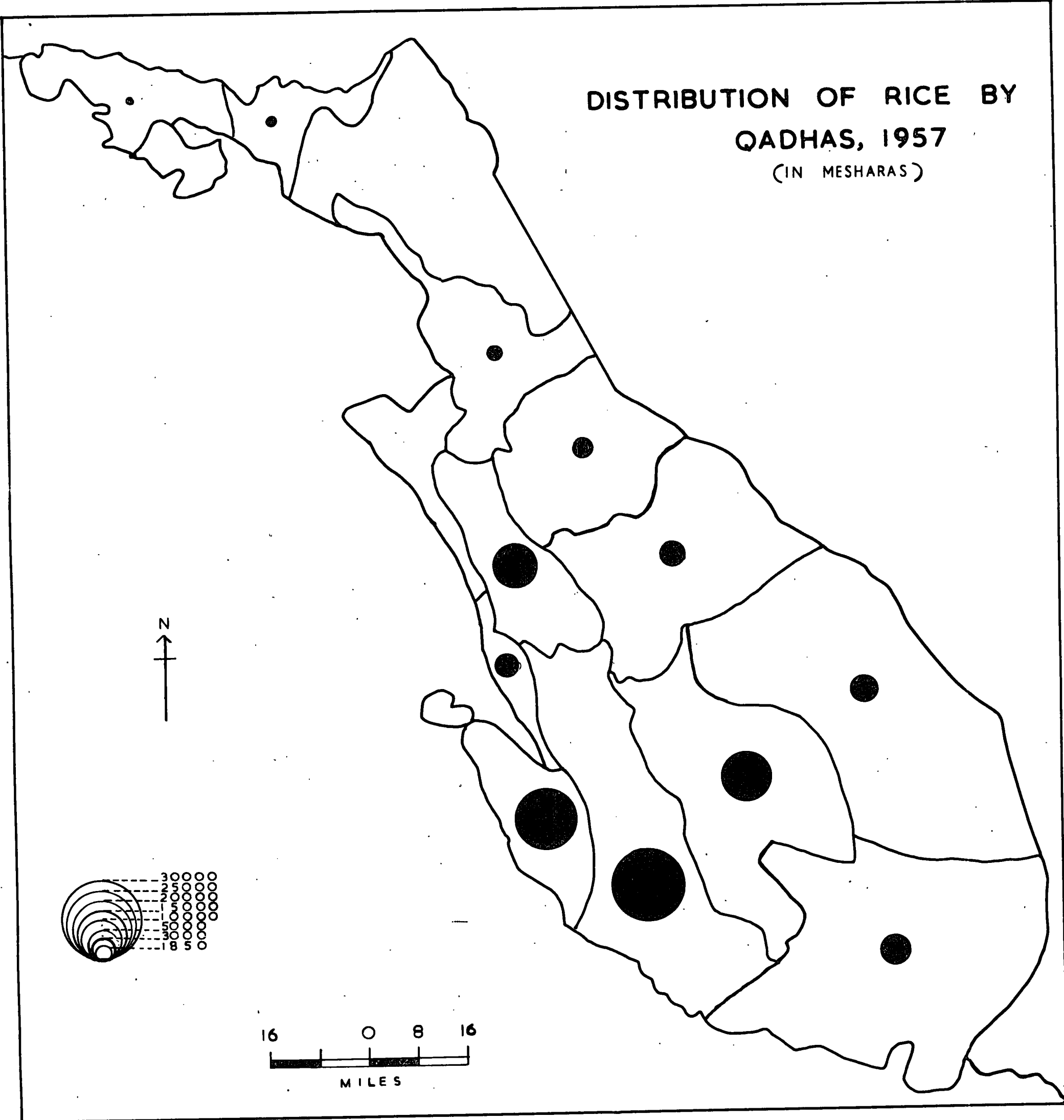


FIG. 35

**DISTRIBUTION OF MINOR
GRAINS IN QADHAS, 1957**
(IN MESHARAS)

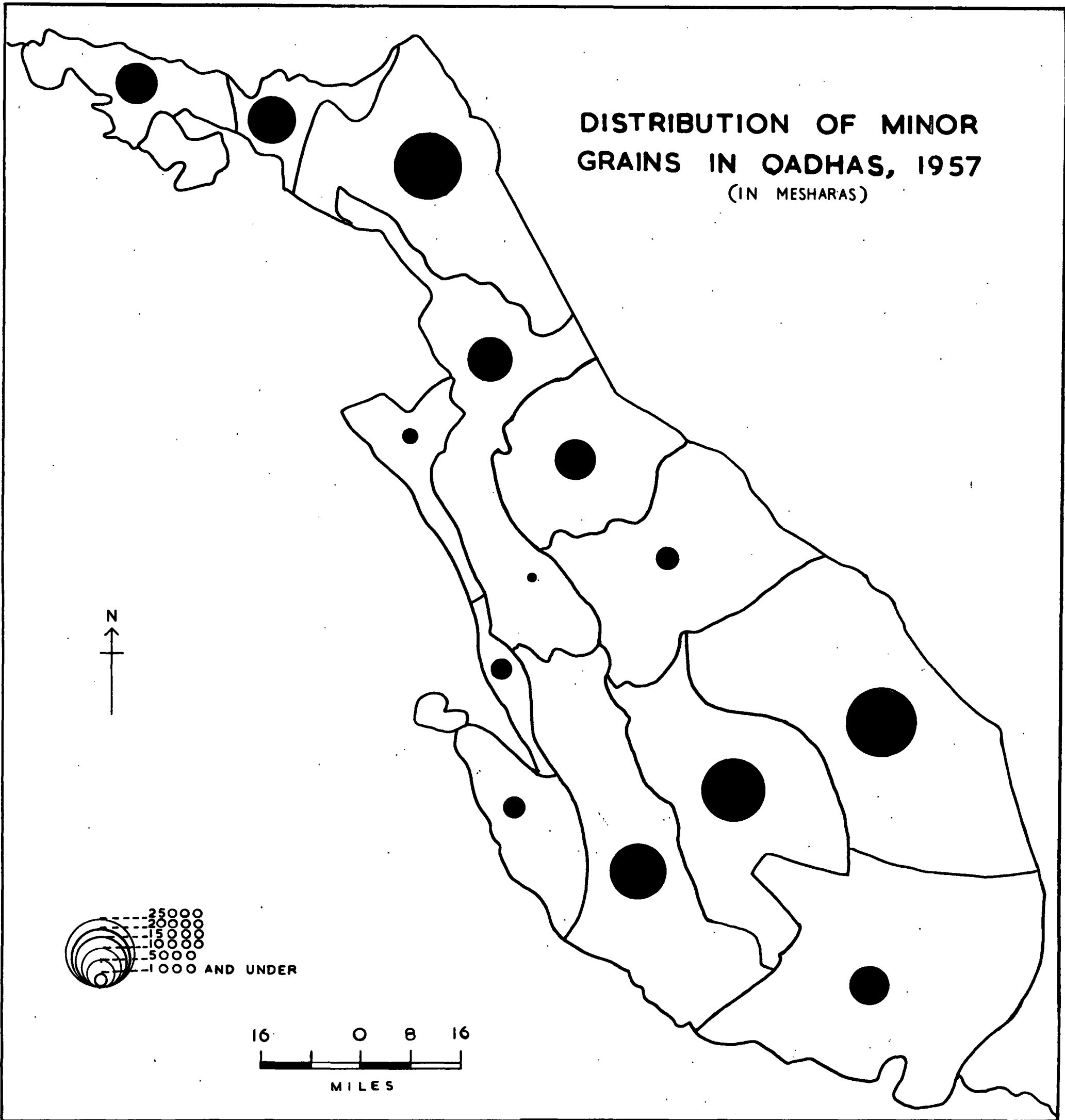


FIG. 36

DISTRIBUTION OF BROAD BEANS
BY QADHAS, 1957
(IN MESHARAS)

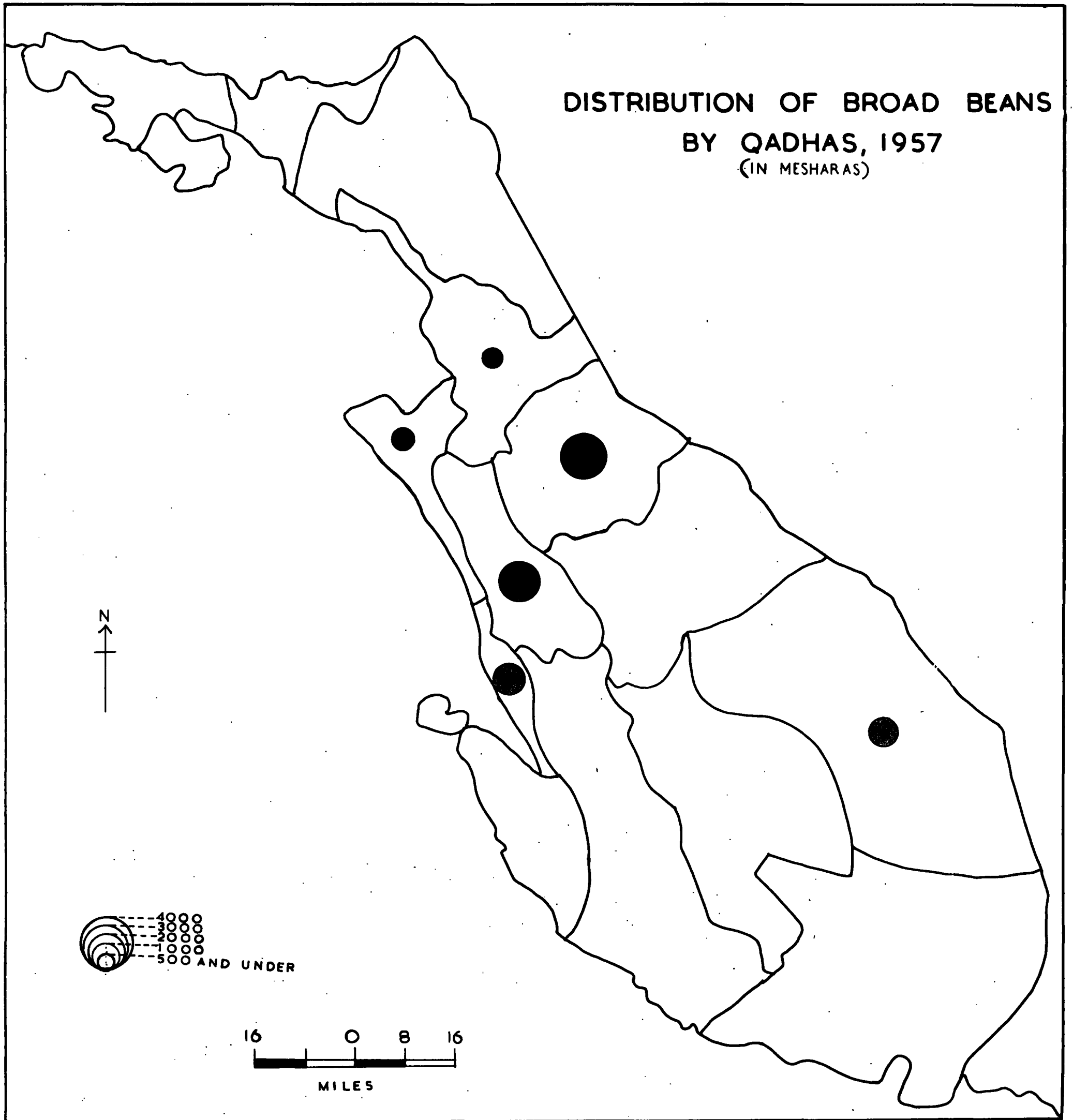


FIG. 37

DISTRIBUTION OF COTTON
BY QADHAS, 1957
(IN MESHARAS)

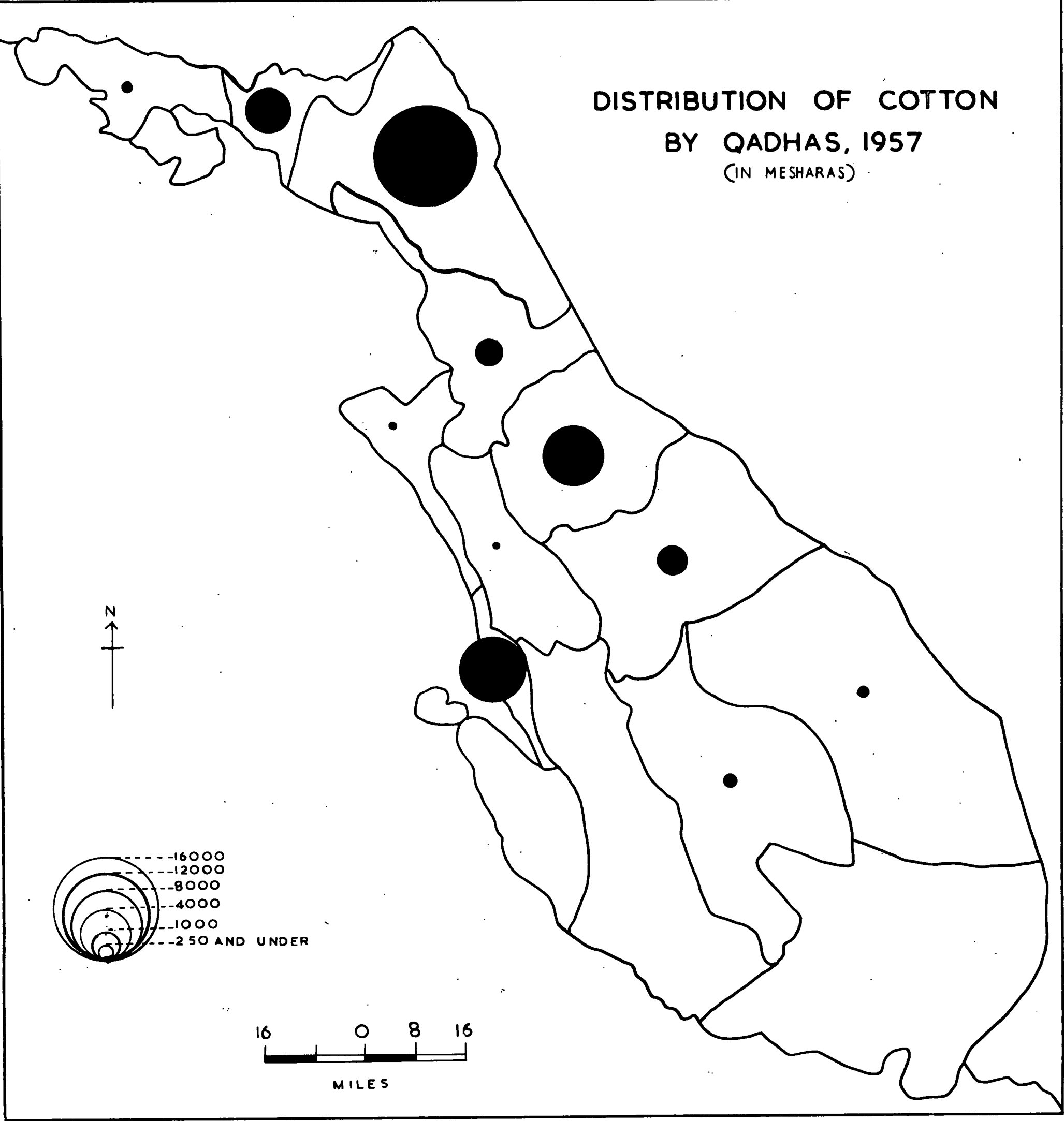


FIG. 38

DISTRIBUTION OF DATES
BY QADHAS, 1957
(IN MESHARAS)

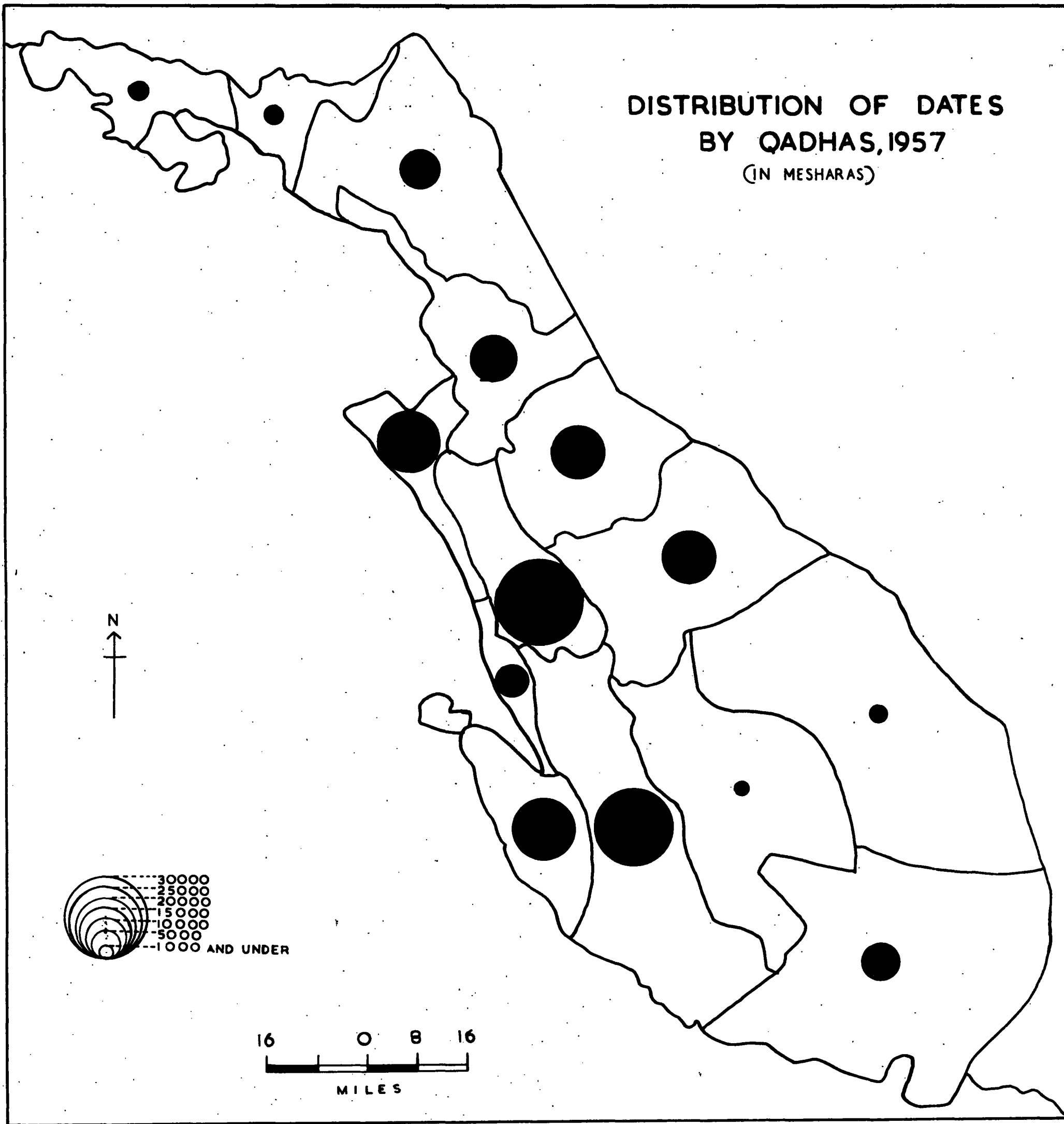


FIG. 39.

DISTRIBUTION OF FRUITS
BY QADHAS, 1957
(IN MESHARAS)

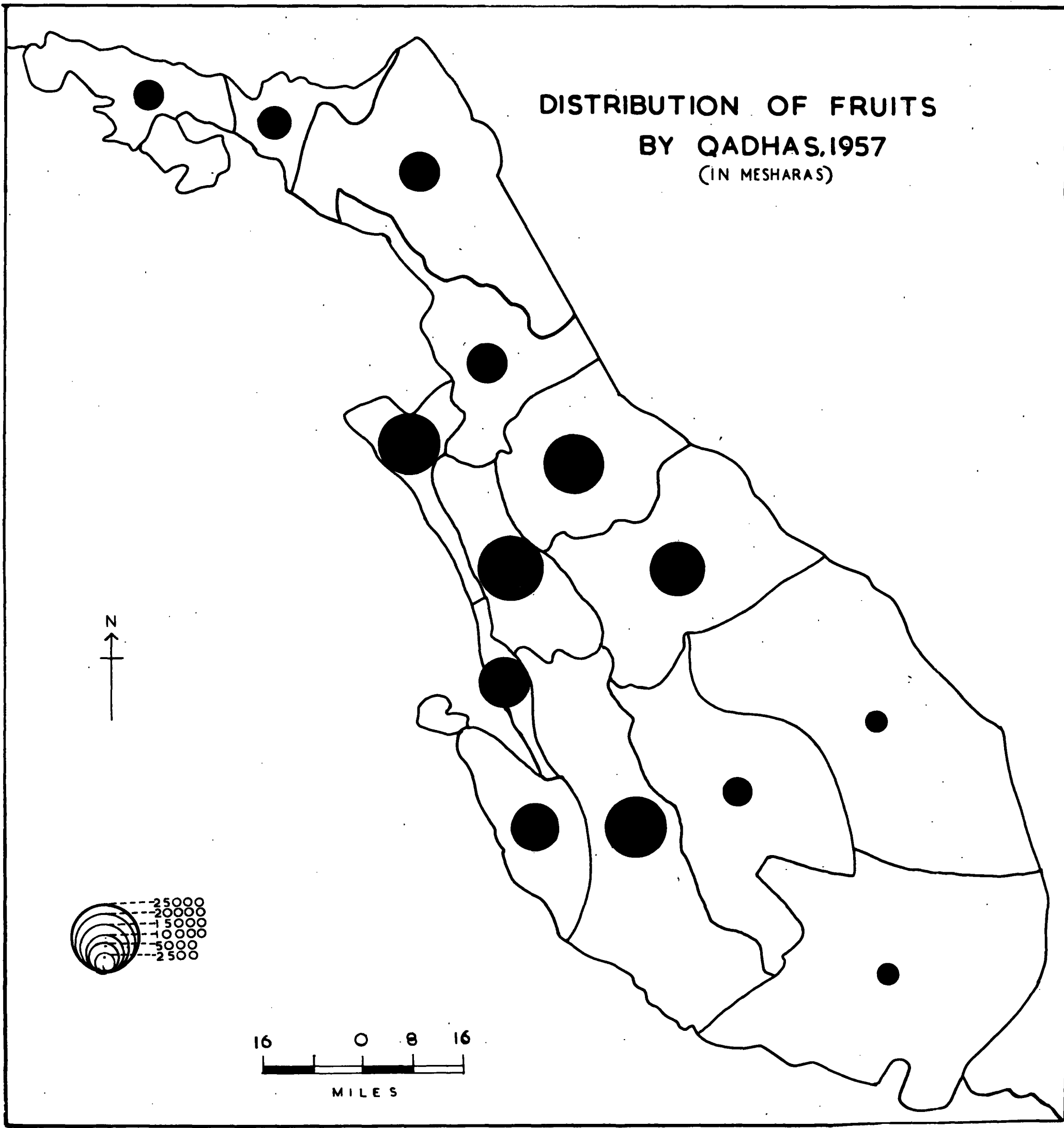


FIG. 40

DISTRIBUTION OF FRUIT TREES AND PERCENTAGE OF EACH TYPE

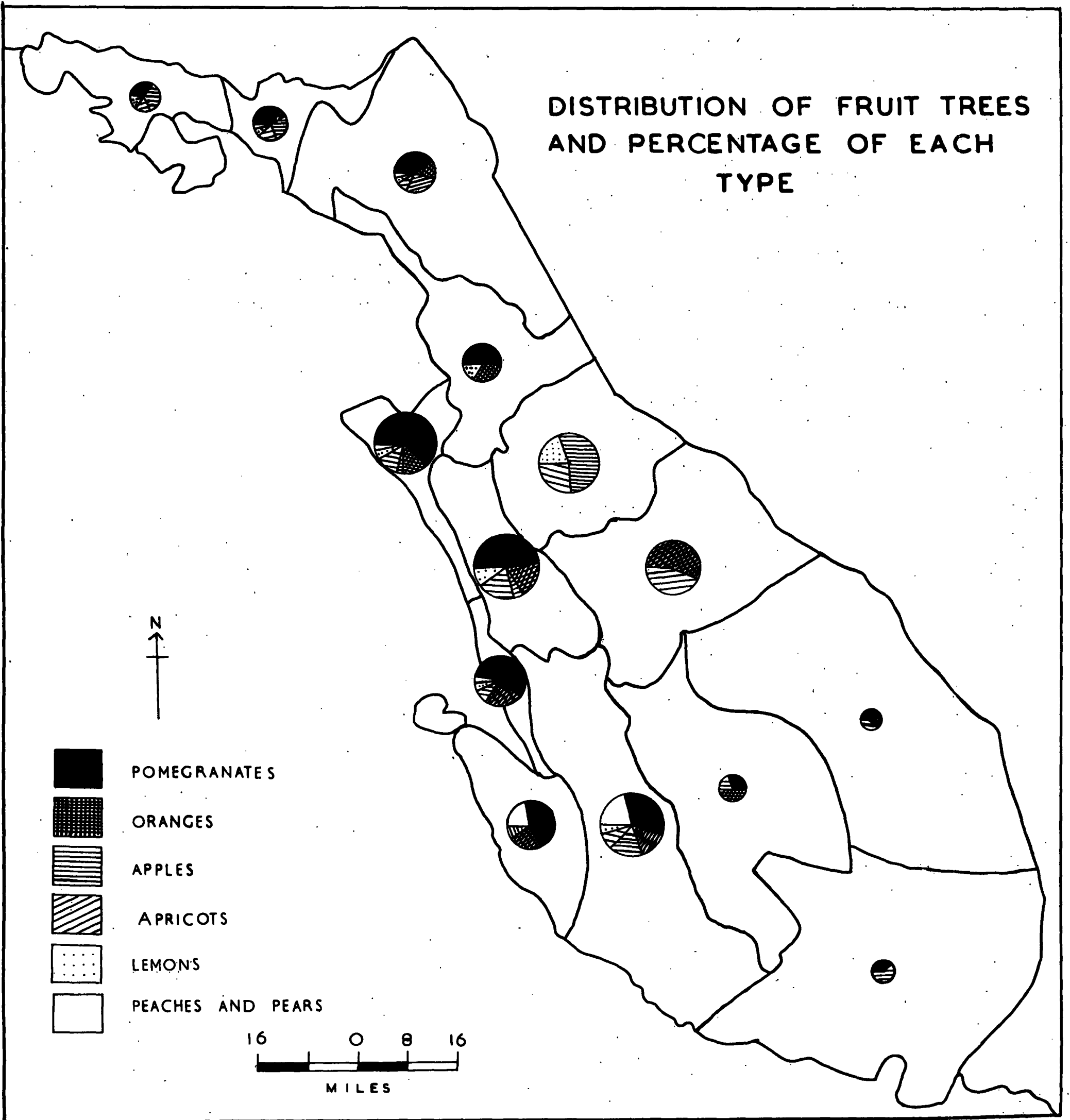


FIG. 41

DISTRIBUTION OF VEGETABLES
BY QADHAS, 1957
(IN MESHARAS)

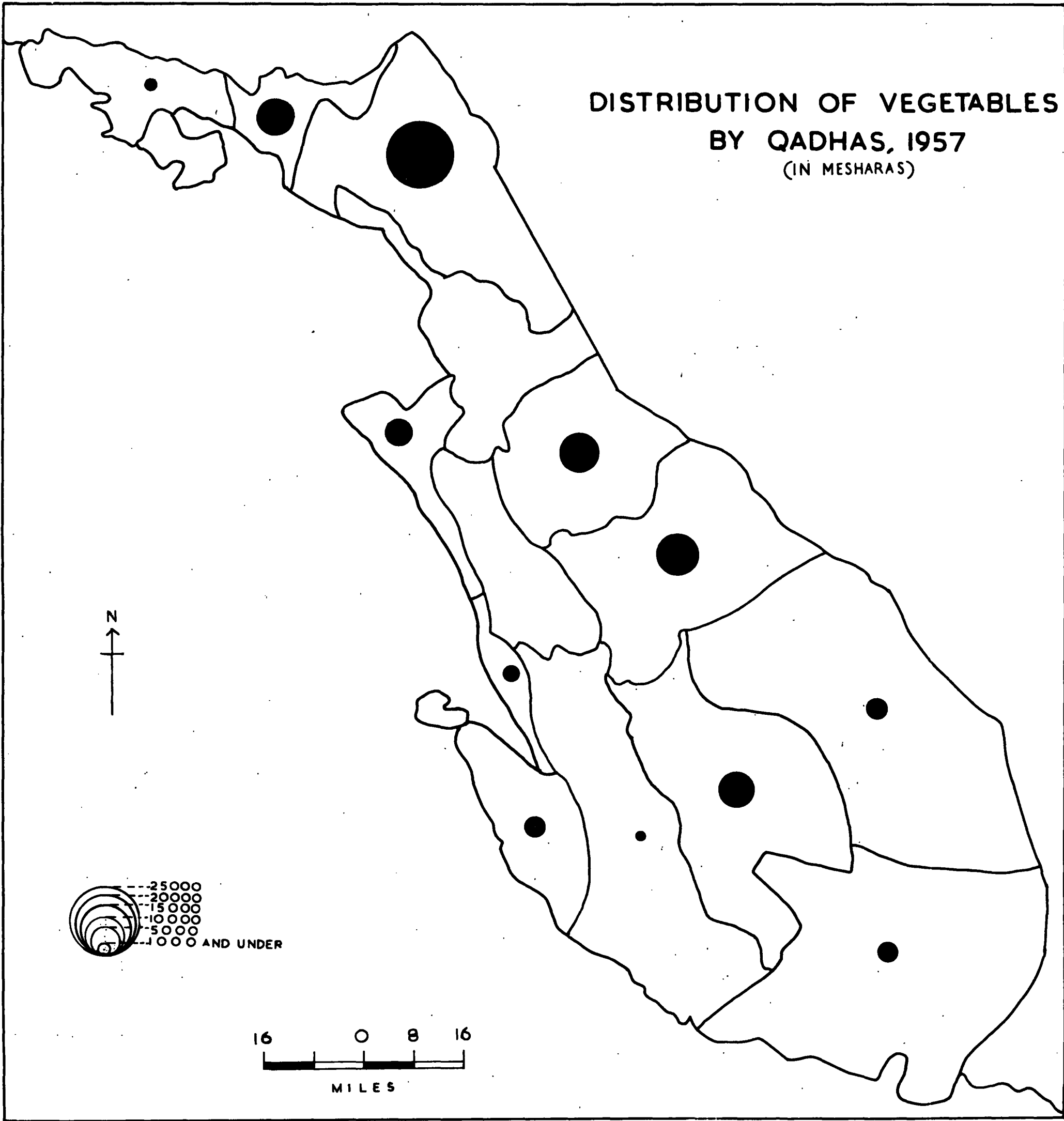


FIG. 42

DISTRIBUTION OF SHEEP
BY QADHAS, 1957
ONE DOT REPRESENTS
1000 HEAD
TOTAL POPULATION 1098428

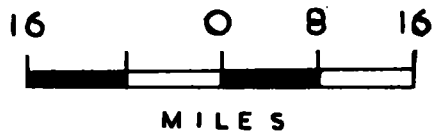


FIG. 43

DISTRIBUTION OF CATTLE
BY QADHAS, 1957
ONE DOT REPRESENTS
500 HEAD
TOTAL POPULATION 216,385

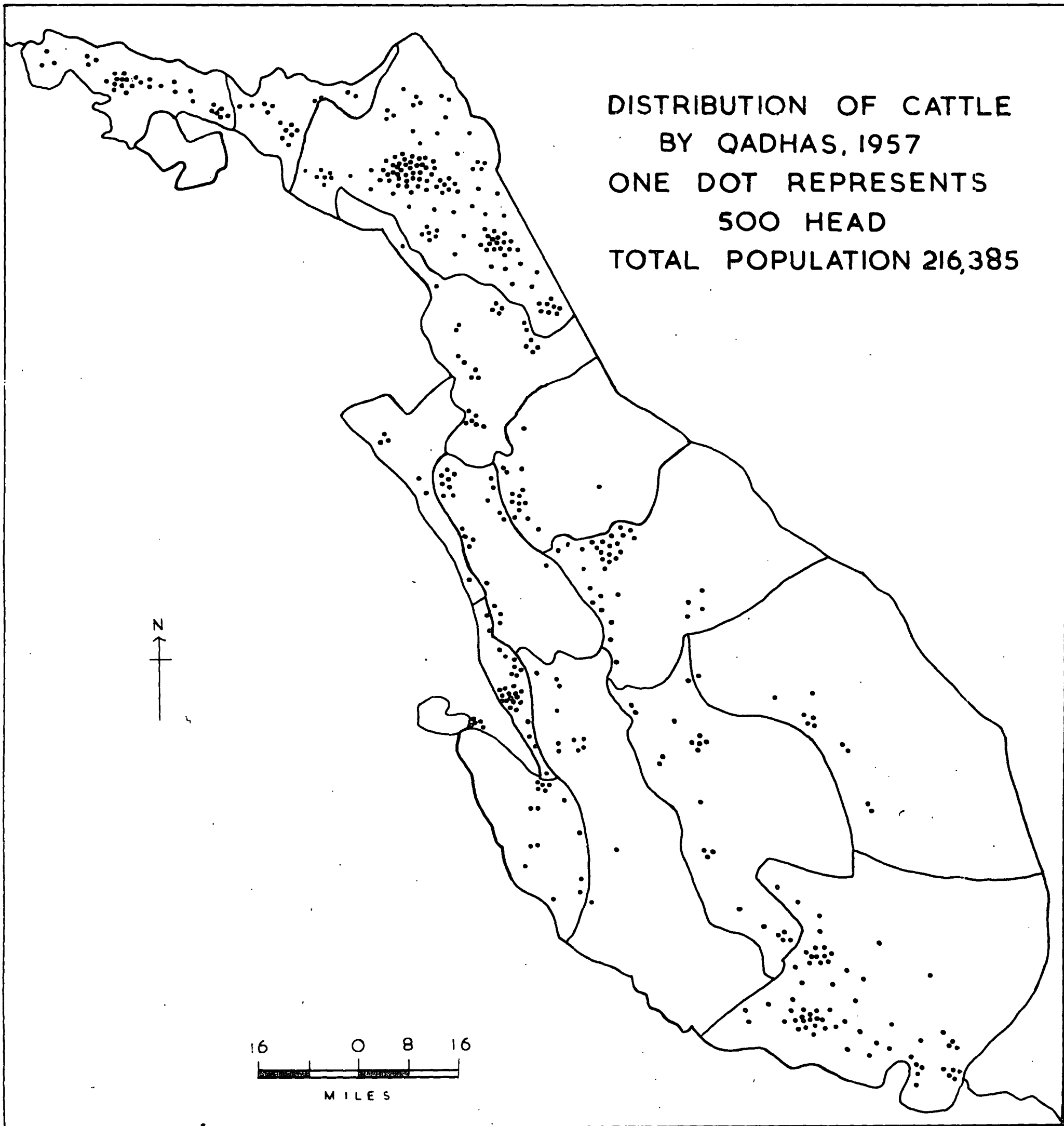


FIG 44

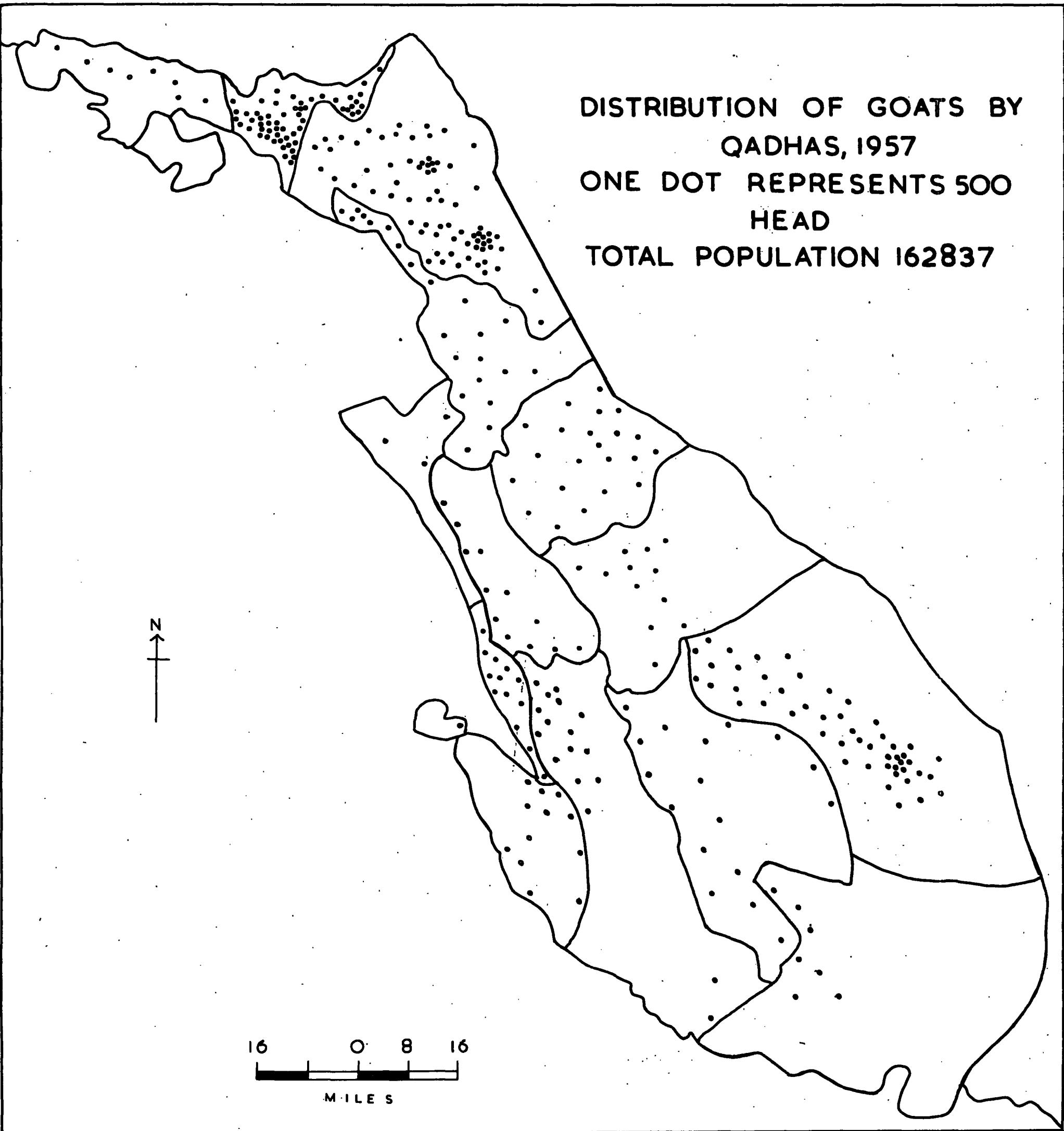


FIG. 45

DISTRIBUTION OF BUFFALO BY
QADHAS, 1957
ONE DOT REPRESENTS
100 HEAD
TOTAL POPULATION 13,056



FIG. 46

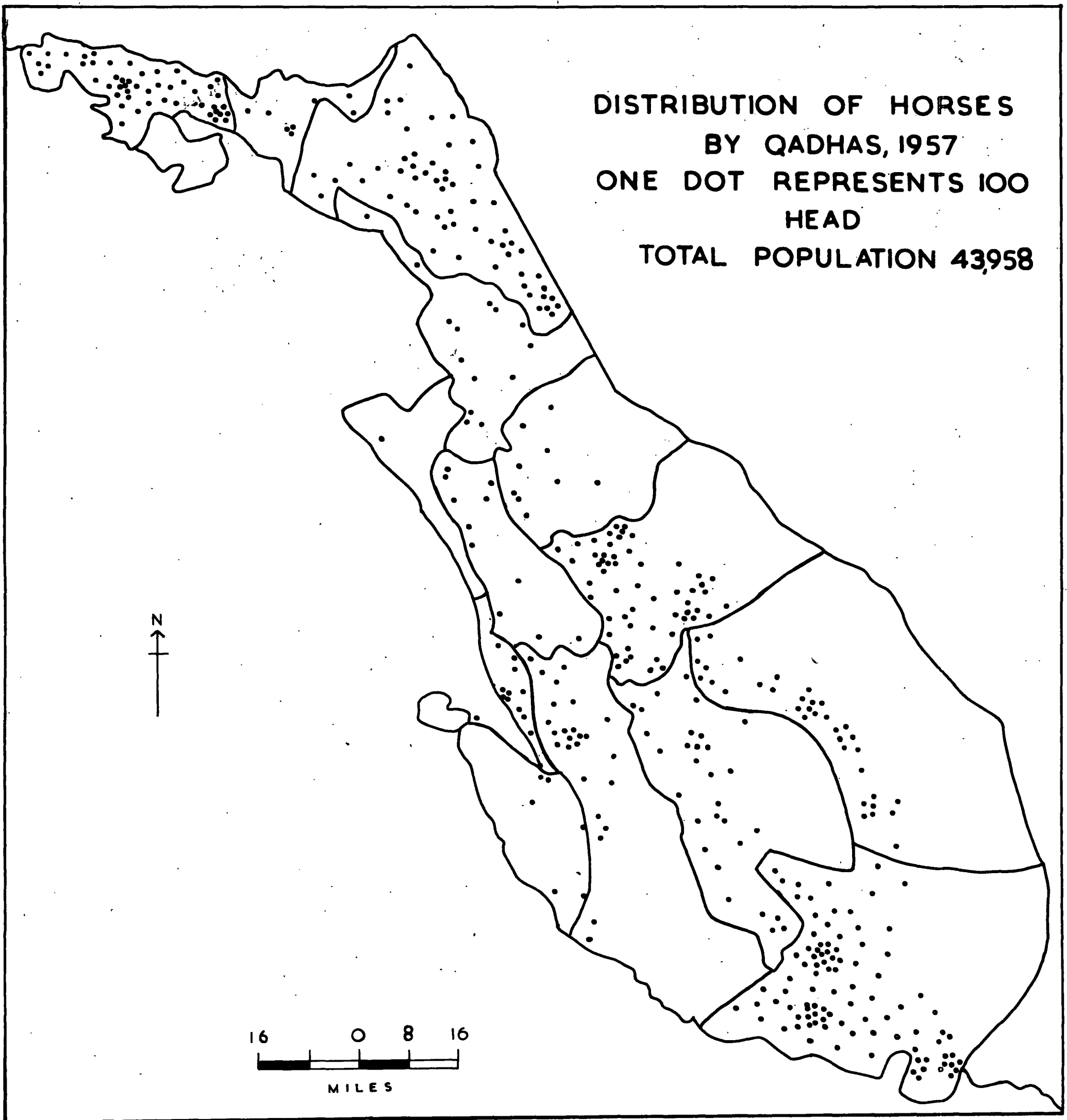


FIG. 47

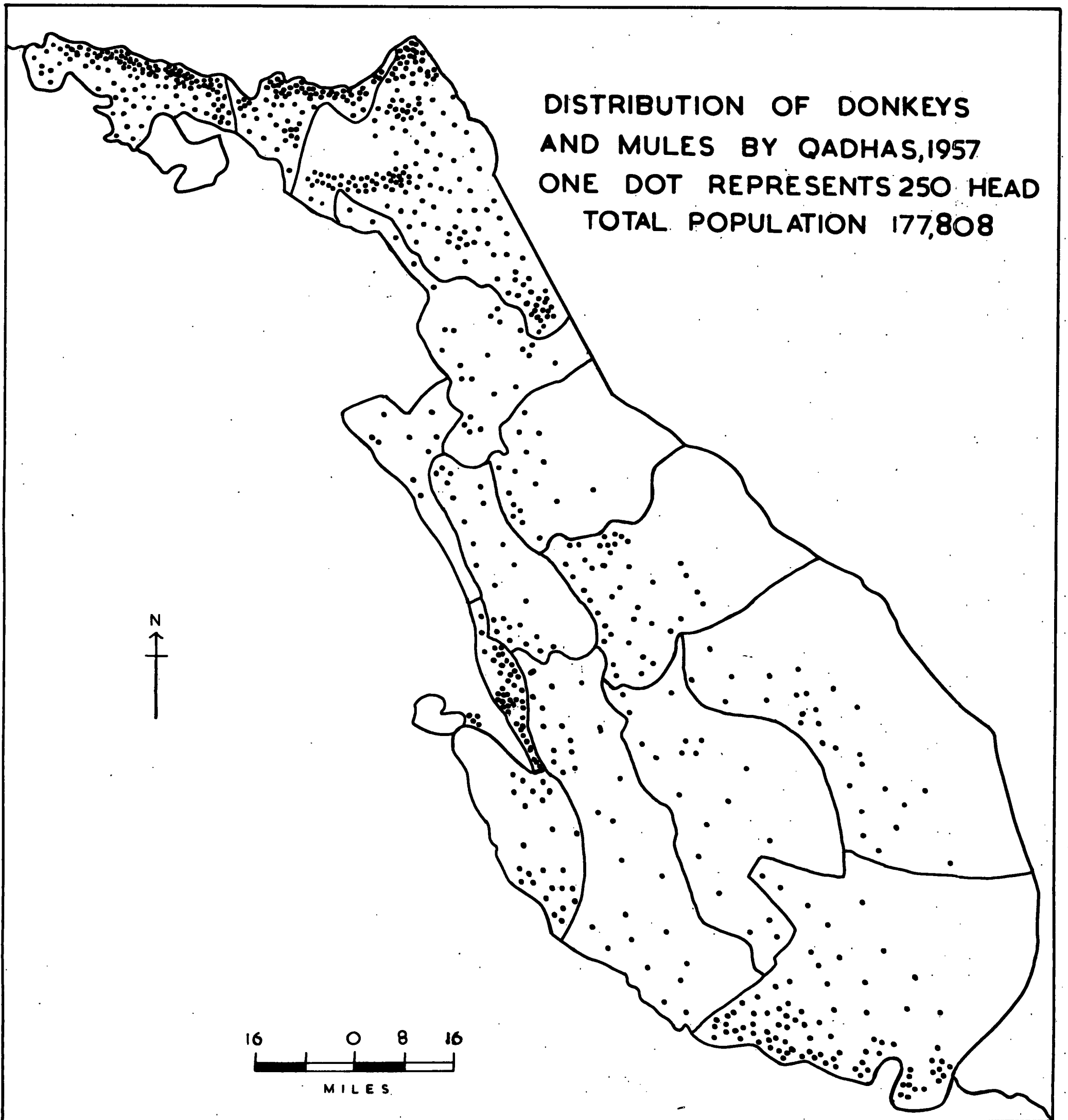


FIG. 48

DISTRIBUTION OF CAMELS
BY QADHAS, 1957
ONE DOT REPRESENTS 50
HEAD
TOTAL POPULATION 18,326

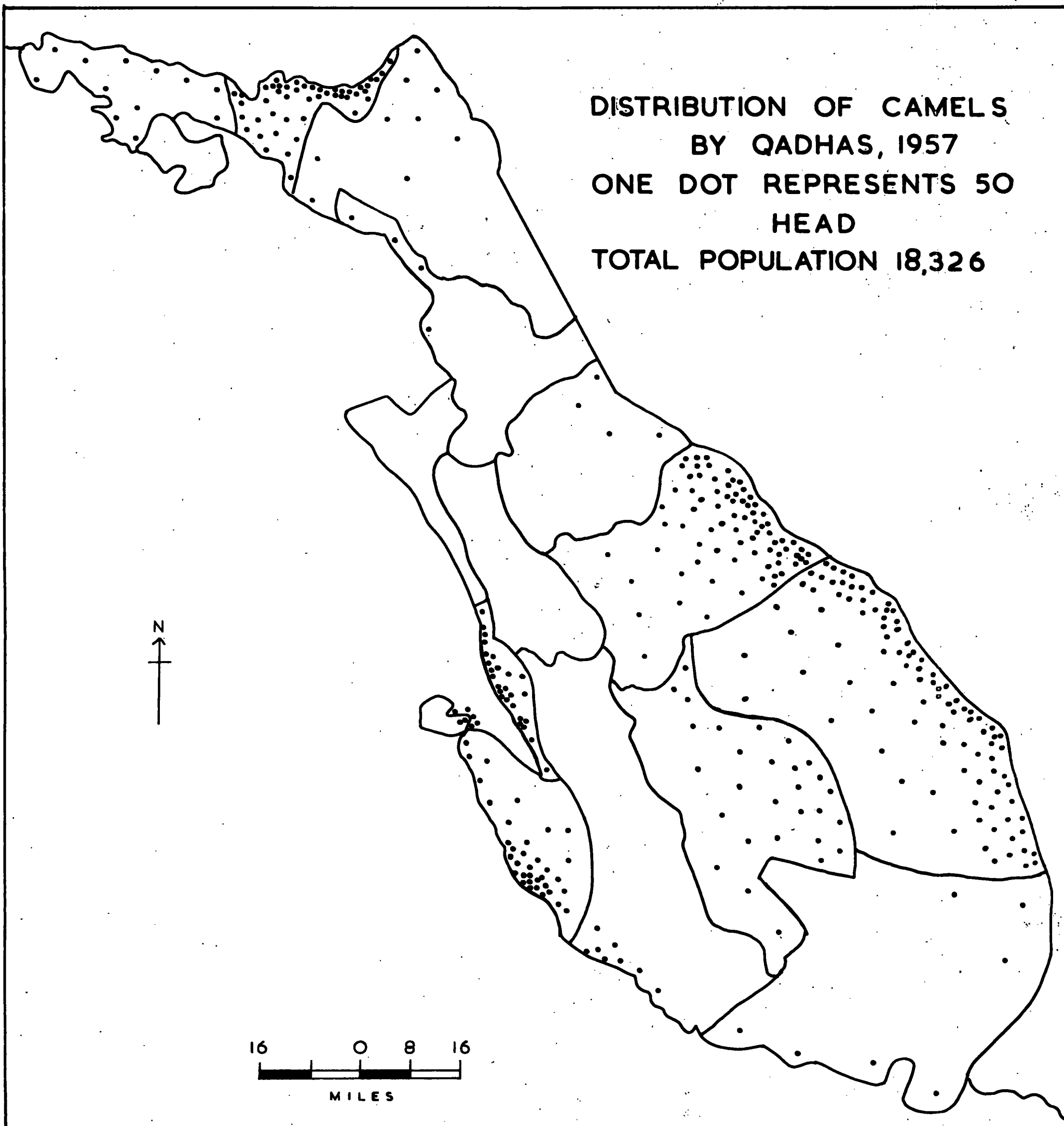


FIG. 49

DISTRIBUTION OF SETTLEMENTS
BY NUMBER OF DWELLINGS, 1957

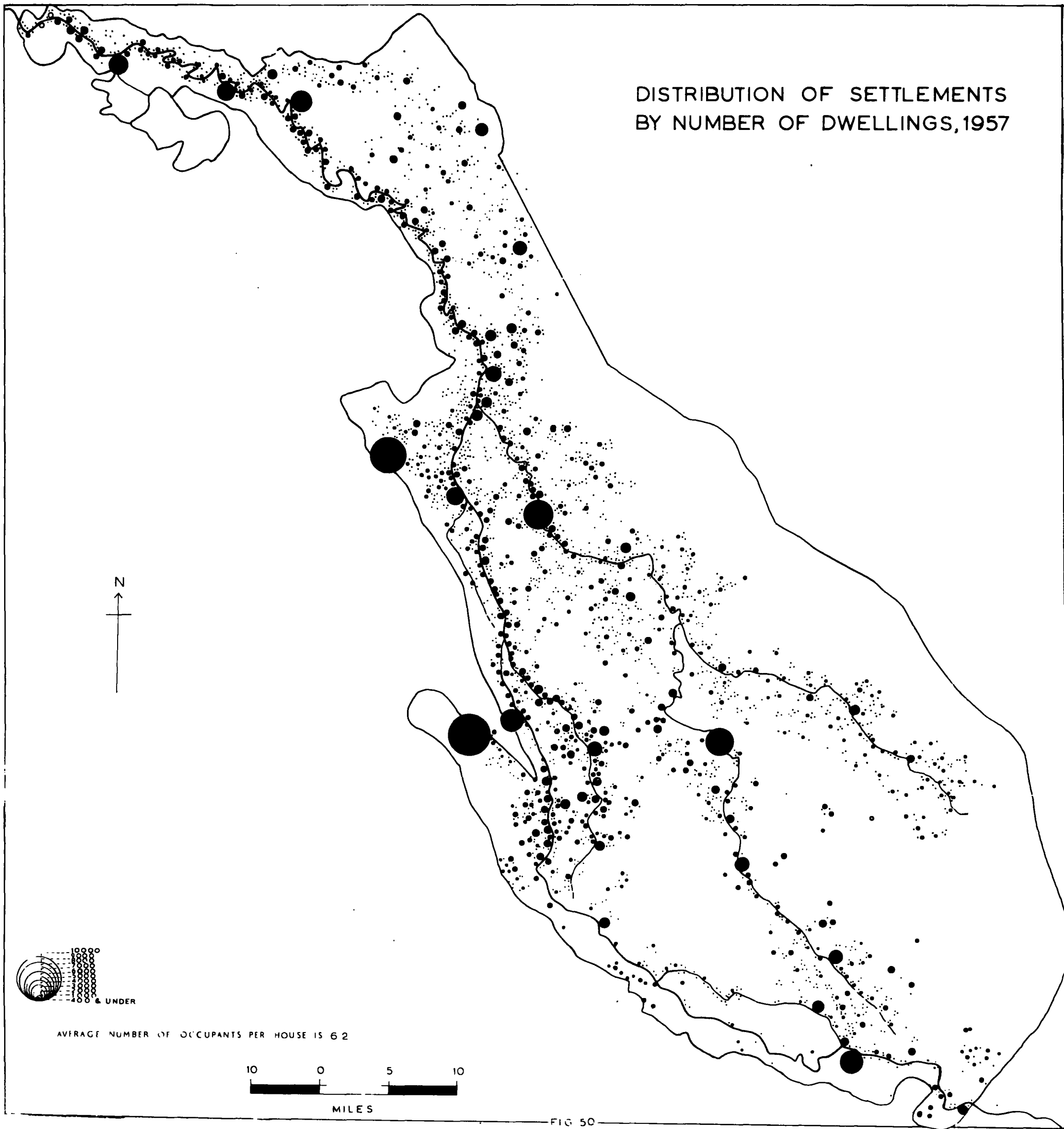


FIG 50

DISTRIBUTION OF SETTLED AND SEMI-SETTLED ARAB TRIBES, 1957



FIG. 51

DISTRIBUTION OF THE TYPES OF LAND TENURE AND PERCENTAGE OF EACH TYPE, 1957

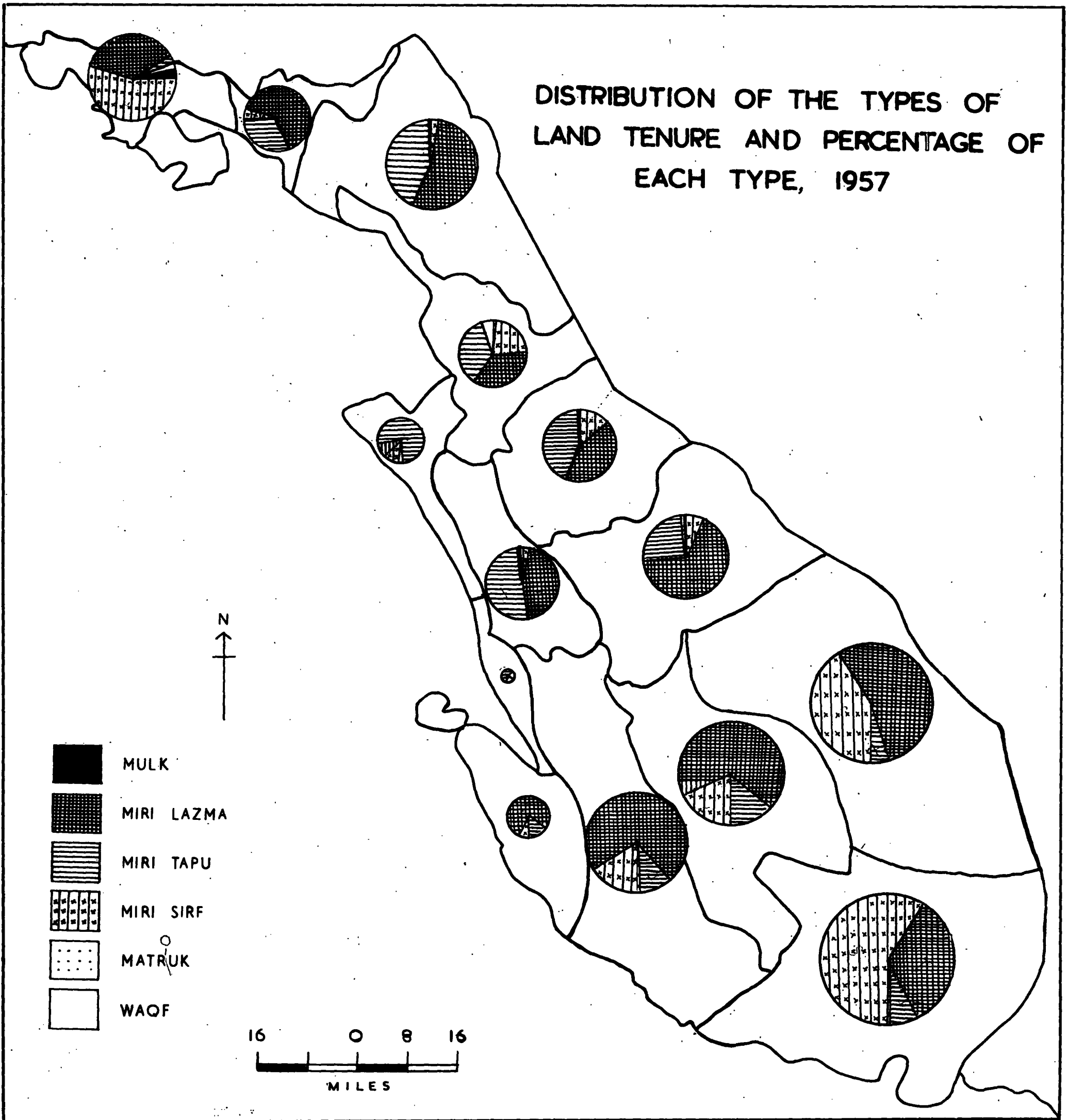


FIG. 52

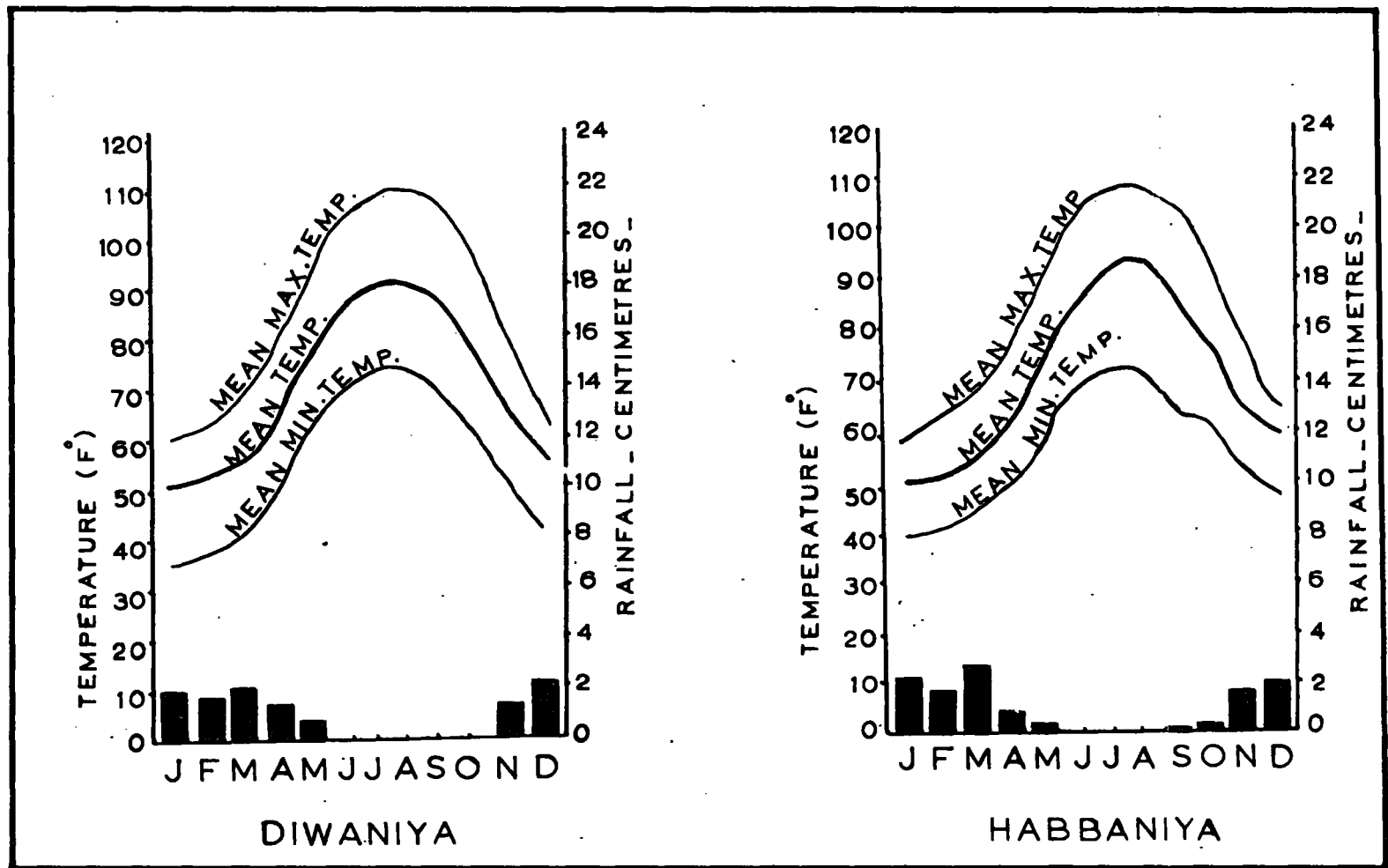


FIG. 2

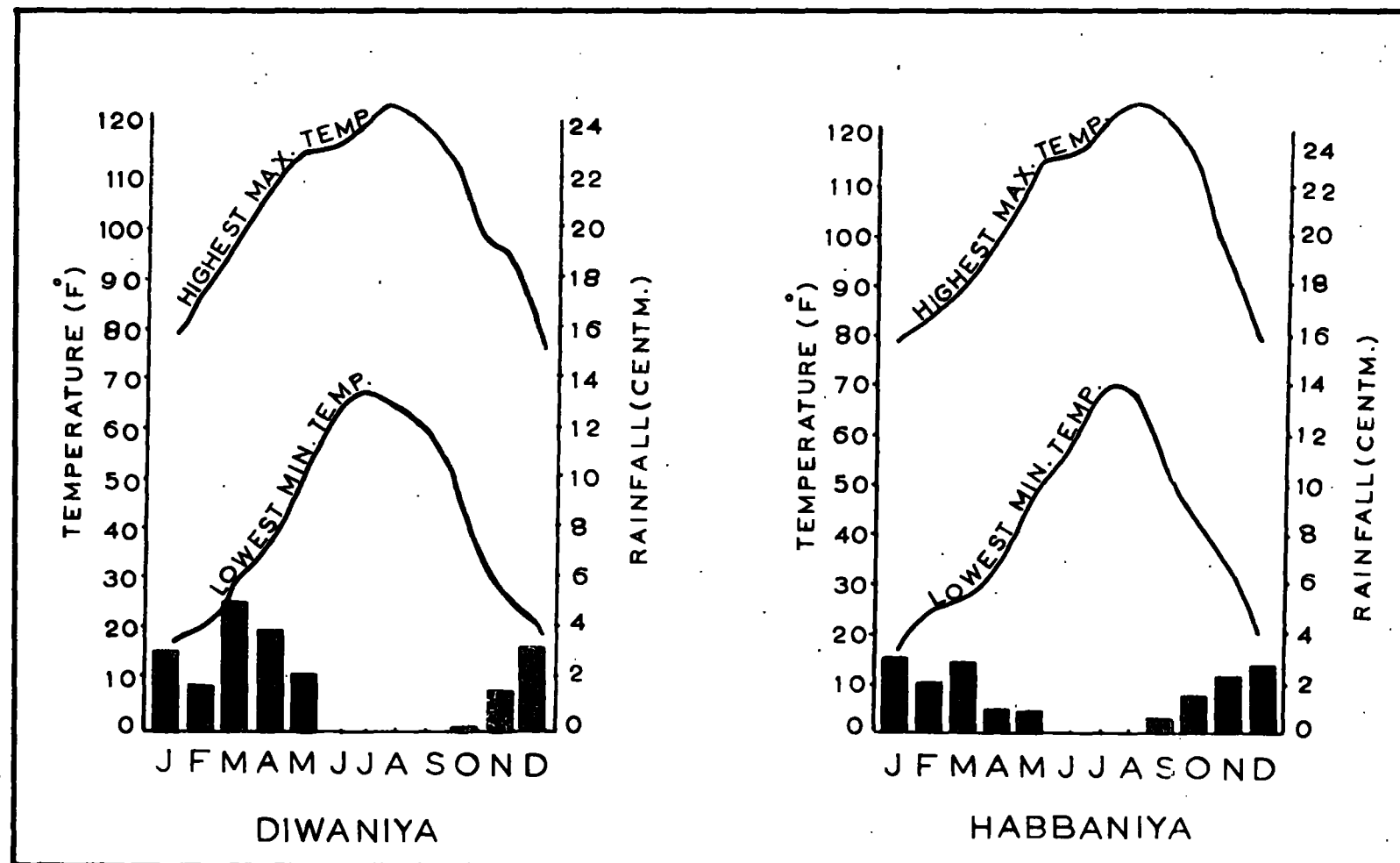
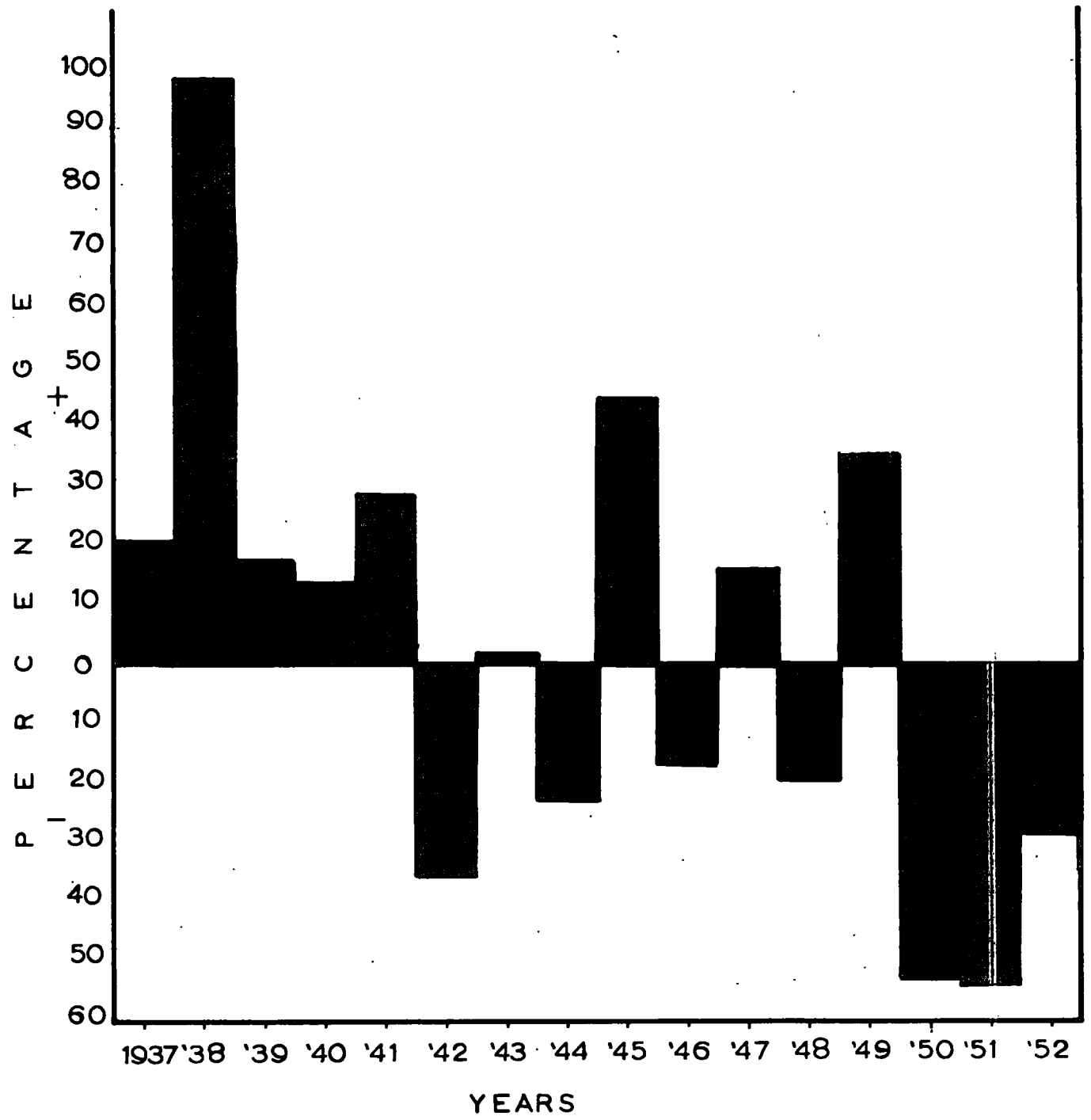


FIG. 3(A)



YEARLY VARIATIONS FROM MEAN RAINFALL
 1937-1952
 FIG. 3(B)

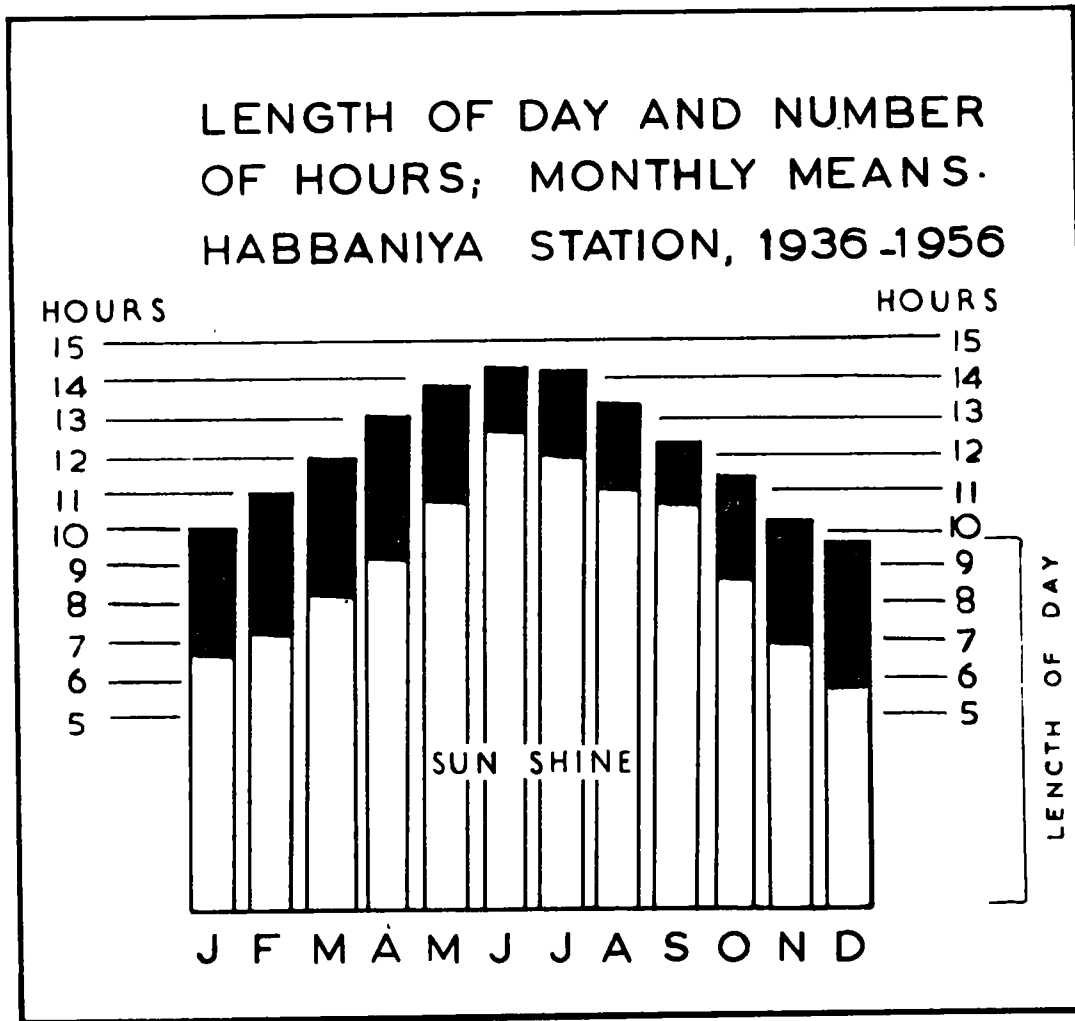
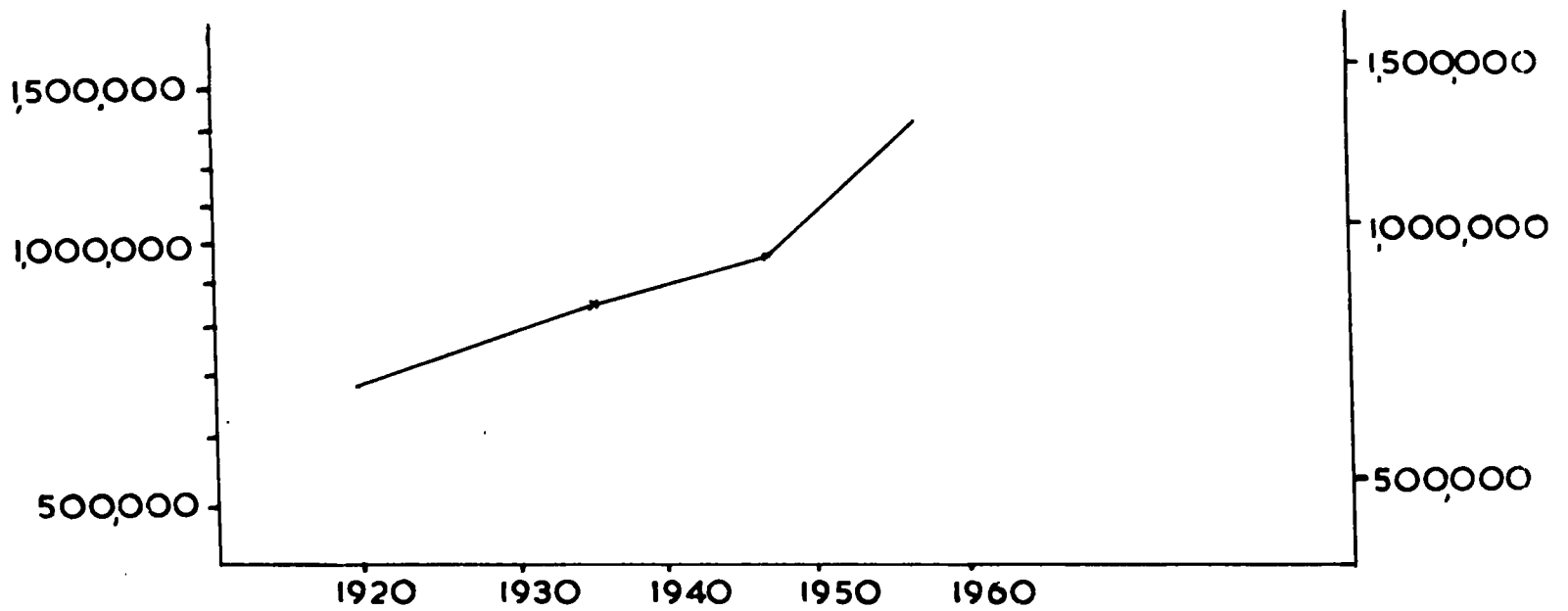


FIG. 4

POPULATION INCREASE 1919-1957



NOTE: 1919] ESTIMATES
 1935]
 1947] CENSUS - UNRELIABLE -
 1957] CENSUS

FIG. 5

METHODS OF IRRIGATION EMPLOYED, 1957
AREA - IN MESHARAS -

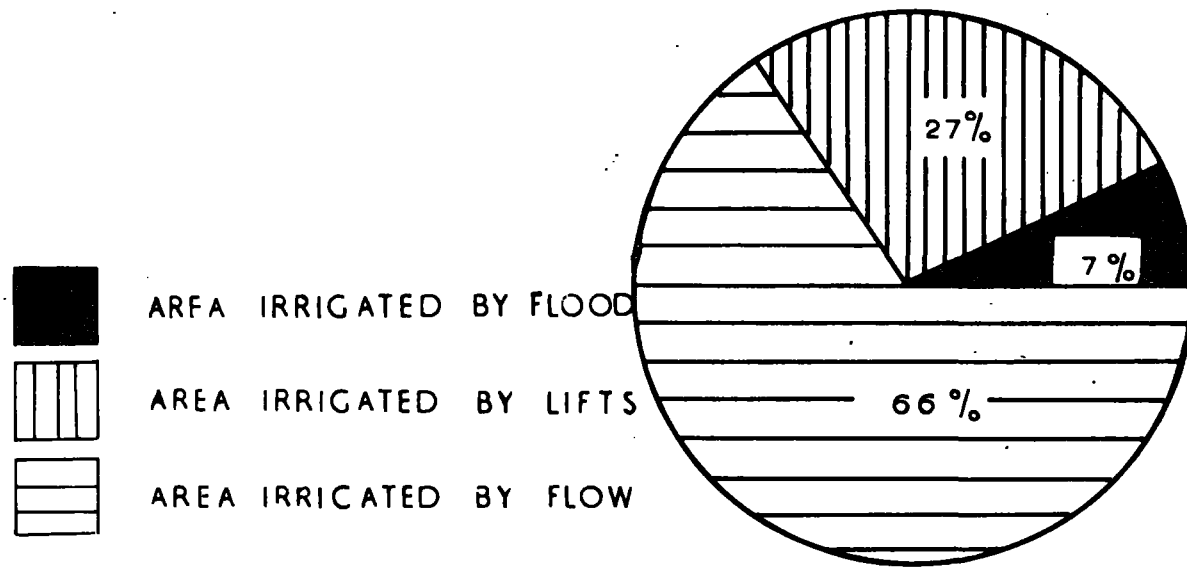


FIG. 6

LAND UTILIZATION IN THE MIDDLE
EUPHRATES VALLEY, 1957

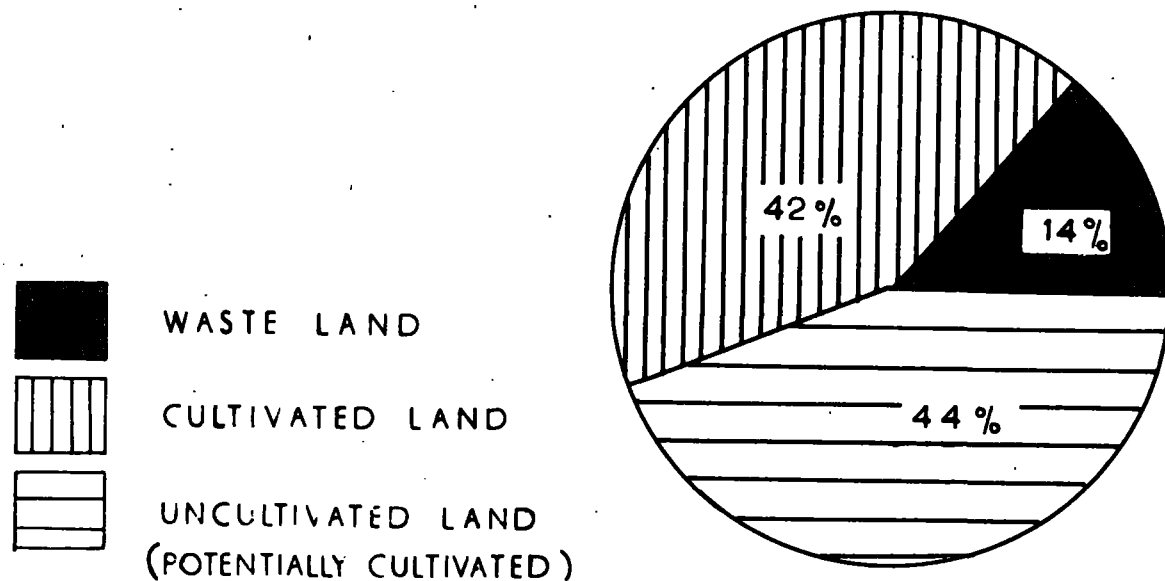


FIG. 7

CROP DISTRIBUTION IN PERCENTAGE,
 AREA - IN MESHARAS - , 1957

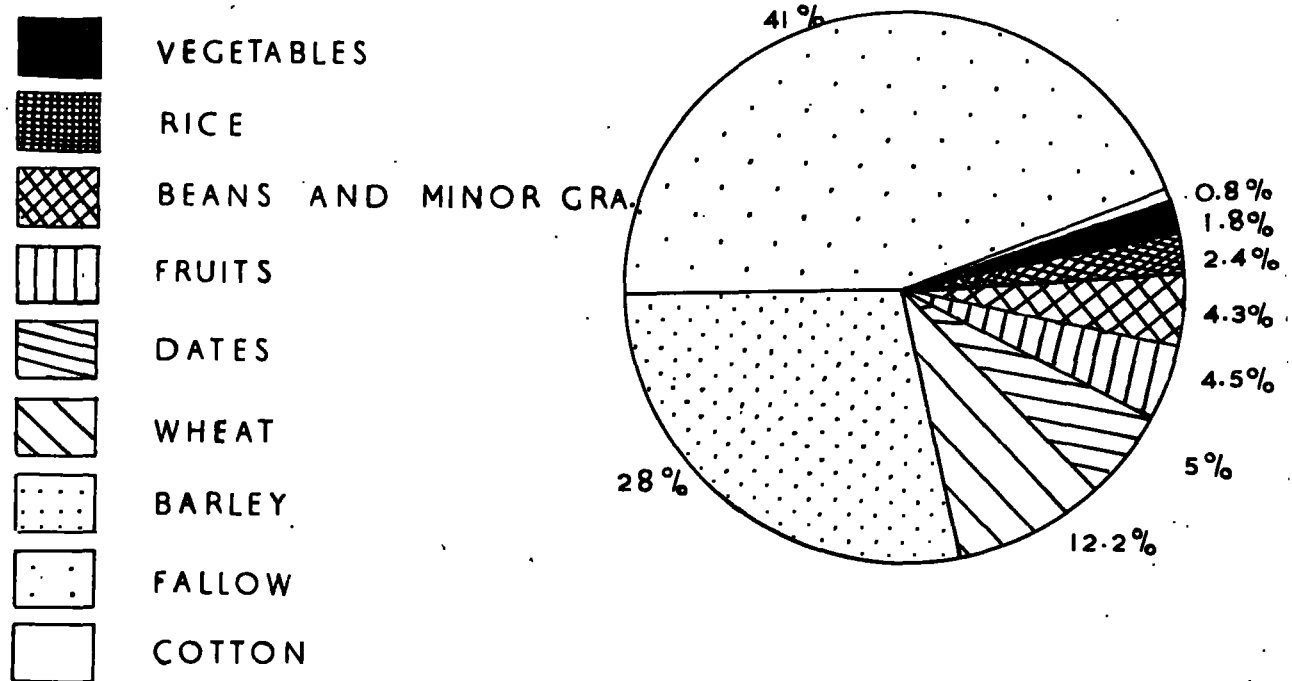


FIG. 8

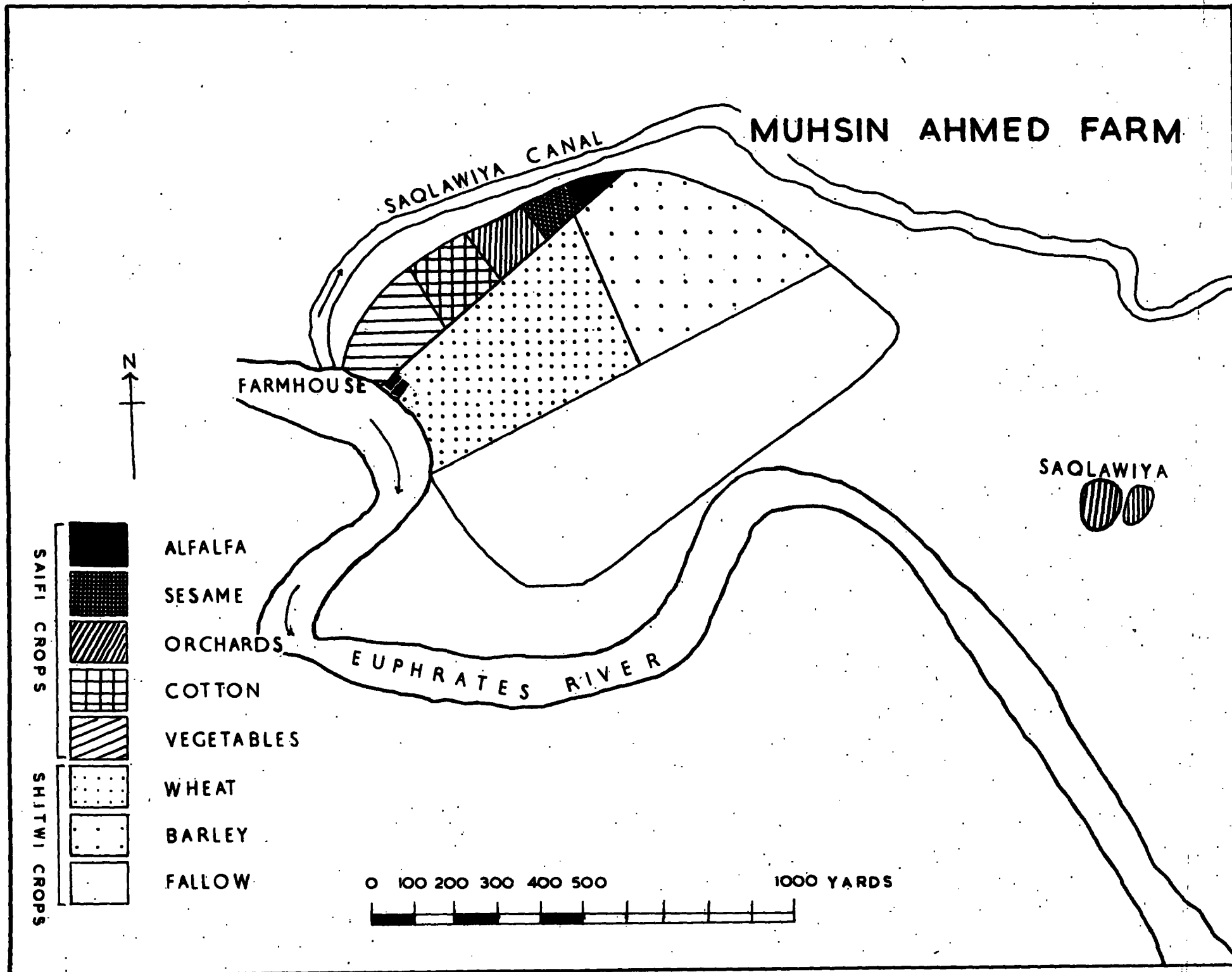
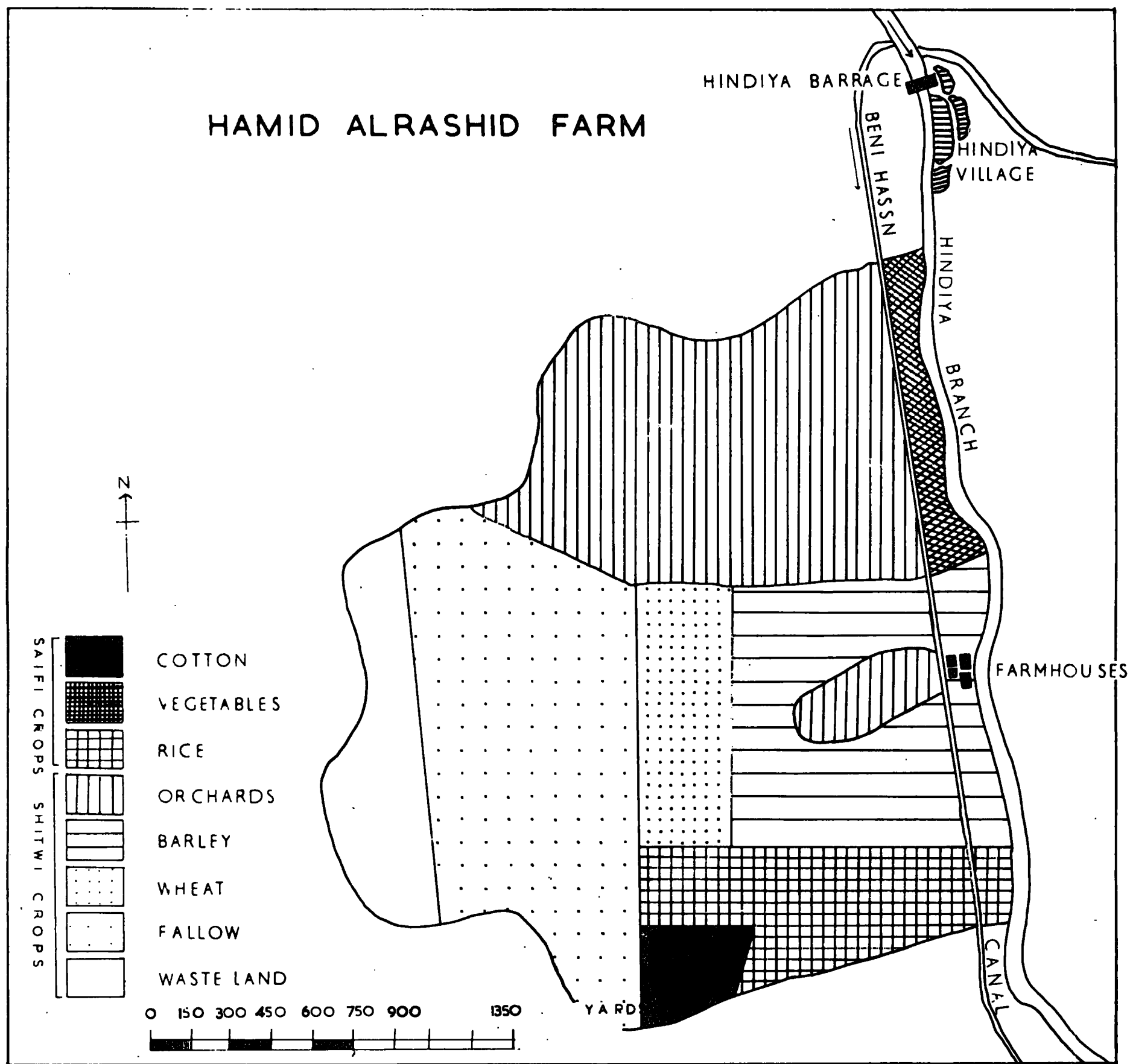

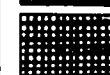
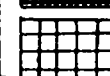

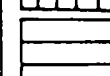

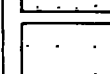



FIG. 9

HAMID ALRASHID FARM



- | | | |
|-------------|---|------------|
| SAIFI CROPS |  | COTTON |
| |  | VEGETABLES |
| |  | RICE |
| |  | ORCHARDS |
| |  | BARLEY |
| |  | WHEAT |
| |  | FALLOW |
| |  | WASTE LAND |

0 150 300 450 600 750 900 1350 YARD

FIG. 10

HAJ MAHDI AL HAMID FARM

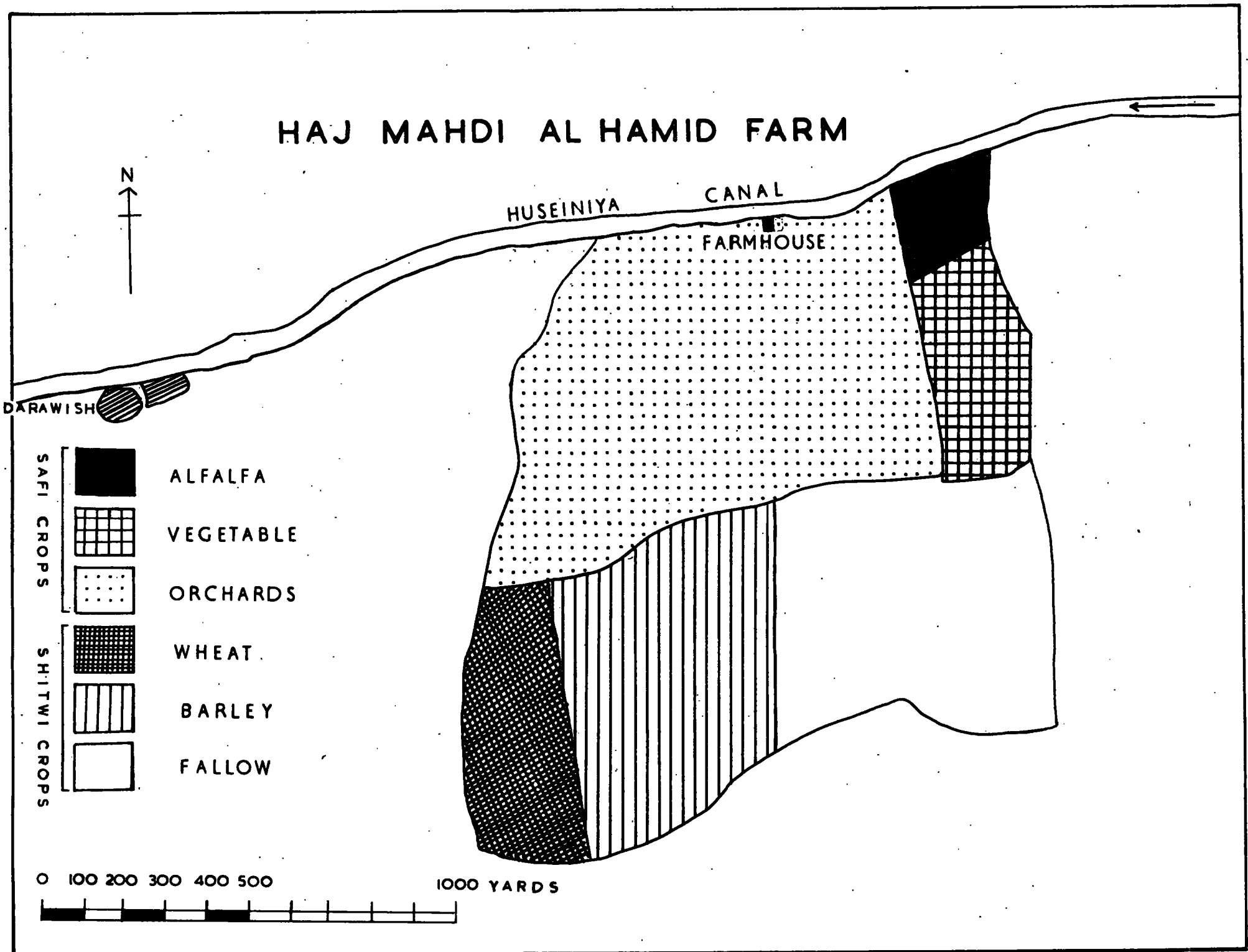


FIG. 11

HAJ ATIYAH FARM

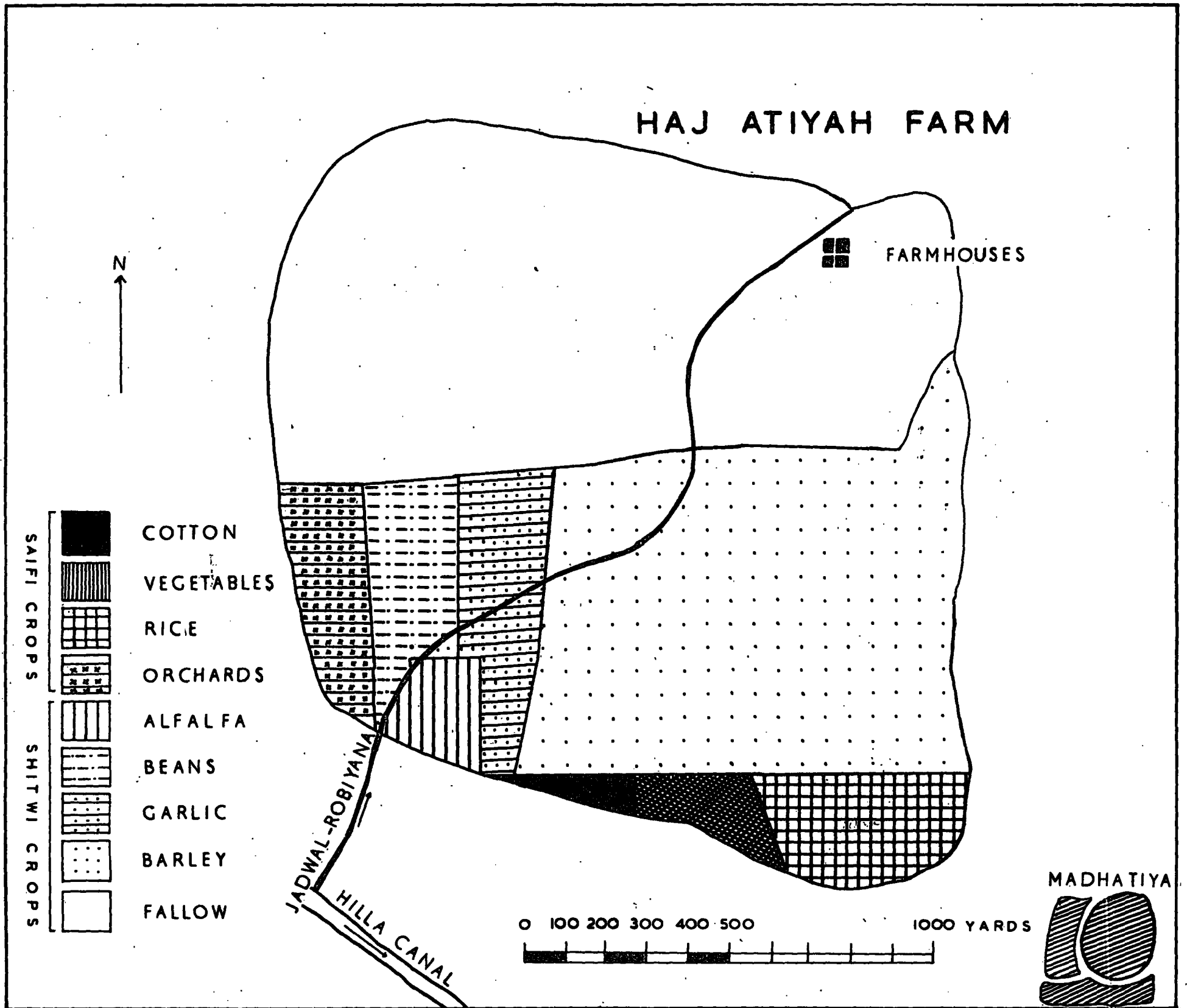


FIG. 13

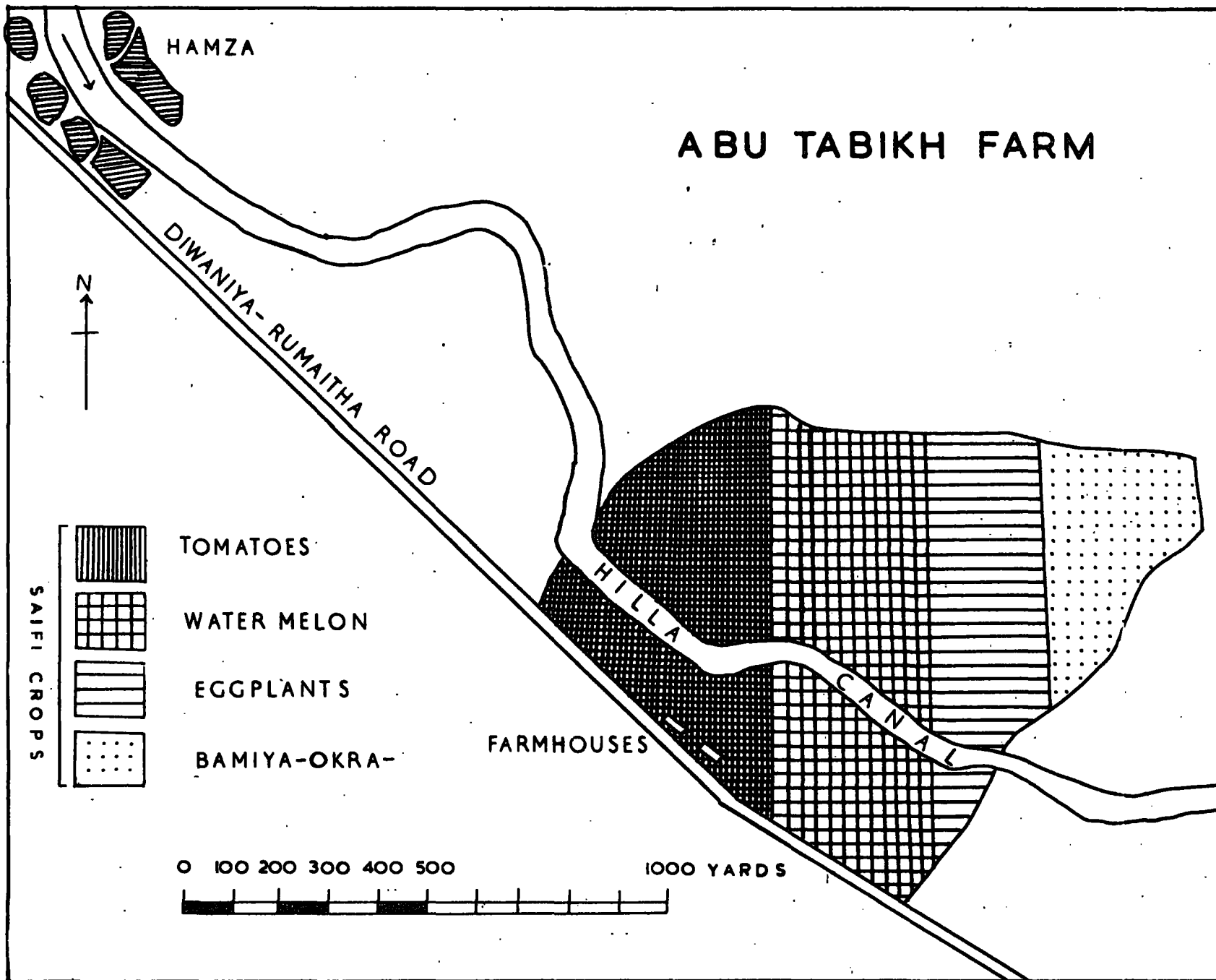


FIG 15

SHAMIYA NO. 20 FARM

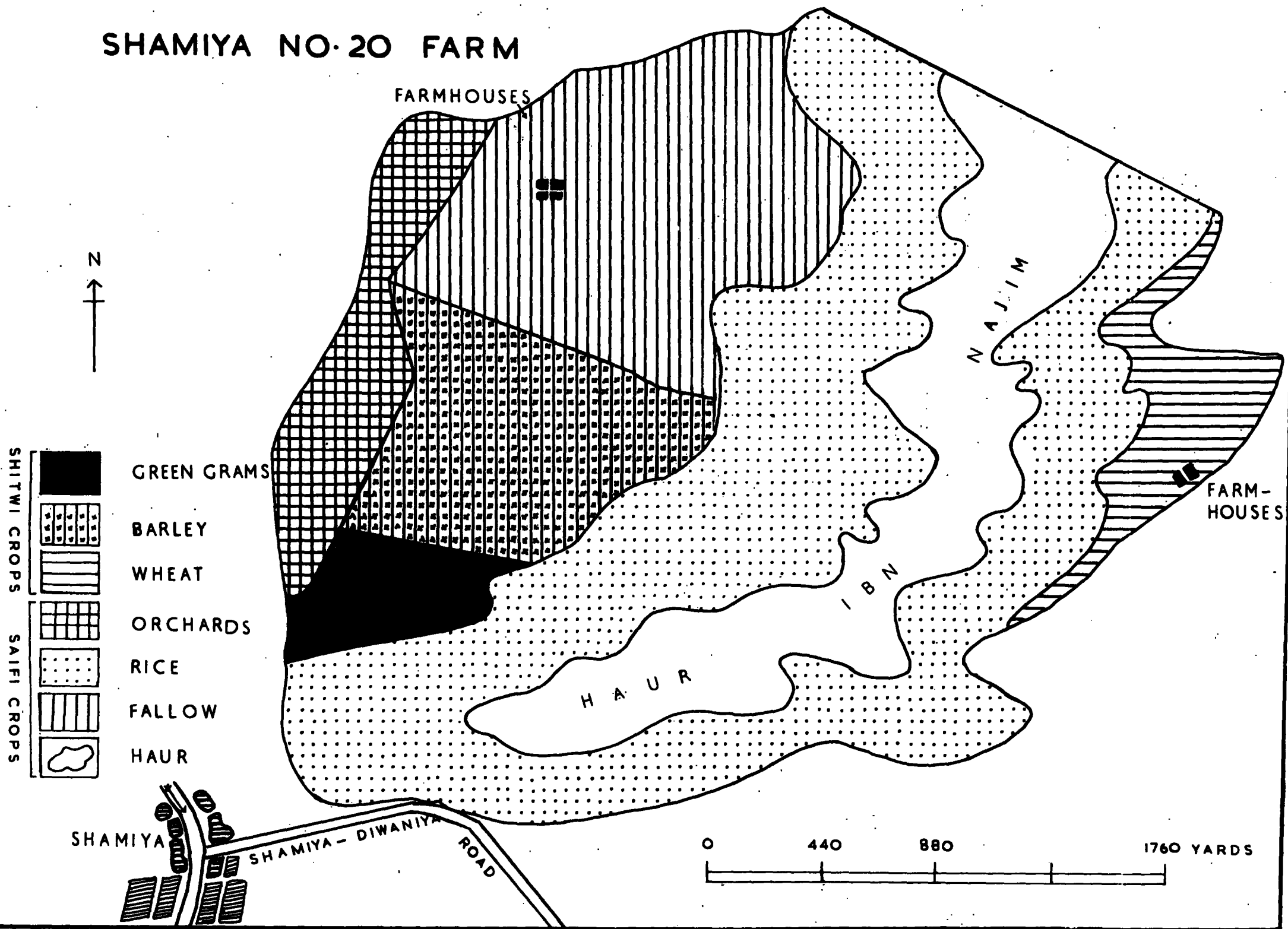
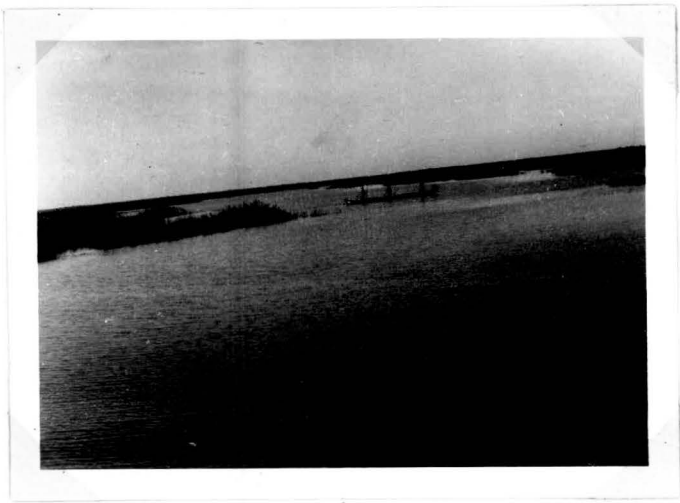
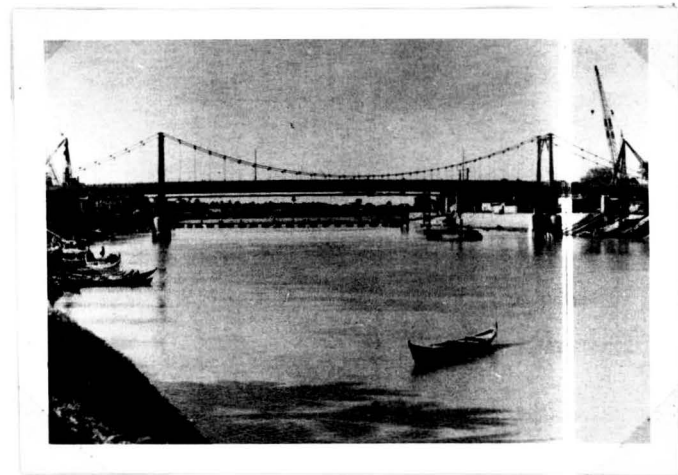


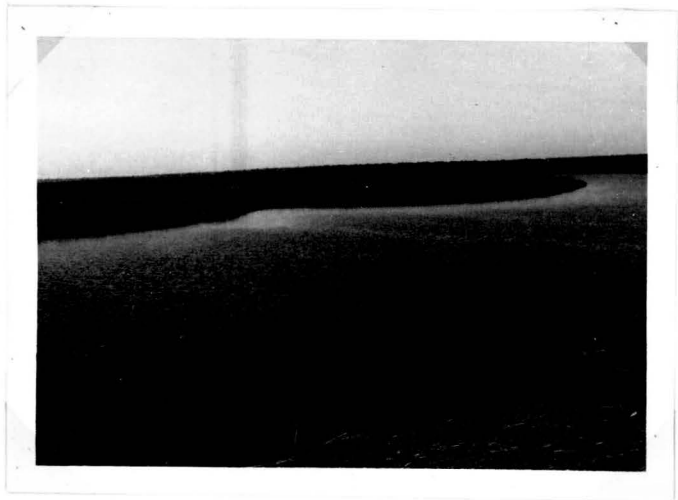
FIG. 16



1



4 (a)



2



4 (b)



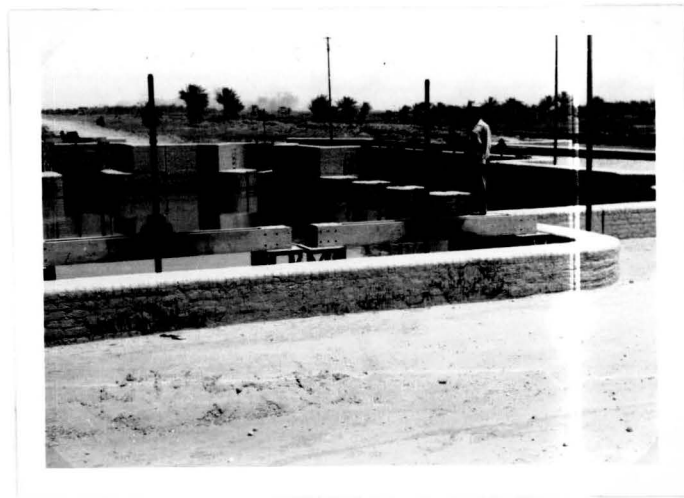
3



5



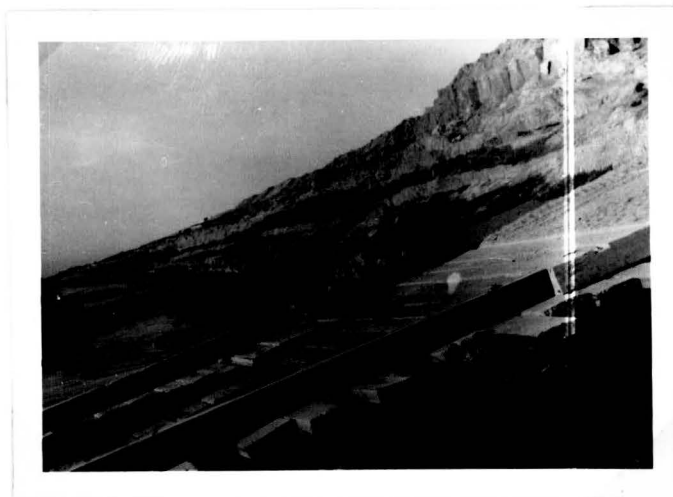
6



9



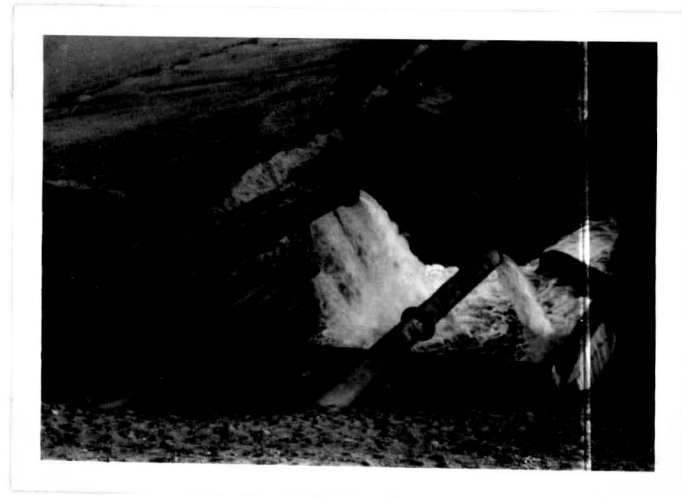
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10



8



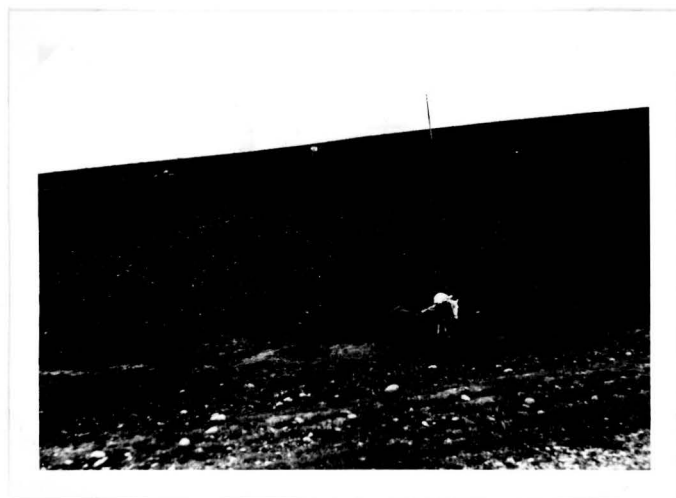
11



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15



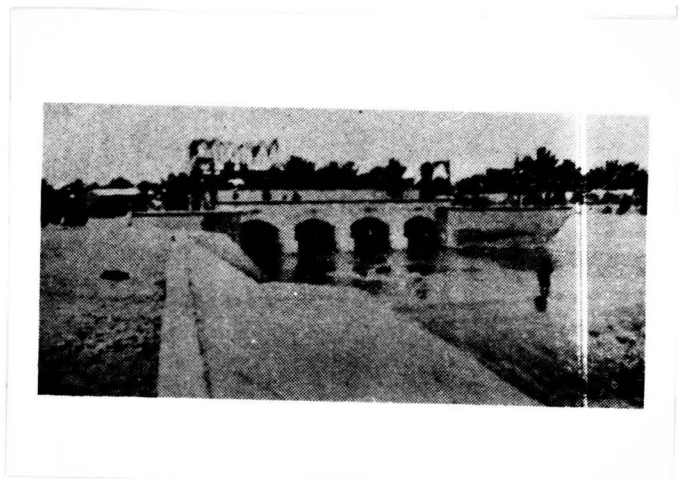
13



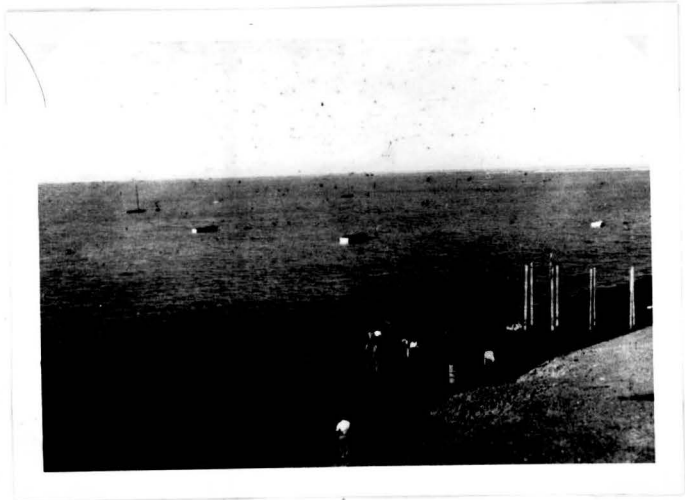
16 (a)



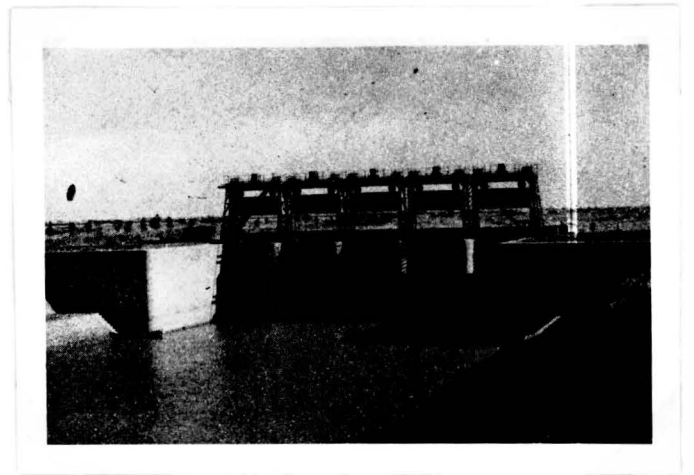
14



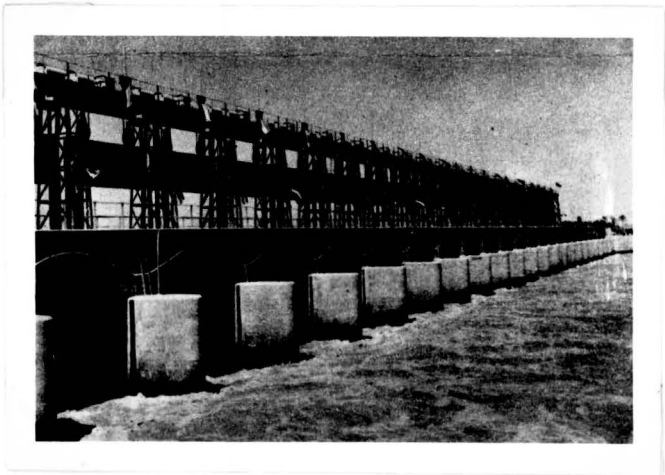
16 (b)



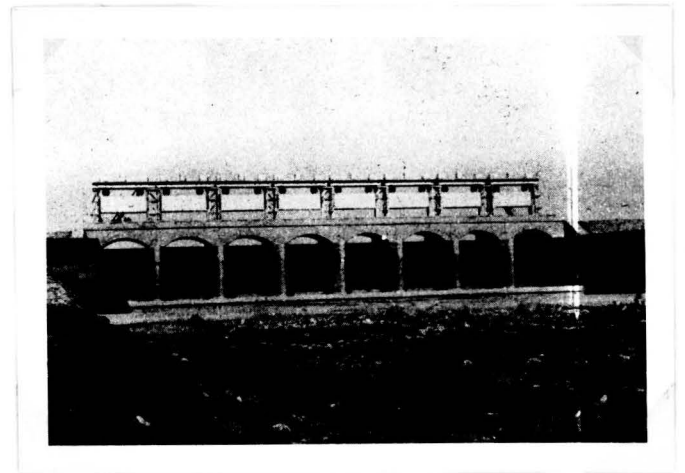
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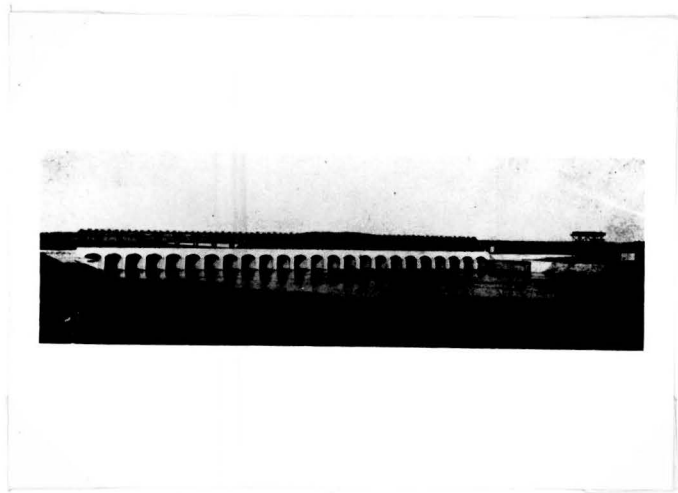
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19



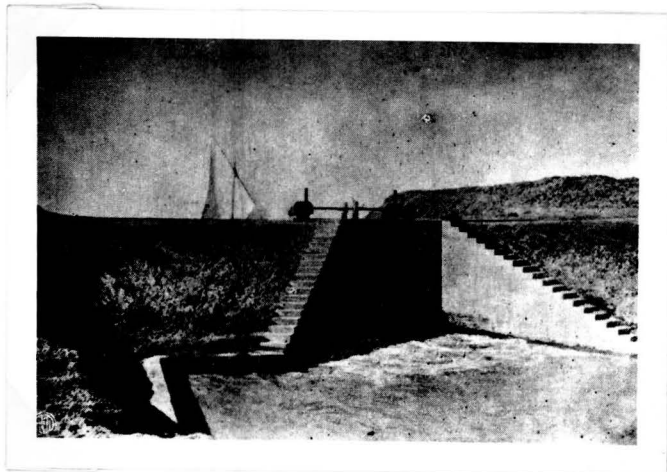
22



23



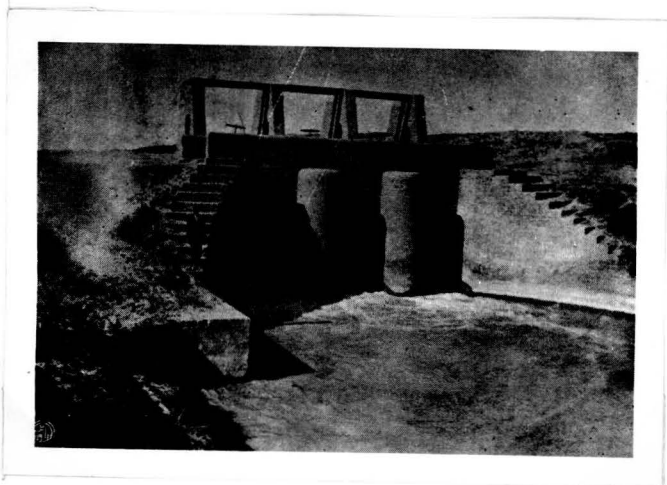
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24



27



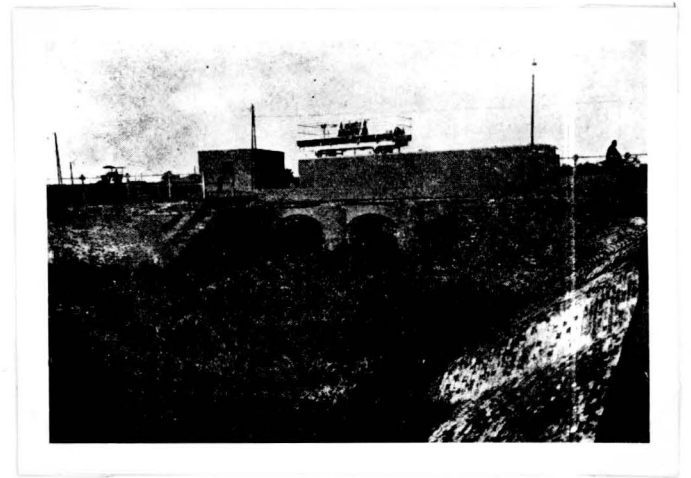
25



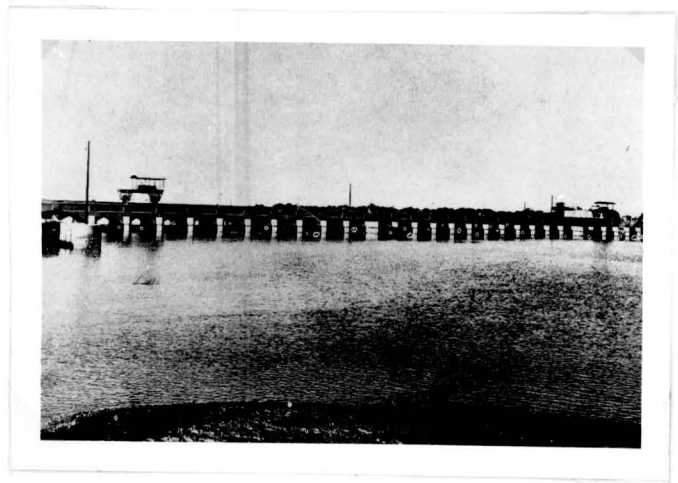
28



29



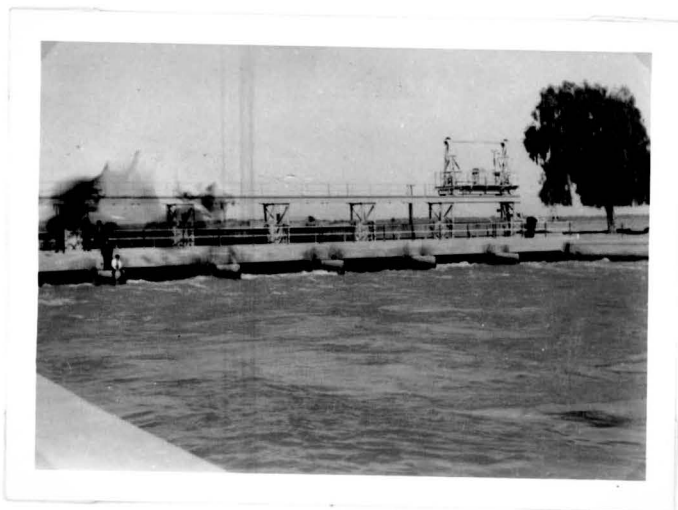
32



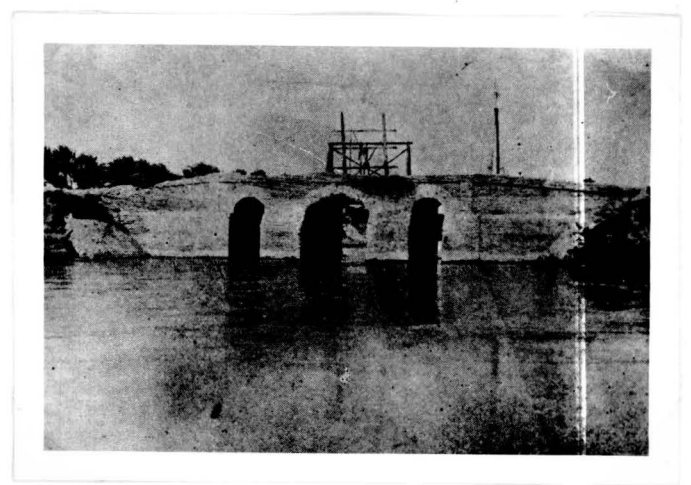
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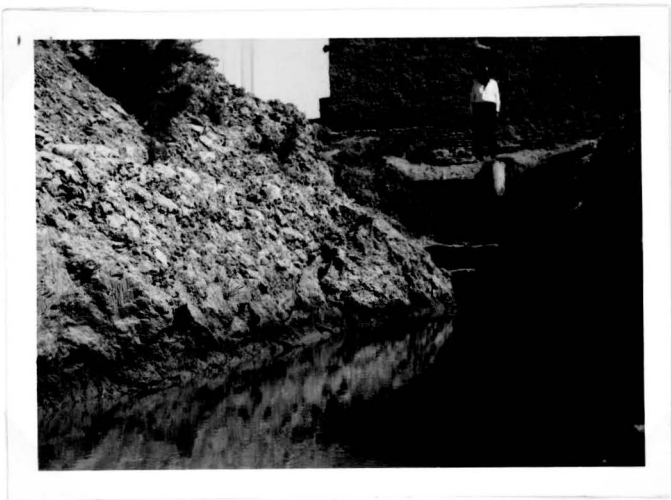
33



31



34



35



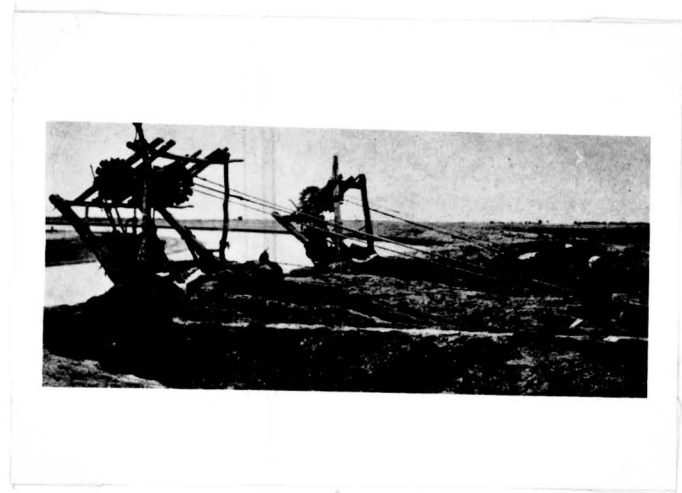
38



36



39



37



40 (a)



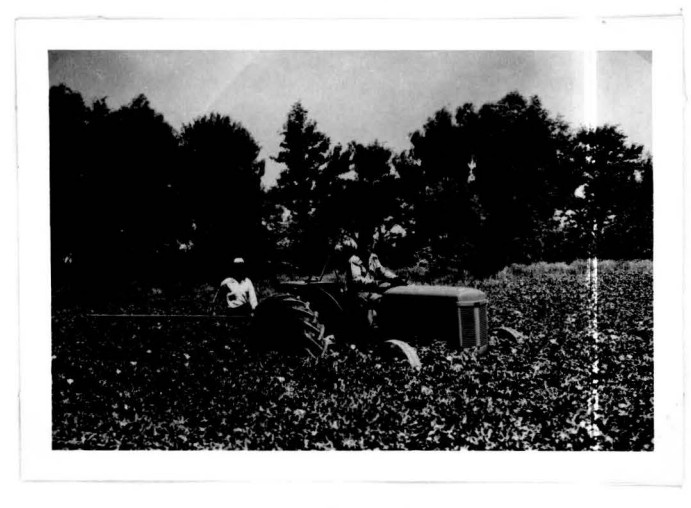
40 (b)



42 (b)



41



42 (c)



42 (d)



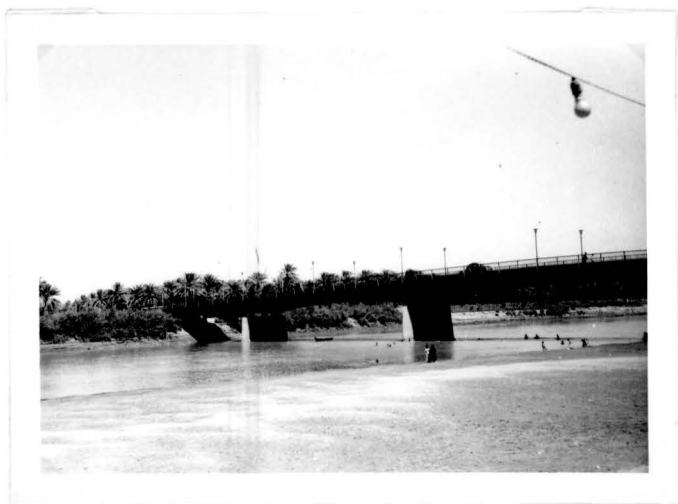
43



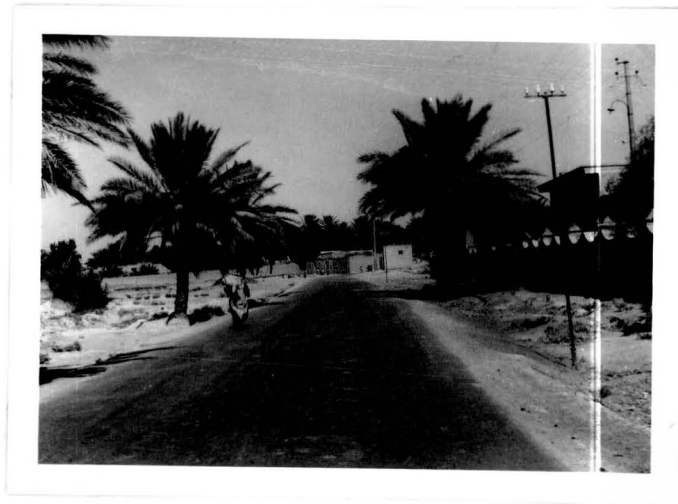
44



47



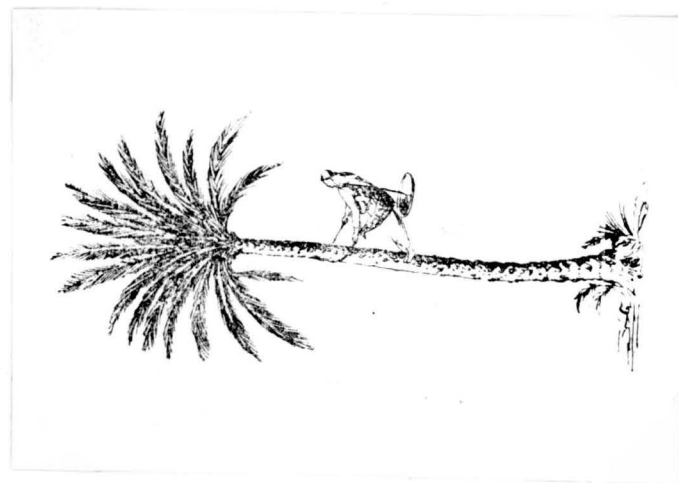
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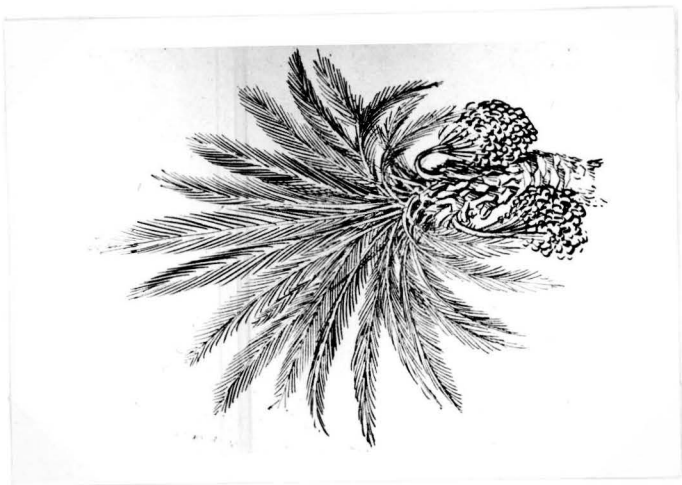
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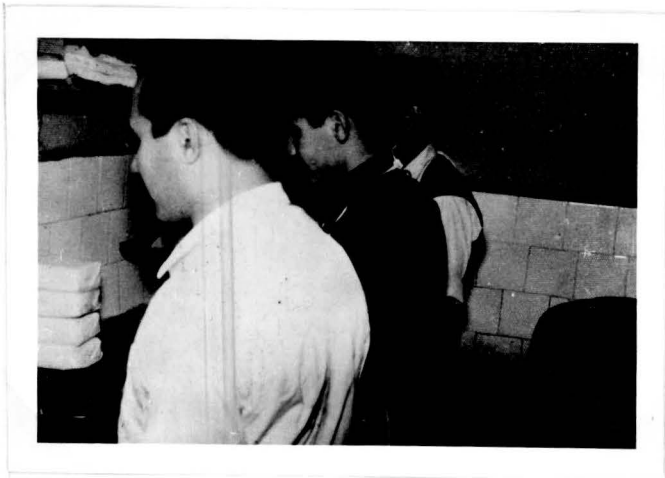
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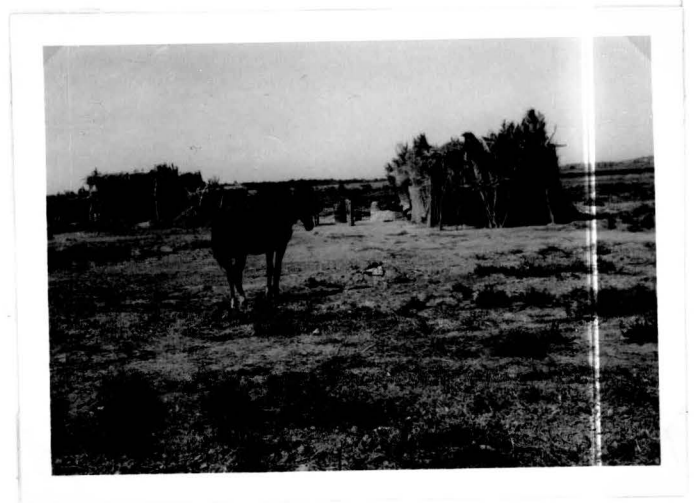
62



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63



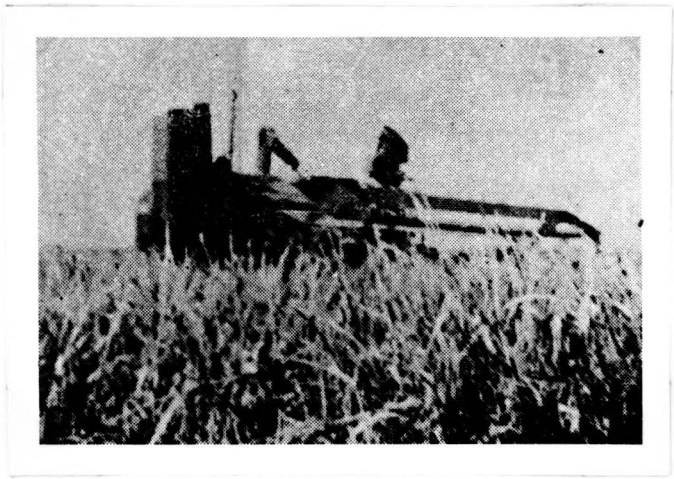
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72



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73



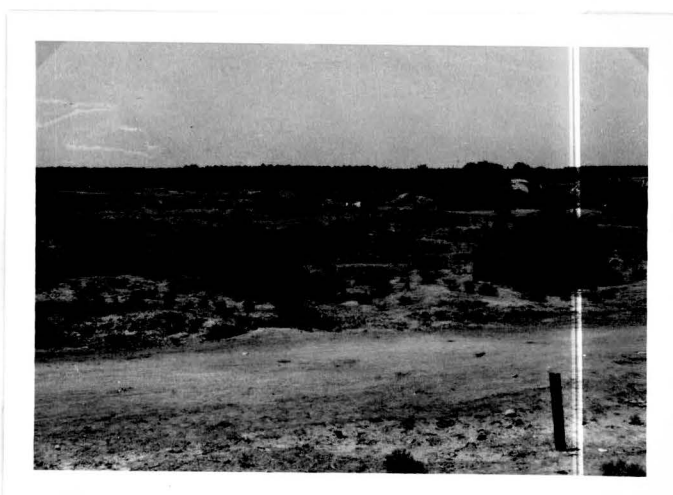
74



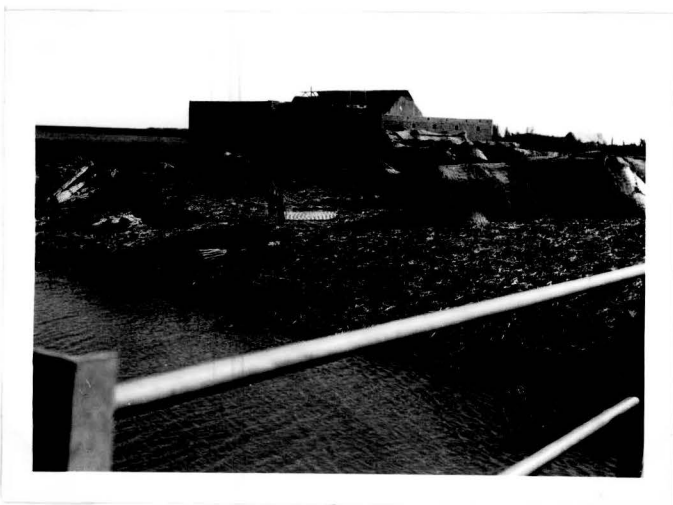
77



75



78



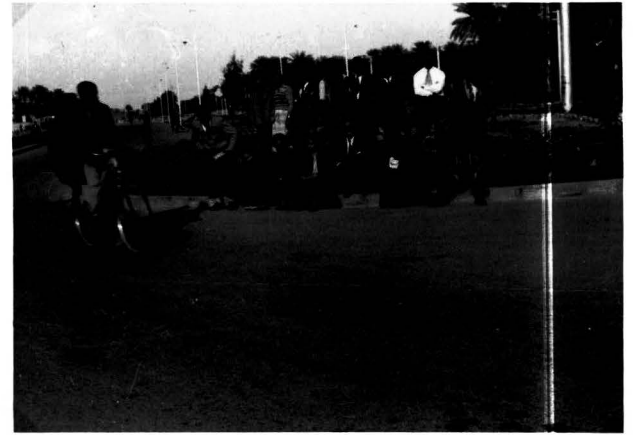
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88

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