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The olive in Northern Tripolitania: some aspects of agrarian geography

A. R. Taylor

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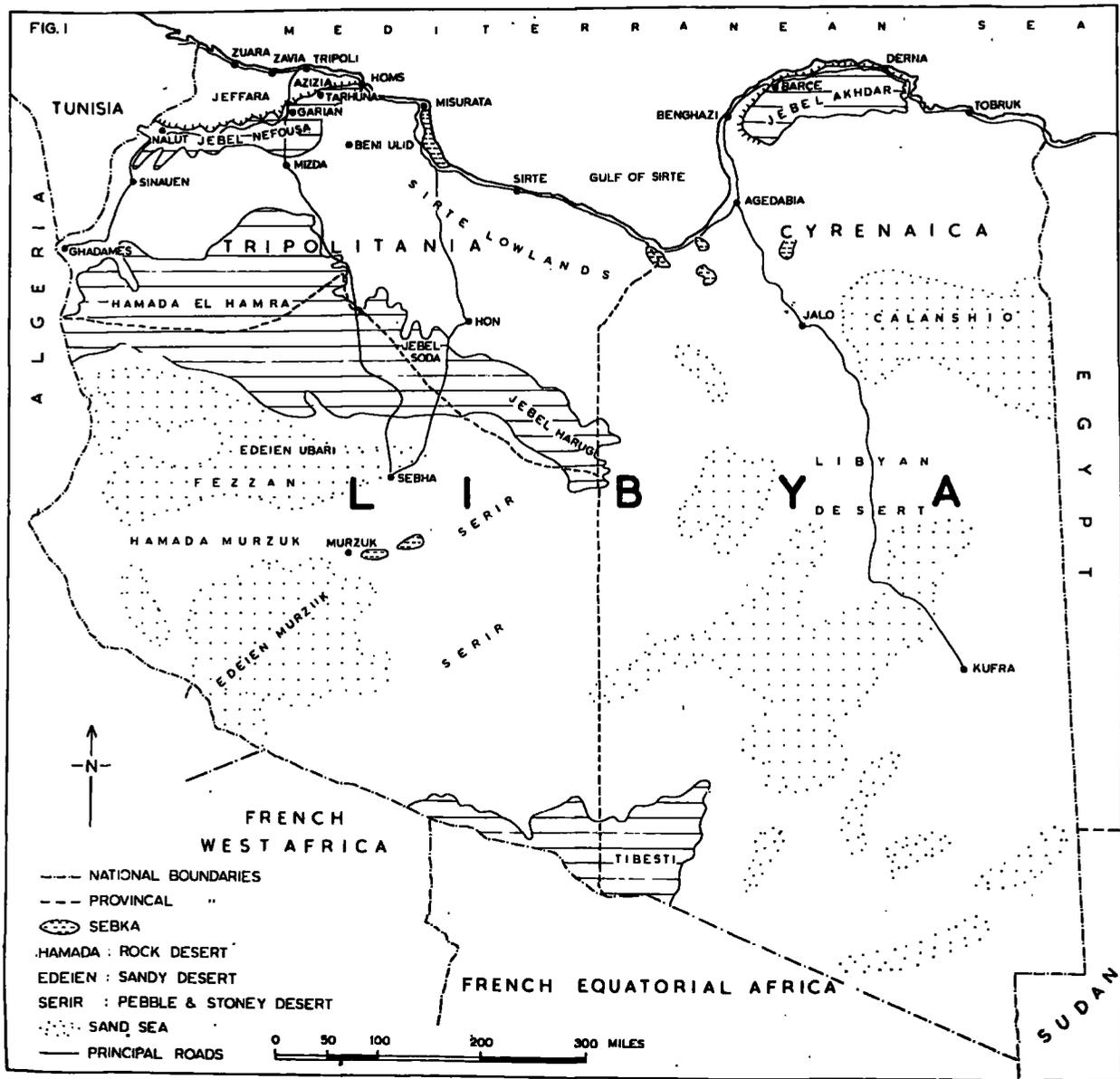


Fig 2a

SIMPLIFIED GEOLOGY

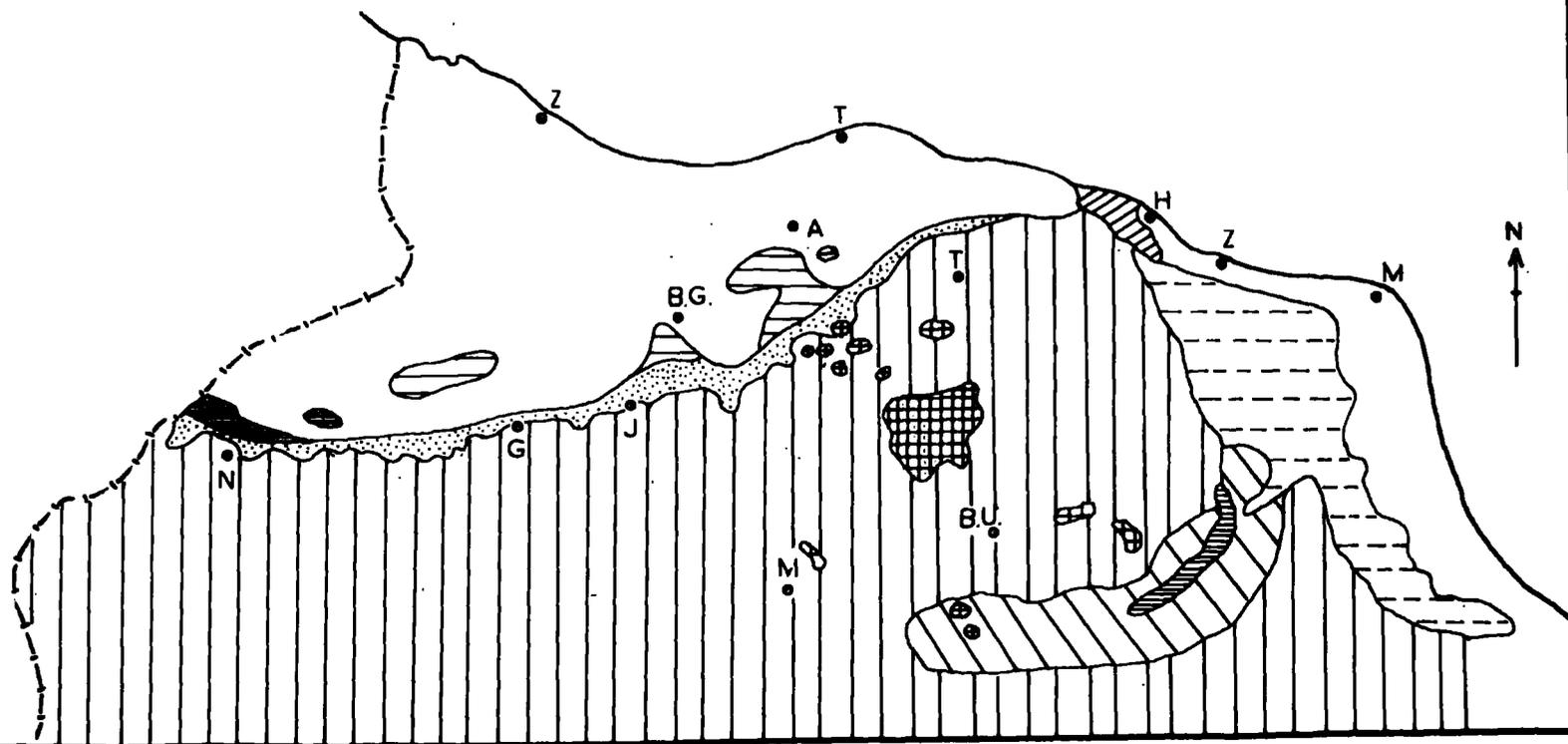
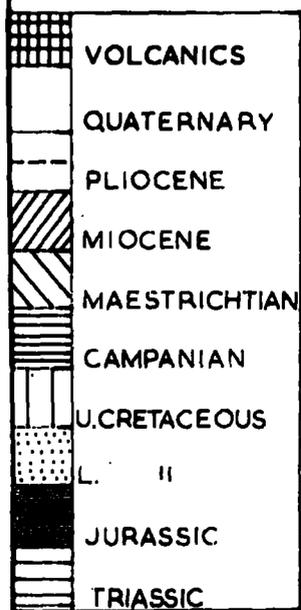


Fig 2b

GEOLOGICAL SECTION FROM THE GEBEL GARIAN ACROSS THE JEFARA PLAIN

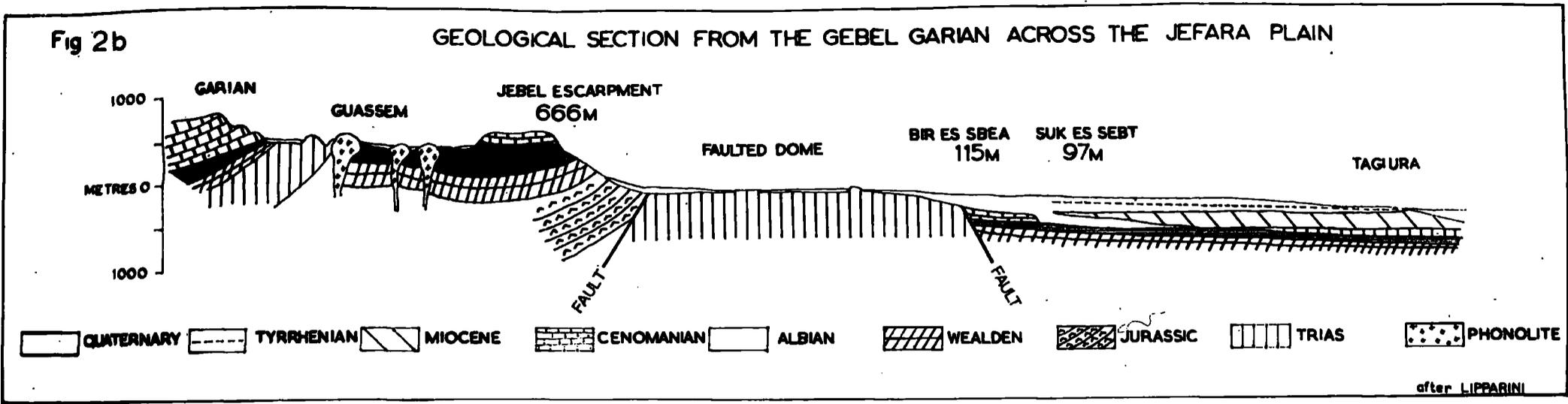
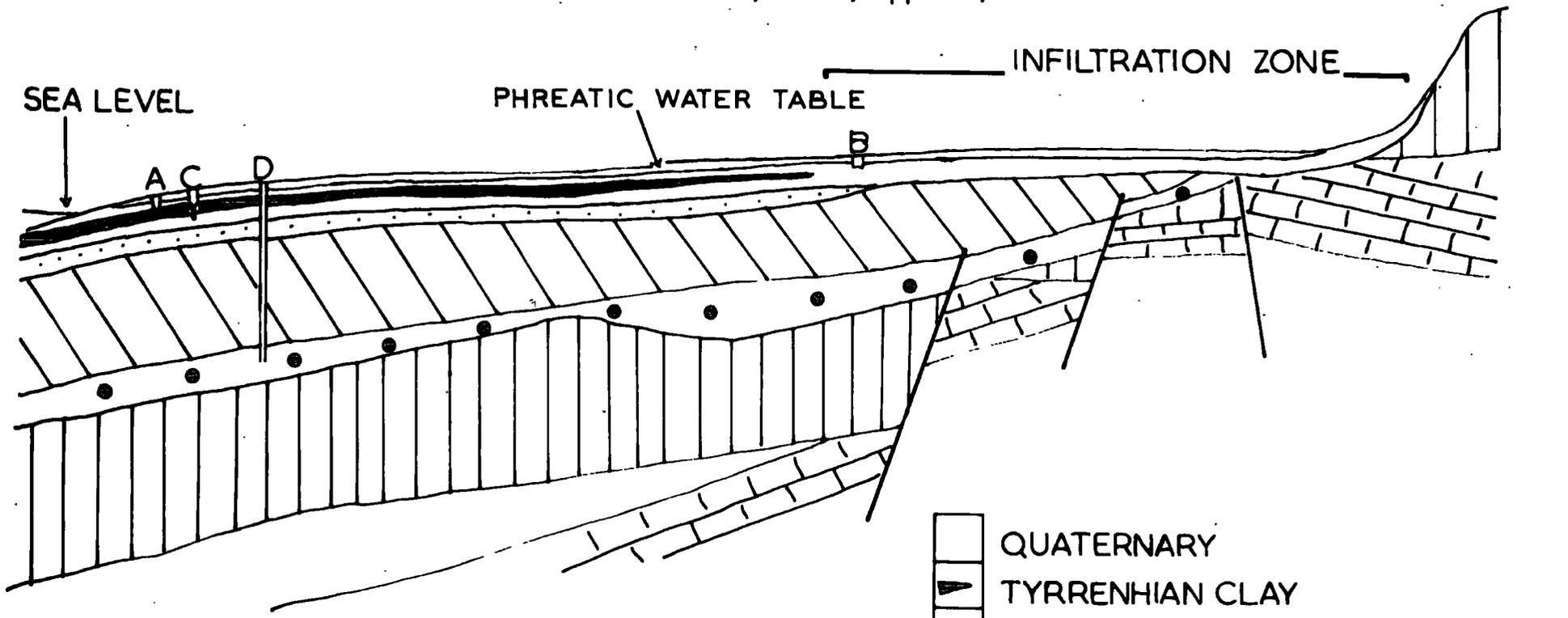


Fig 3

ACQUIFERS OF THE JEFARA

(after Desio, Chiesa, Lipparini, Archambault)



TYPES OF WELLS

- A Coastal Phreatic
- B Interior "
- C Sub-Artesian
- D Artesian

- QUATERNARY
- TYRRENHIAN CLAY
- MIOCENE Lst. - TORTONIAN
- " CLAY - HELVETIAN
- " SANDS, GRAVELS - LANGHIAN
- CRETACEOUS
- TRIASSIC

FIG 4a

SELECTED PROFILES ACROSS THE JEFARA & JEBEL

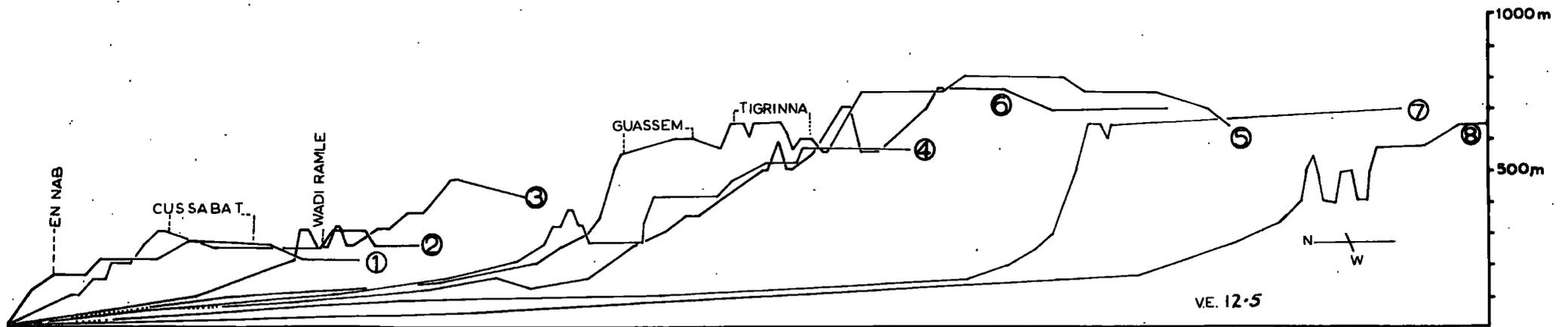
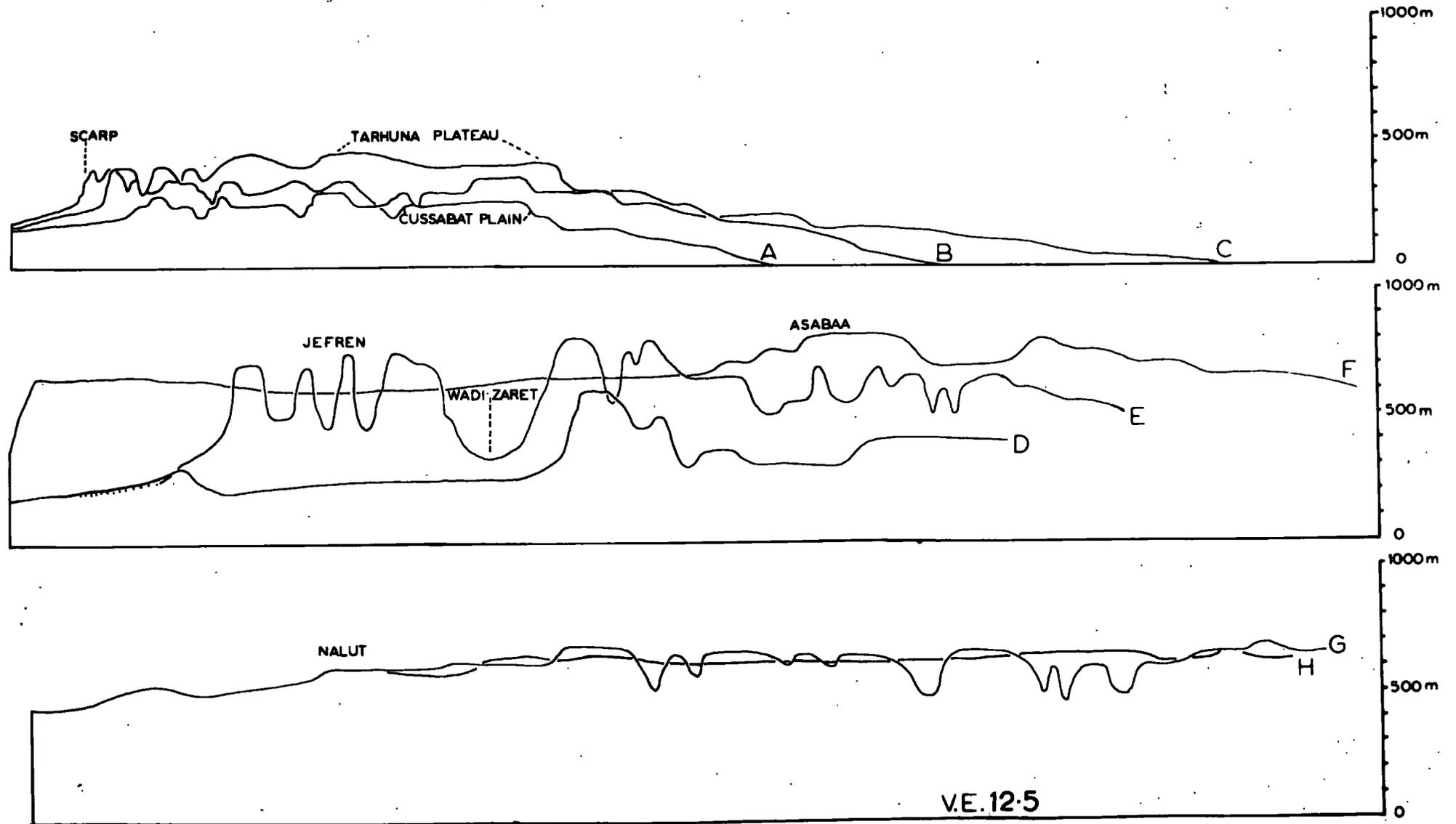


FIG 4b

SELECTED E-W PROFILES ACROSS THE JEBEL



LOCATION OF PROFILES

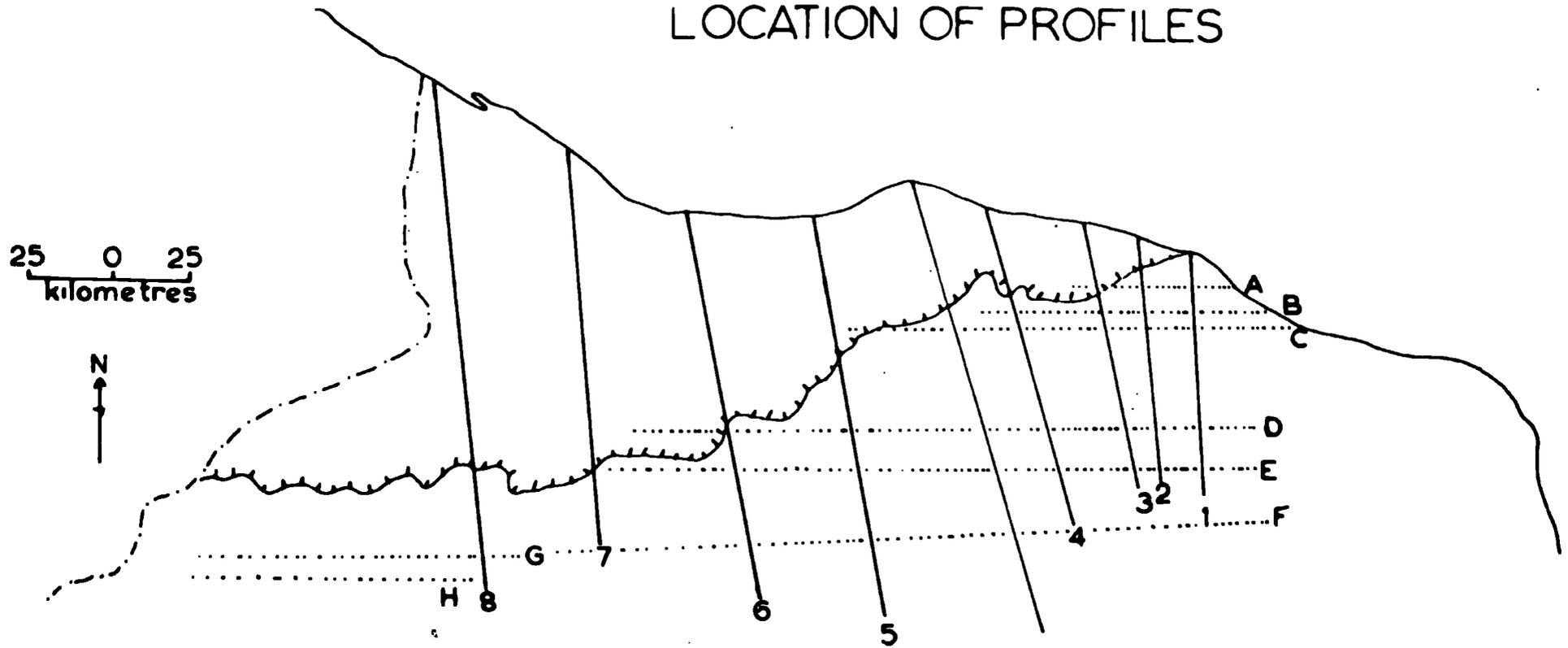


FIG 6

WADI PROFILES

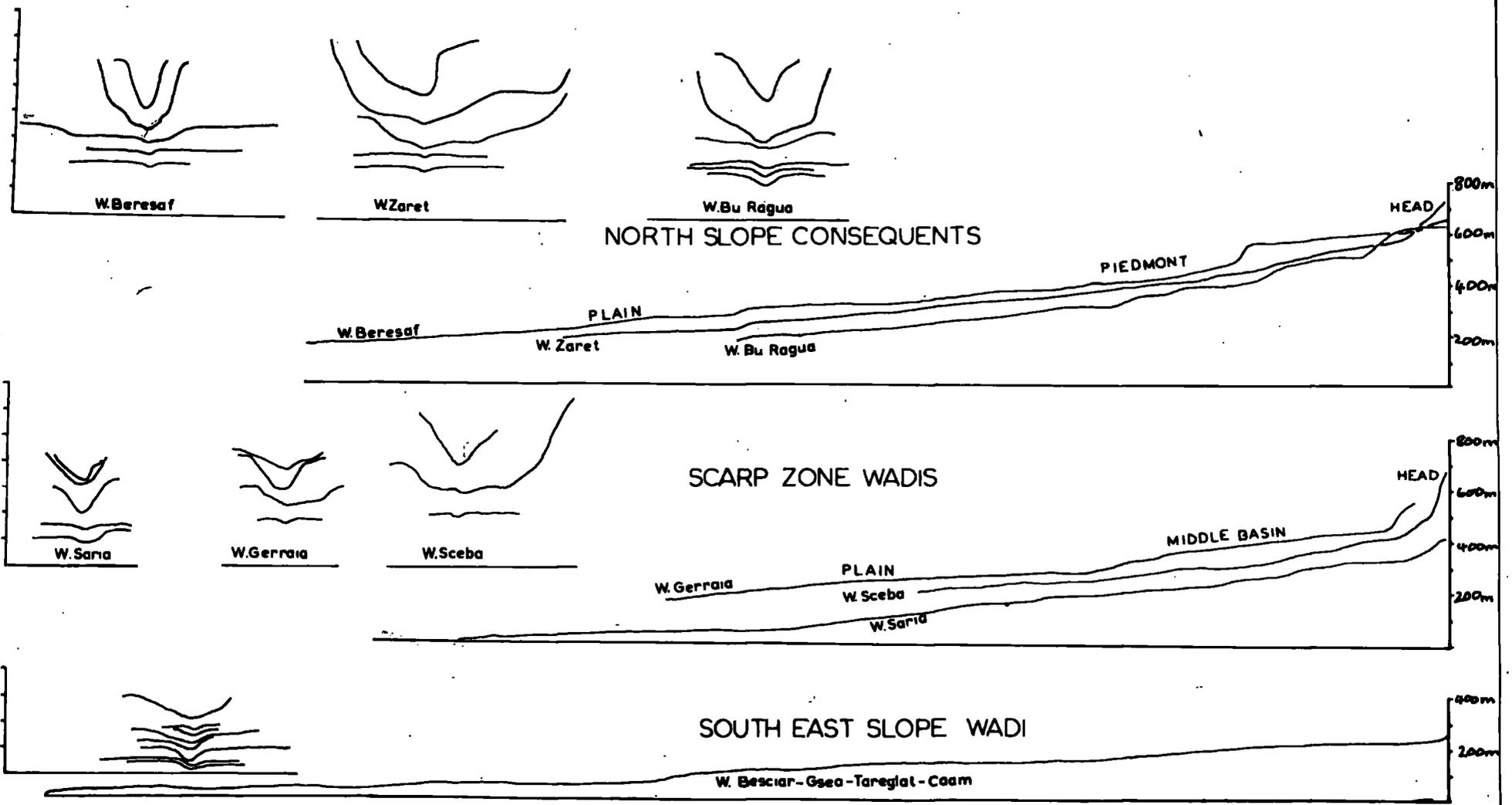


Fig 7

CLIMATIC REGIONS after Fantoli

0 50 100
kilometres

- Maritime
- Steppe
- High Plain
- Semi Desert
- Desert

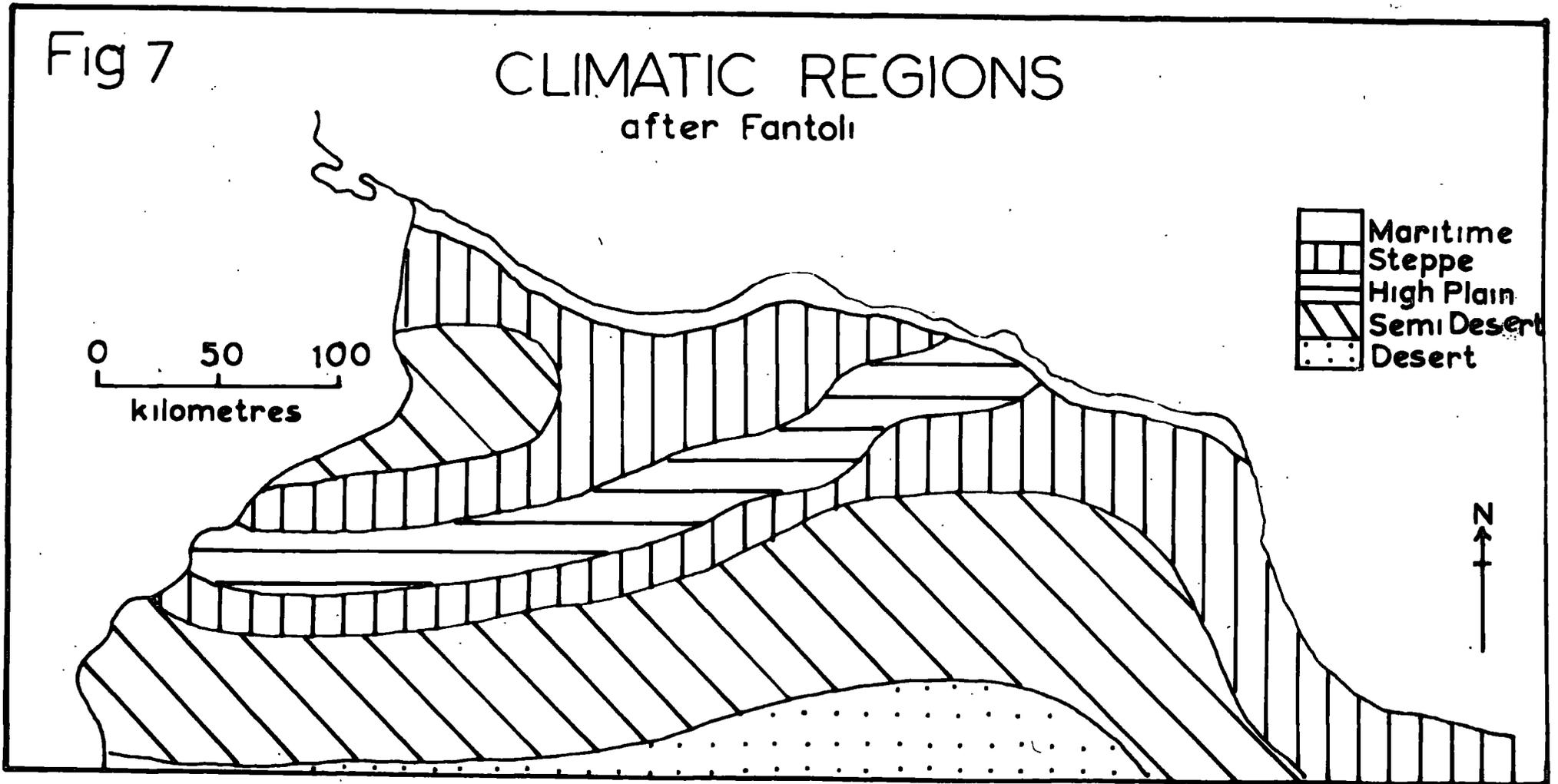


FIG 8

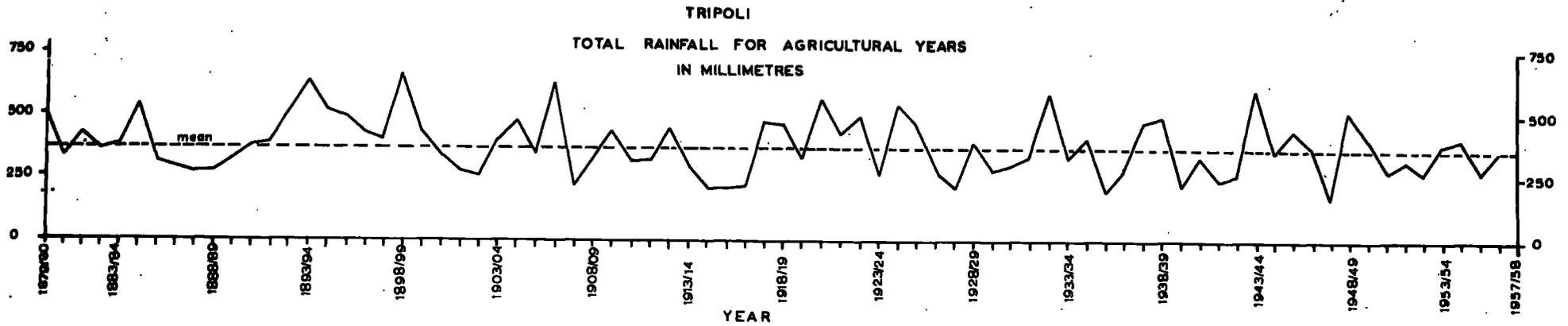


FIG 9

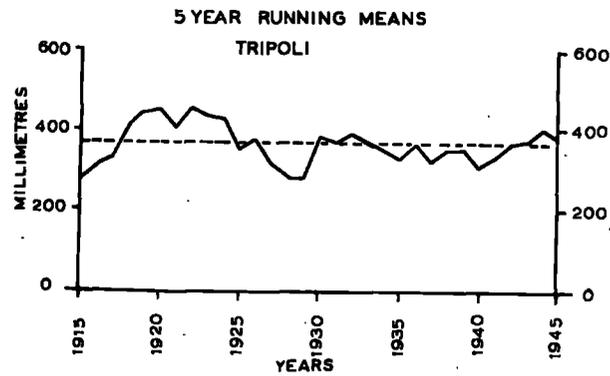


FIG 11

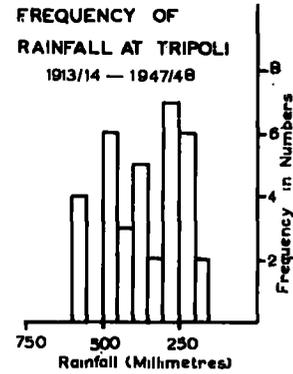


FIG 10

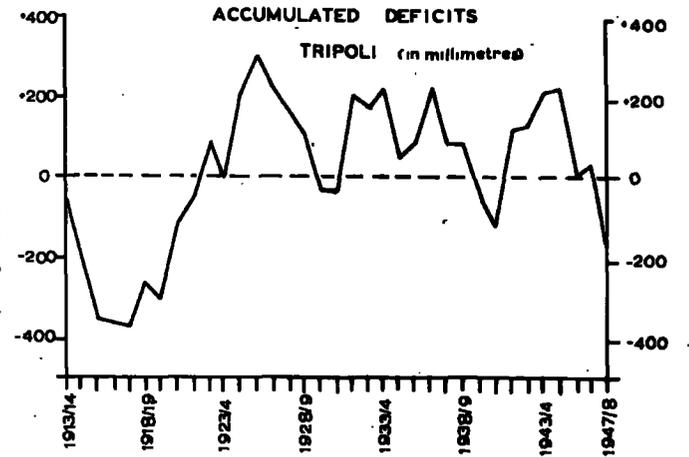


Fig 12

MEAN ANNUAL RAINFALL IN NORTHERN TRIPOLITANIA
(IN MILLIMETRES)

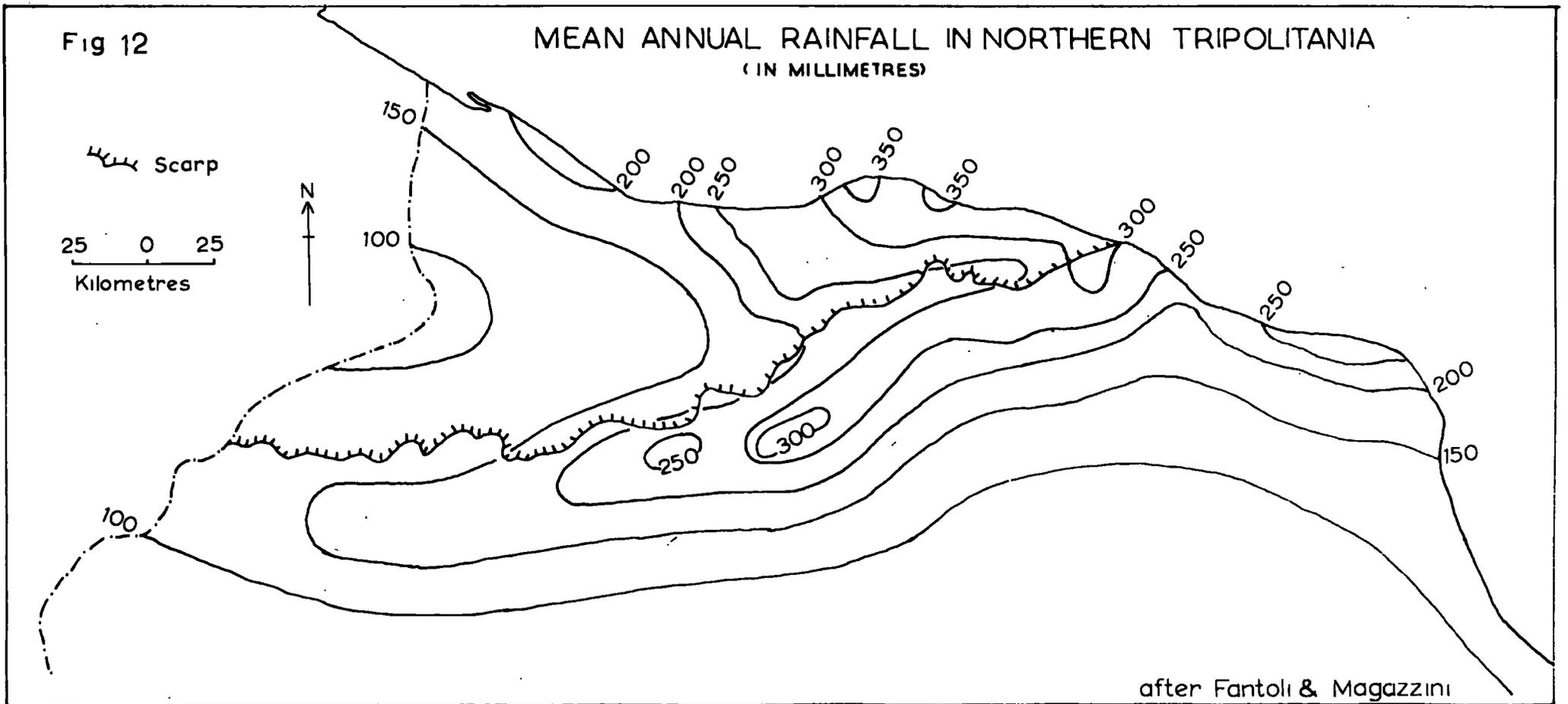


FIG 13

RELATIVE VARIABILITY OF ANNUAL RAINFALL

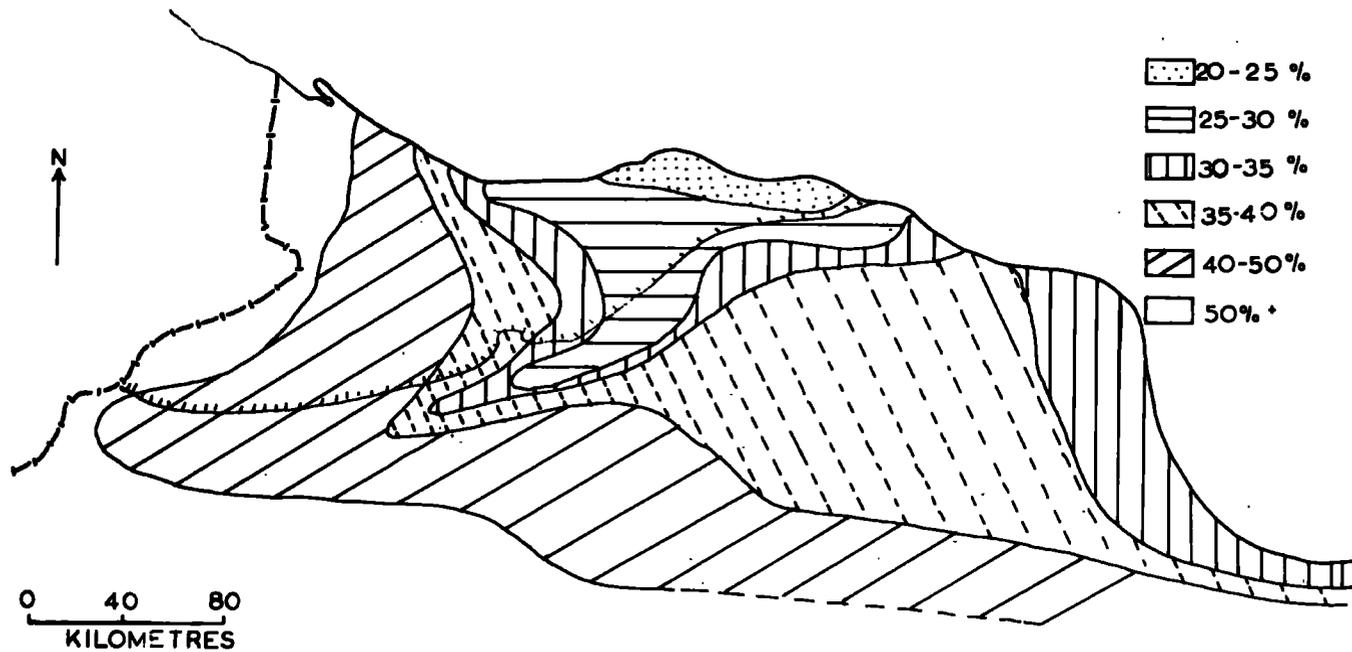


FIG 15

PROBABILITY OF RAINFALL OVER 200mm's per annum

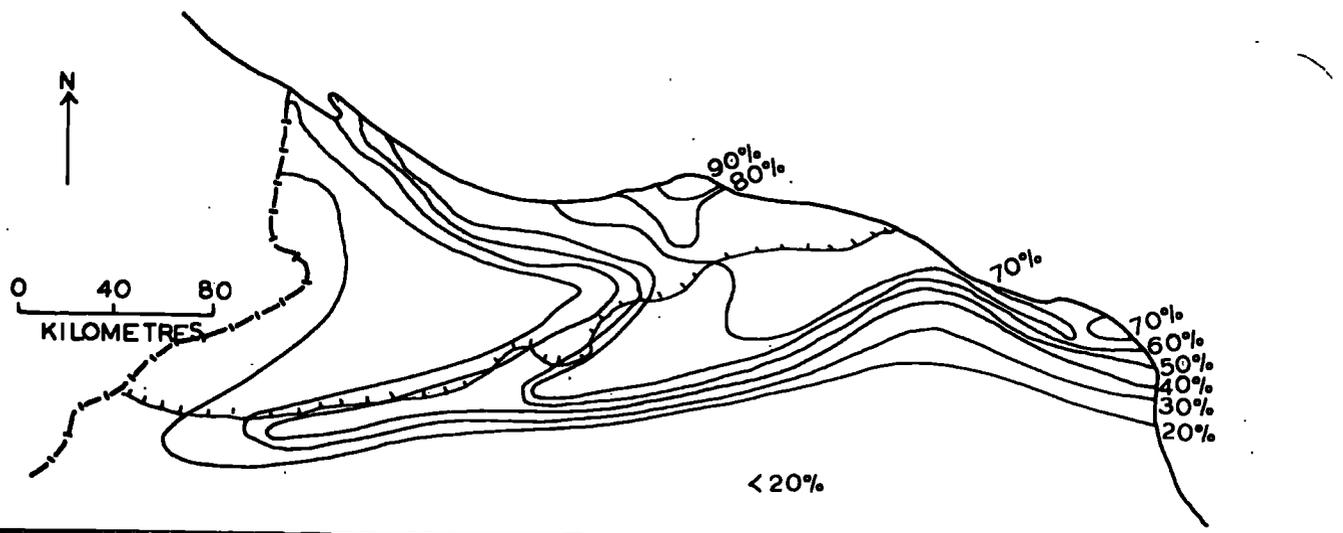


Fig 14

MOVEMENT OF THE 200mm's ISOHYET IN HIGH AND LOW RAINFALL YEARS

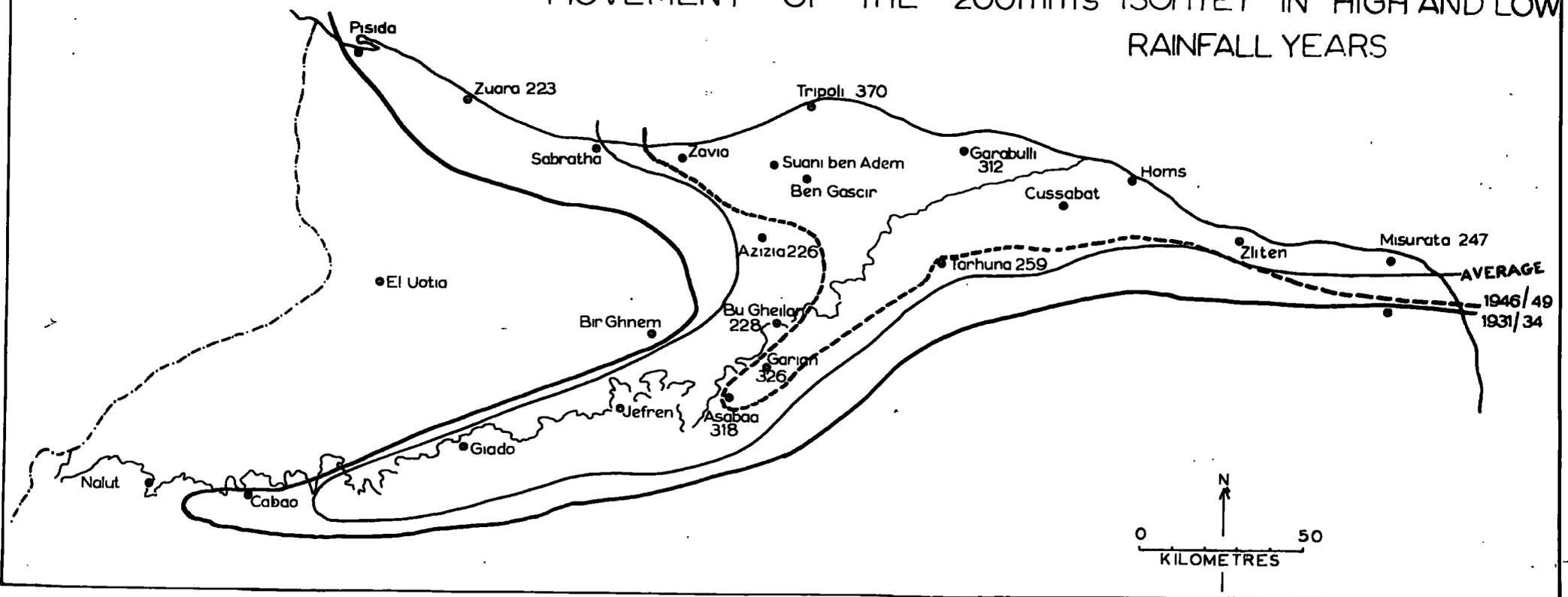
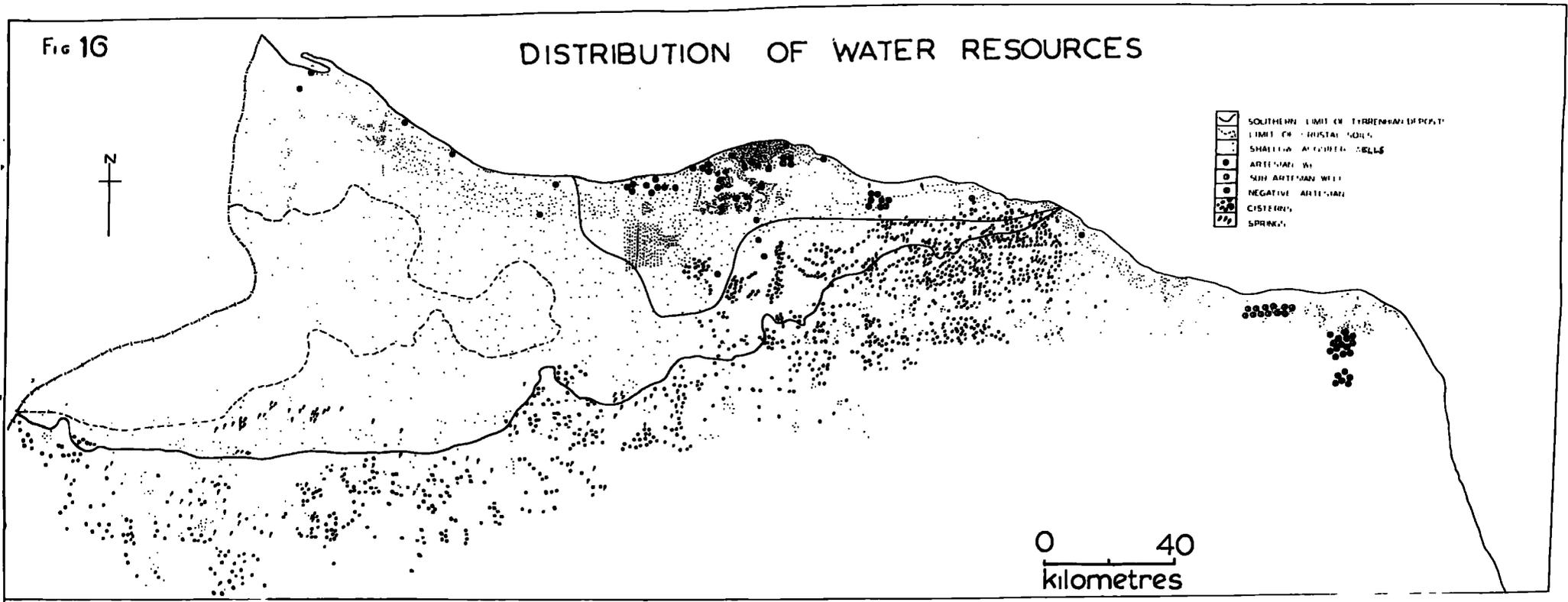


Fig 16

DISTRIBUTION OF WATER RESOURCES



-  SOUTHERN LIMIT OF TYRRENIAN DEPOSIT
-  LIMIT OF CRUSTAL SOILS
-  SHALLOW ARTESIAN WELLS
-  ARTESIAN WELL
-  SUB-ARTESIAN WELL
-  NEGATIVE ARTESIAN
-  CISTERNS
-  SPRINGS

0 40
kilometres

N

Fig 17

FARM TYPES and LAND USE

adapted from BMA, Land Use in Tripolitania

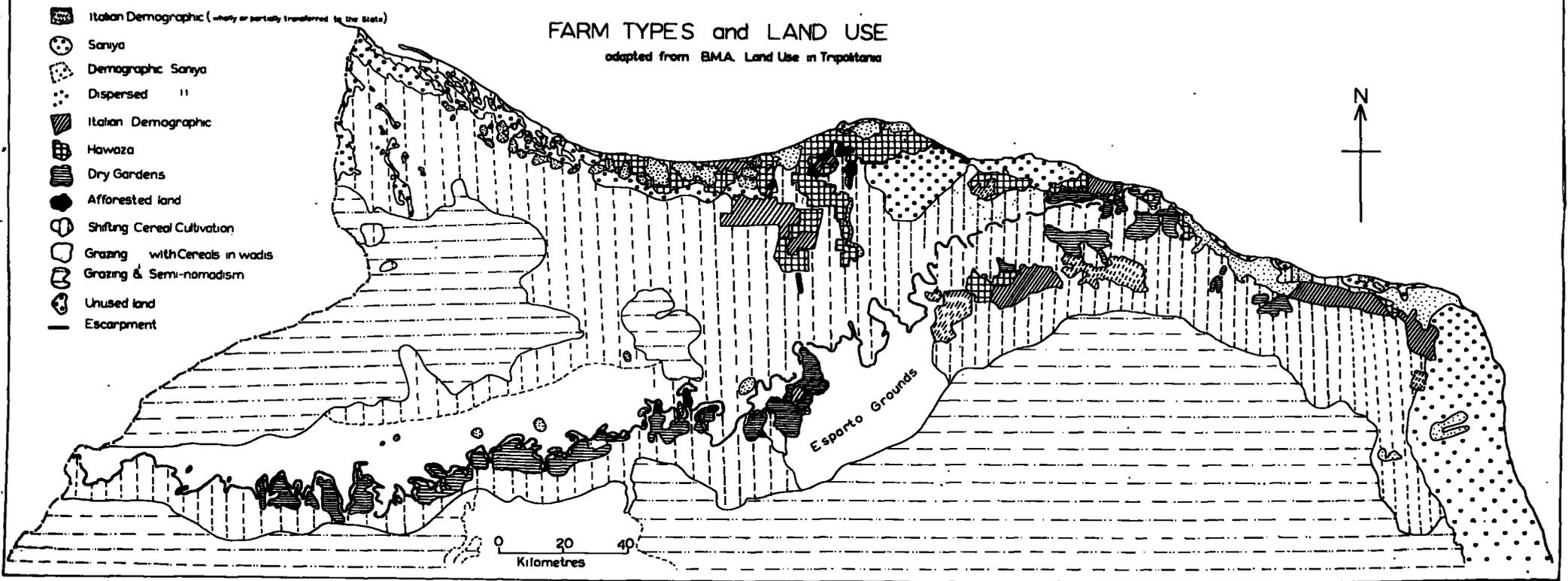


fig 18a

Distribution of Olive Trees

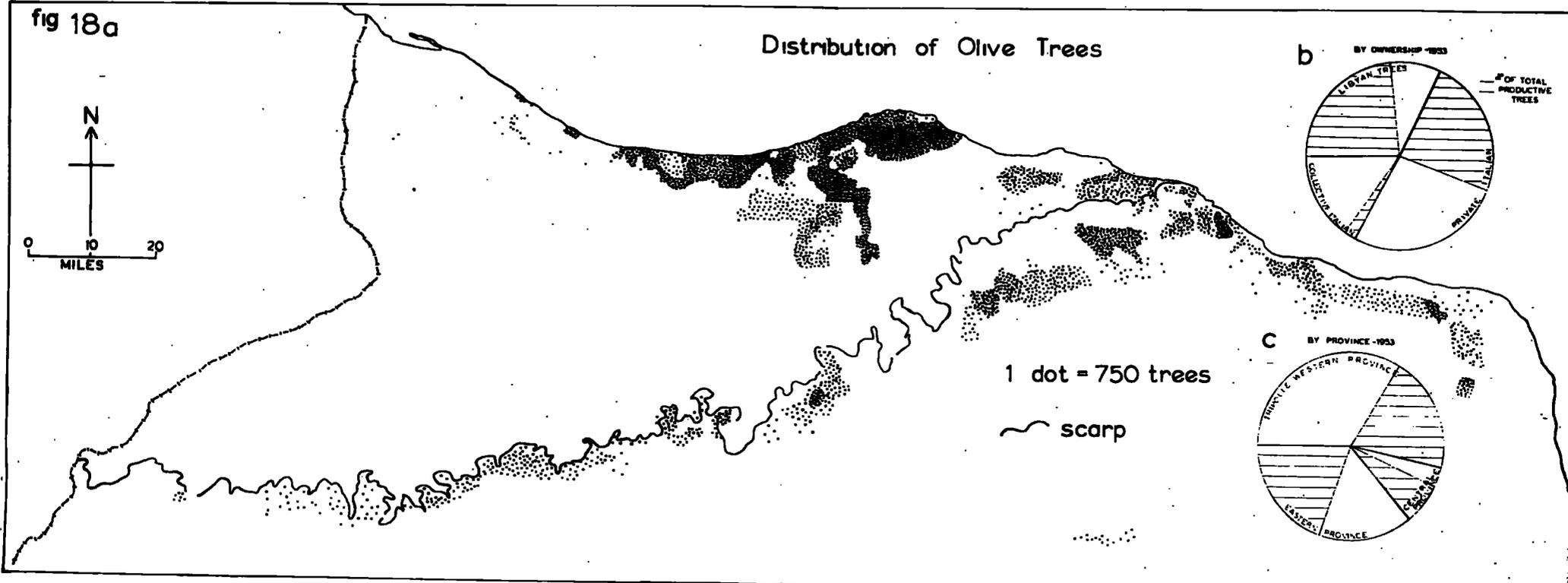


Fig 19

DISTRIBUTION OF TREE CROPS - 1952 - BY DISTRICTS

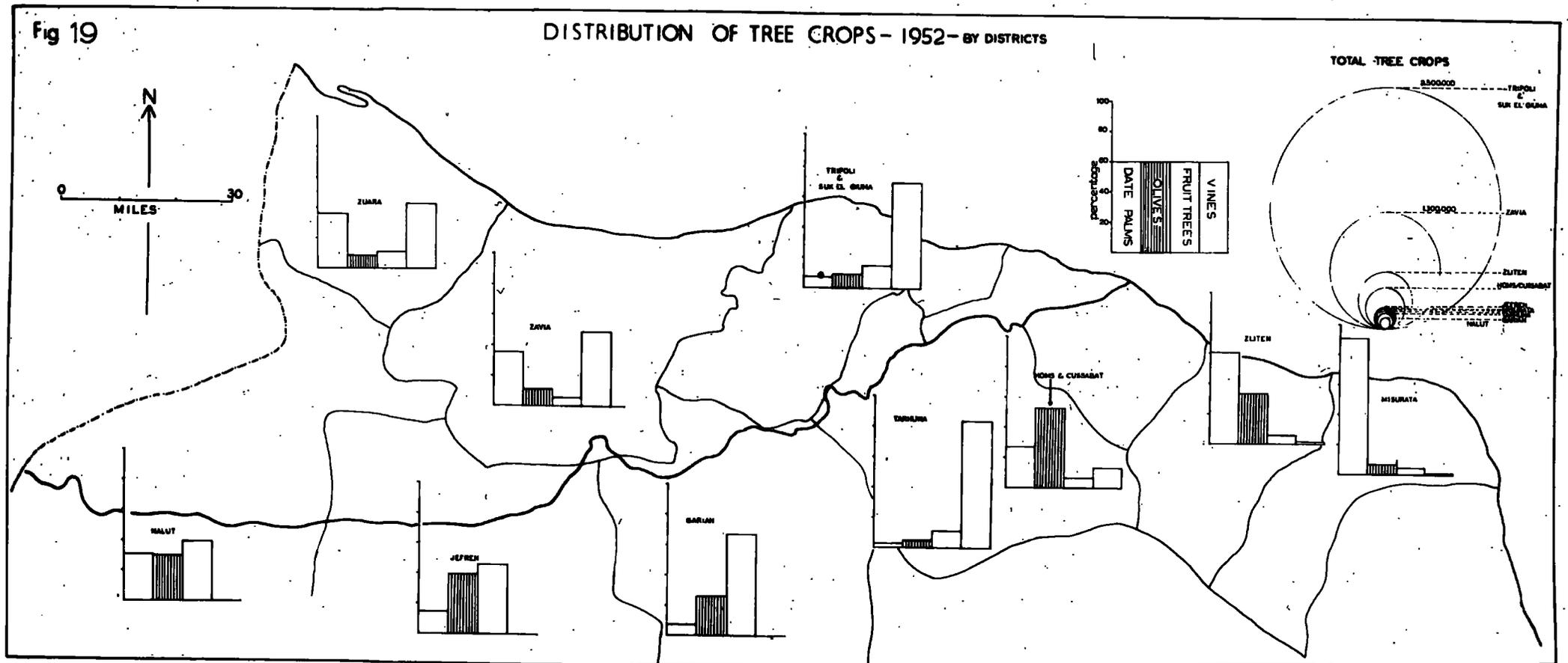


Fig 20

CROP EXPECTATION OF DRYLAND OLIVES

-  GOOD CROP 300mmrs+
-  FAIR || 250-300||
-  POOR || 150-250 ||
-  NO CROP <150 mmrs

 SCARP

25 0 25
KILOMETRE'S

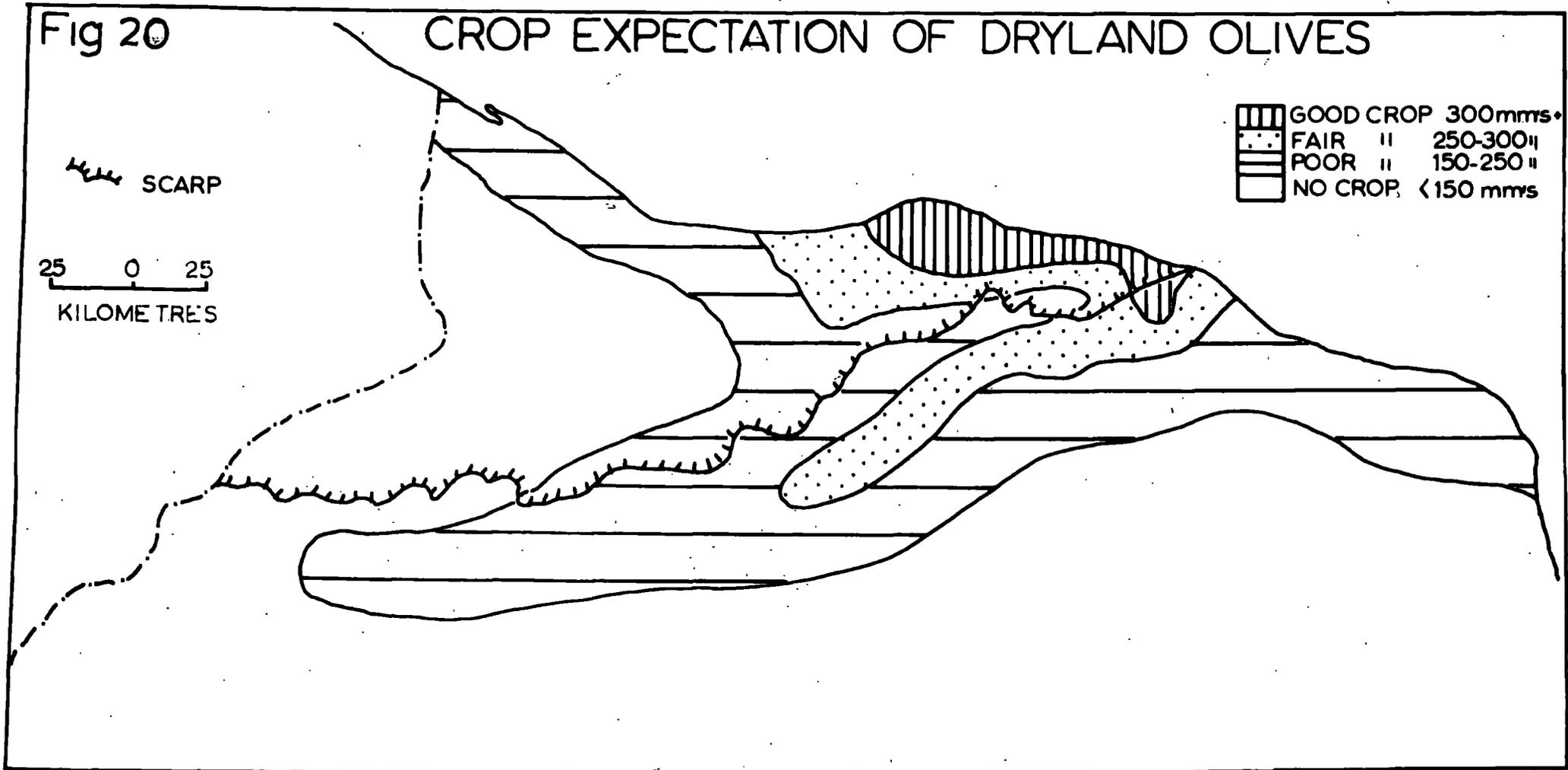
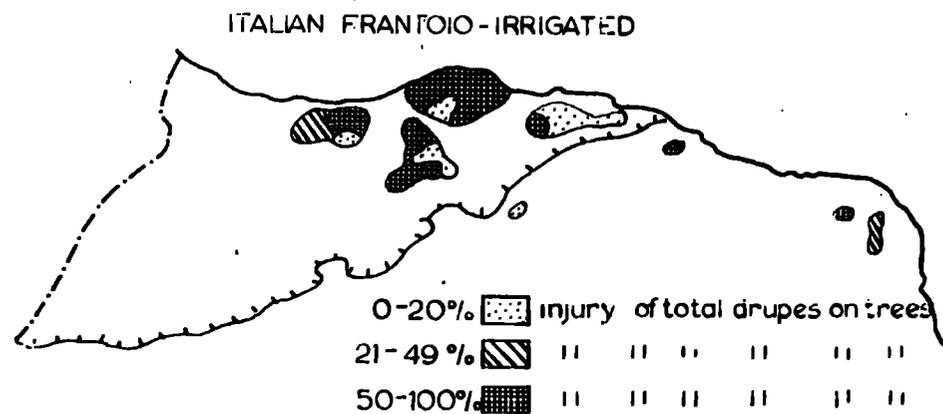
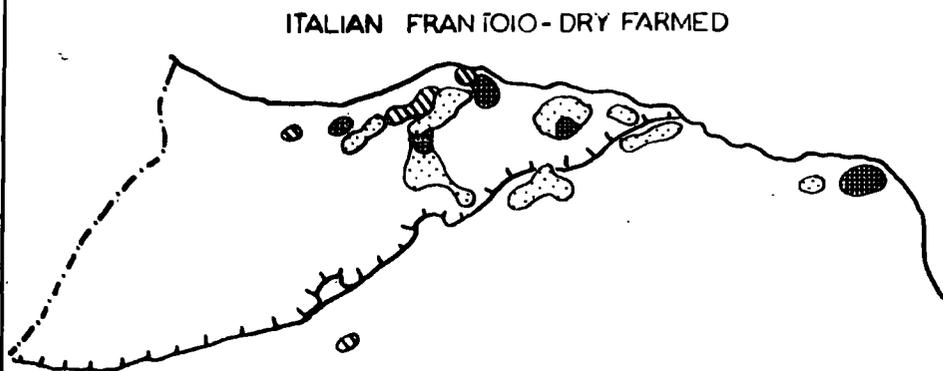
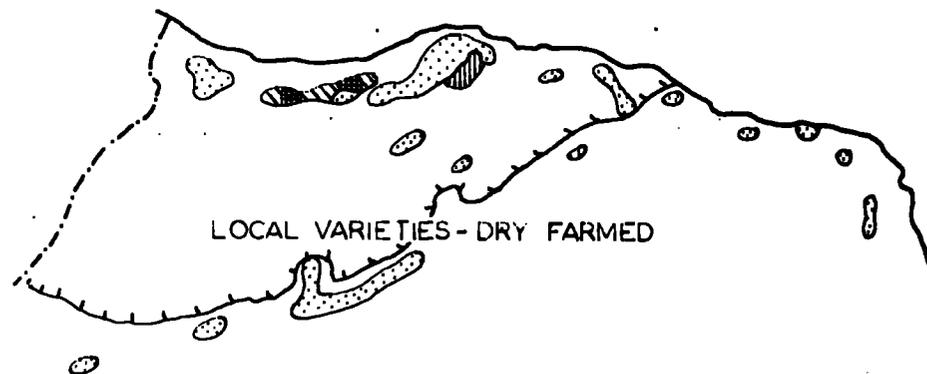
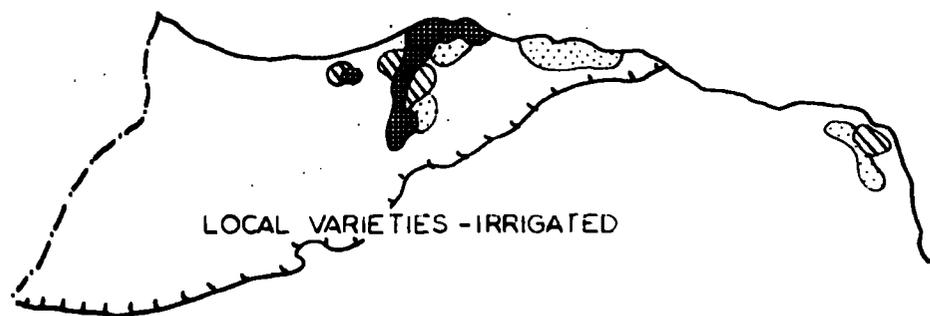


Fig 21

DISTRIBUTION OF DACUS OLEAE ATTACK ON OLIVES IN 1953



0 80
KILOMETRES

0-20% [unshaded] injury of total drupes on trees
21-49% [diagonal lines] " " " " " " "
50-100% [grid pattern] " " " " " " "

Fig 22

OLIVE CULTIVATION REGIONS

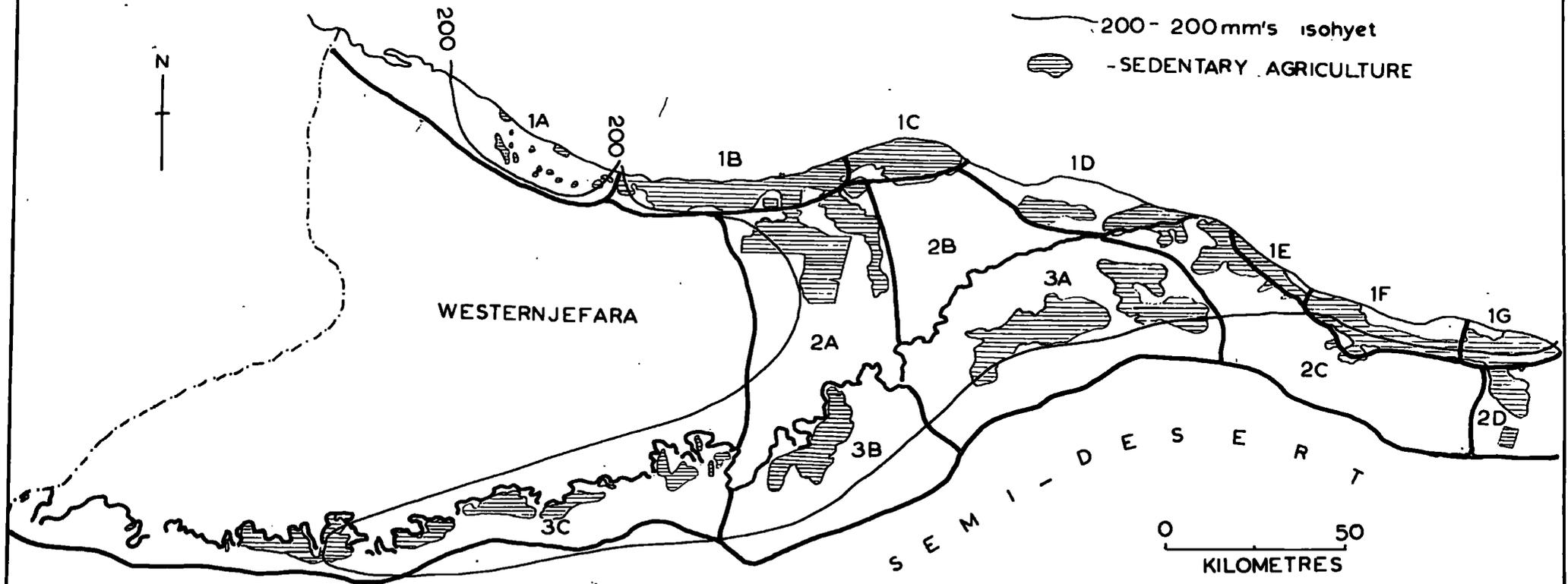
COASTAL PLAIN - 1.A.B.C.D.E.F.G

INTERIOR PLAIN - 2.A.B.C.D

JEBEL - 3.A.B.C.

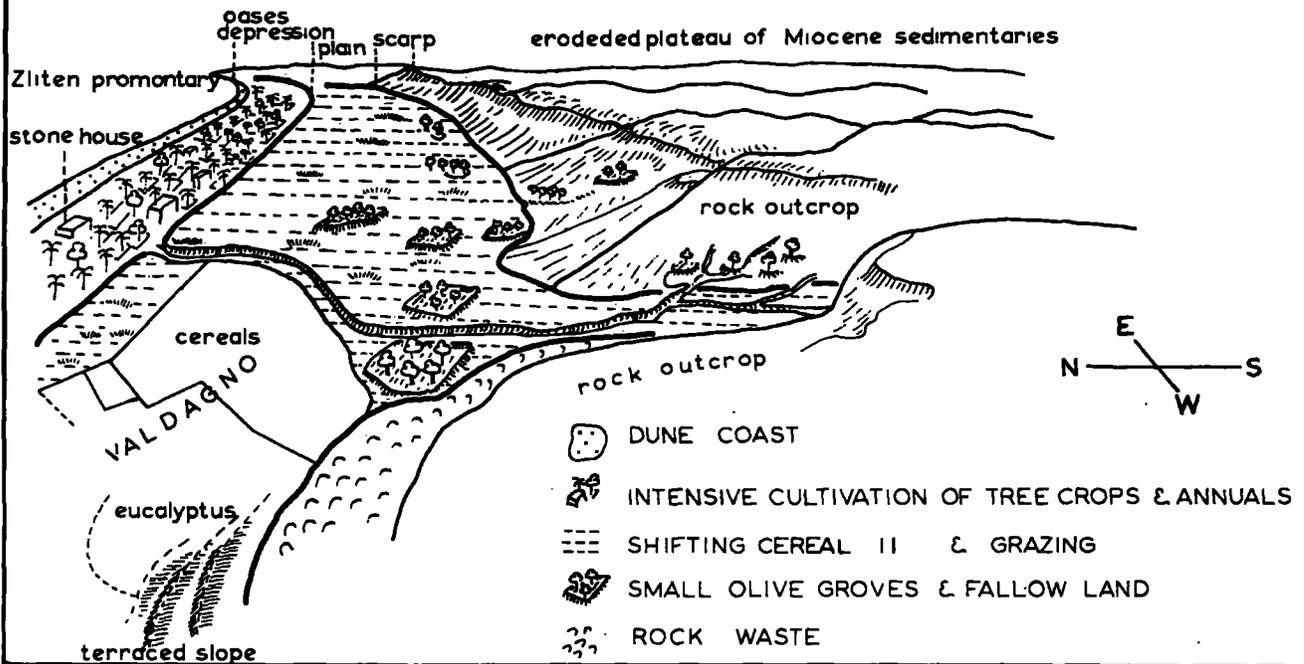
— 200 - 200mm's isohyet

▨ - SEDENTARY AGRICULTURE



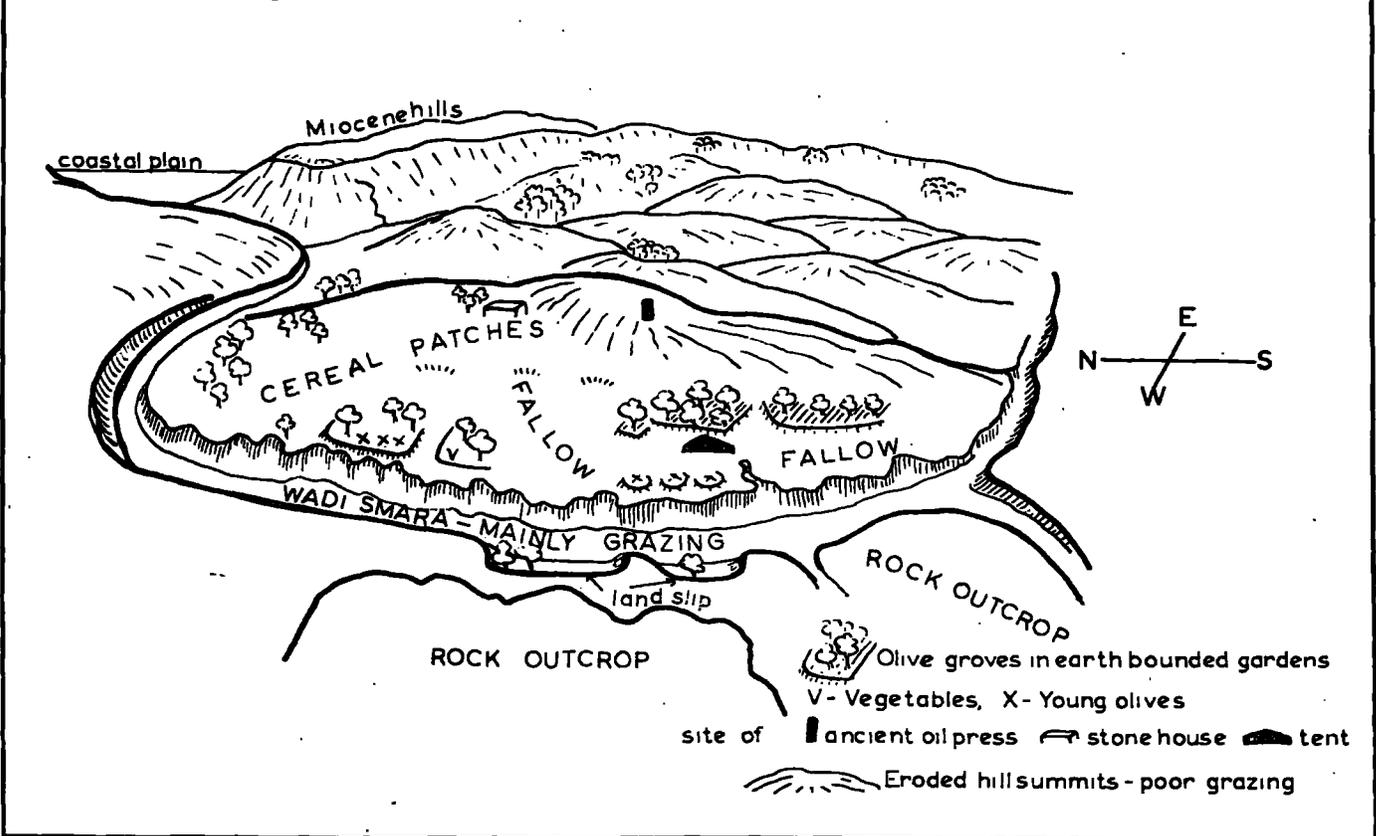
SKETCH MAP fig 23

LAND USE ON THE COASTAL PLAIN SOUTH OF ZLITEN & HOMS



SKETCH MAP fig 24

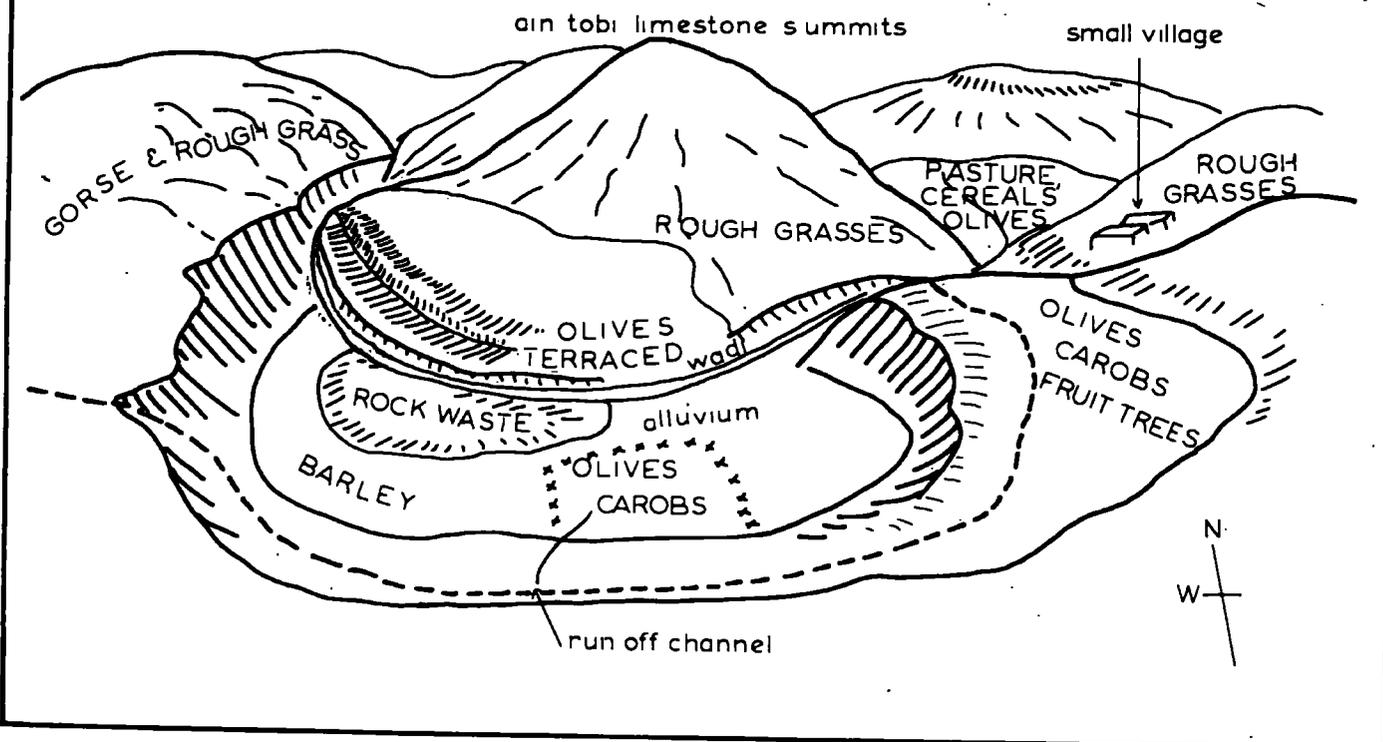
TYPICAL LAND USE ON THE LOW HILL ZONE



SKETCH MAP
FIG 25

LAND USE-NORTHERN JEBEL

(MIDDLE TRACT OF WADI GHERRUN TO THE N.W. OF CUSSABAT)



SKETCH MAP
FIG 26

LAND USE-NORTHERN JEBEL

(UPPER BASIN OF WADI MSABA N. OF TARHUNA)

garian limestone summits

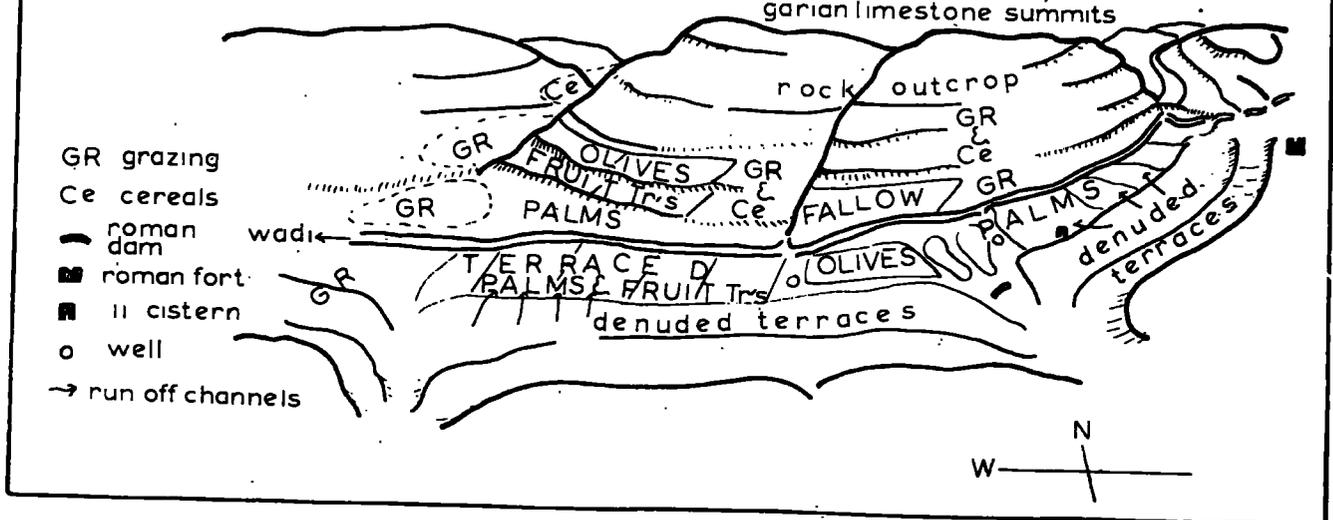


Fig 27

DISTRIBUTION OF ROMAN REMAINS (after GOODCHILD)

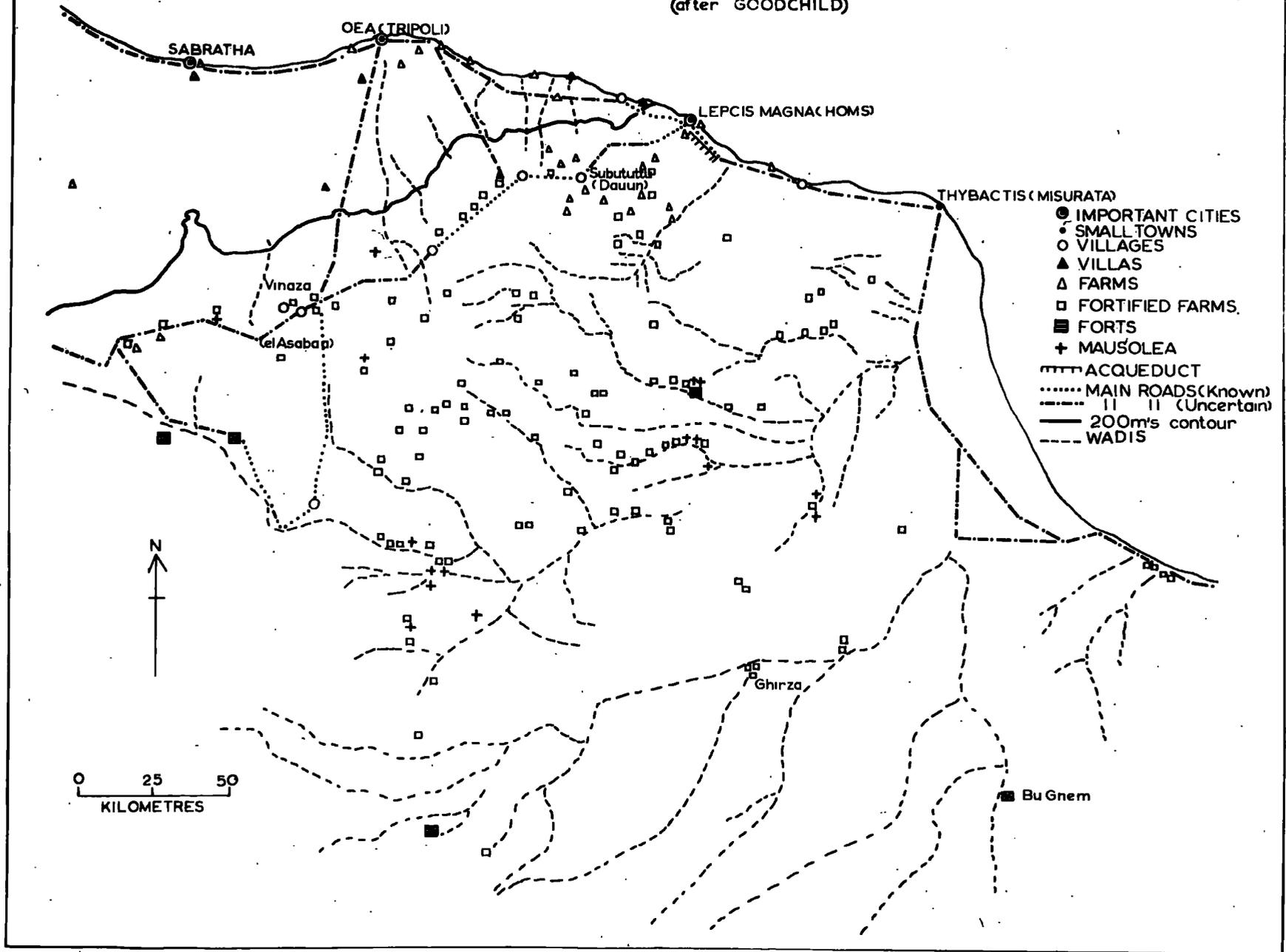


Fig 28

ADMINISTRATIVE REGIONS OF NORTHERN TRIPOLITANIA

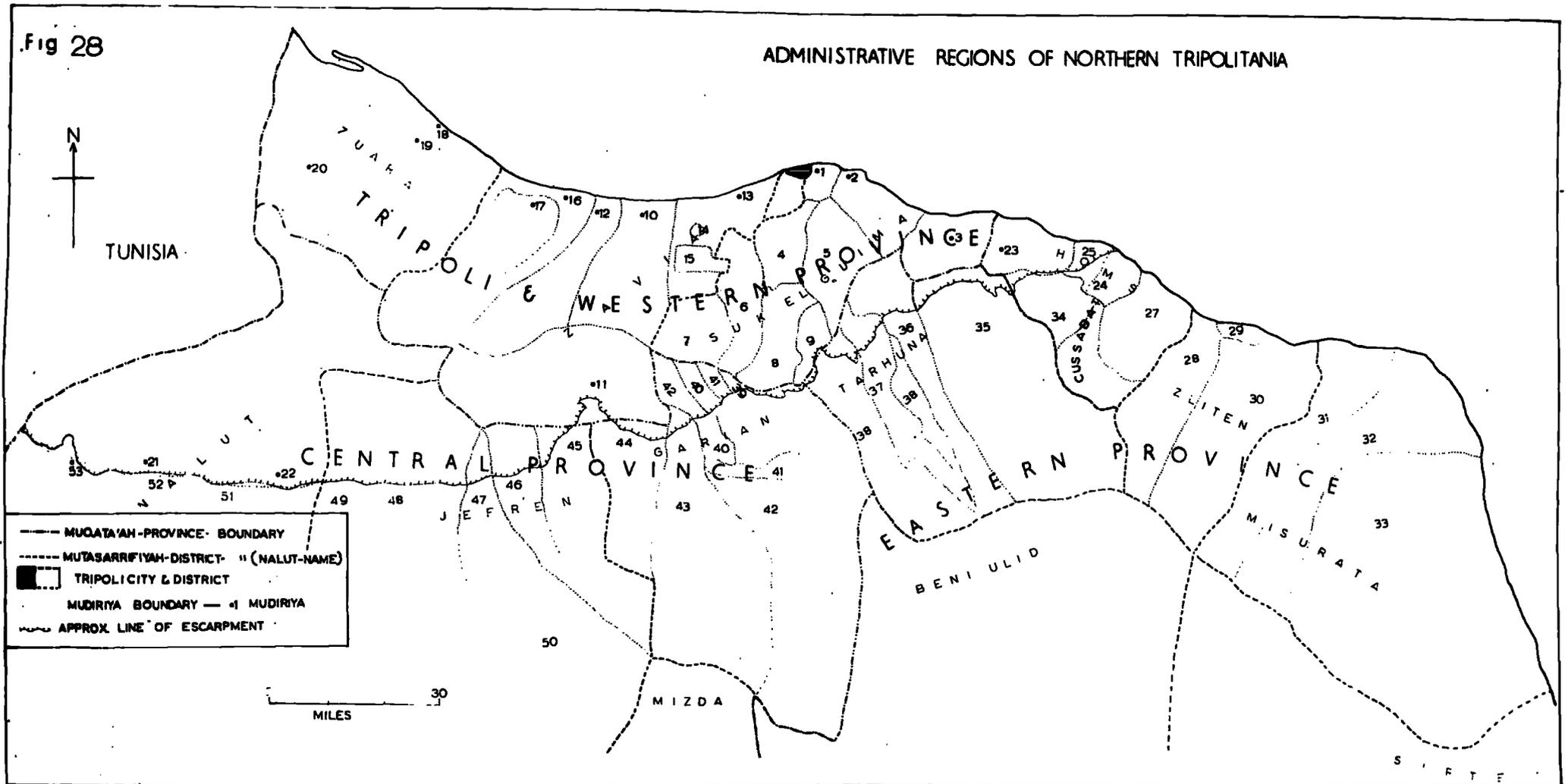


Fig 29

LOCATION OF SETTLEMENT

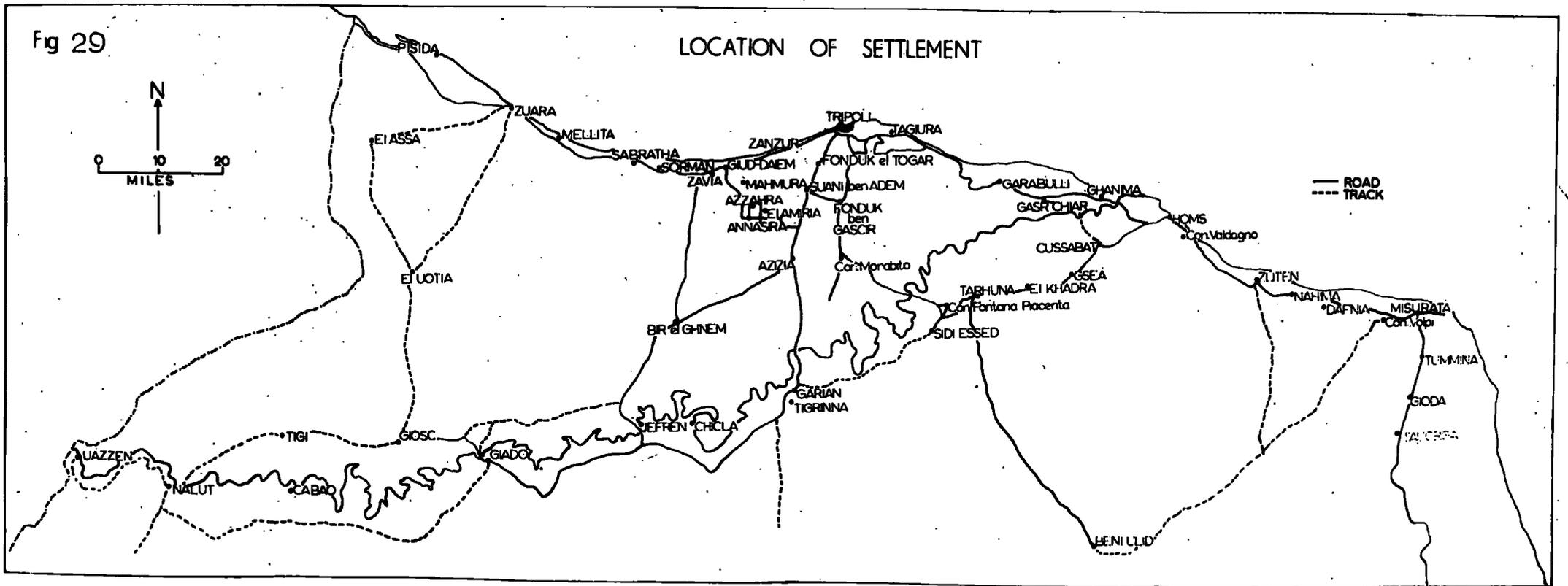


Fig 30

POPULATION CHANGES 1911-1954
percentage difference

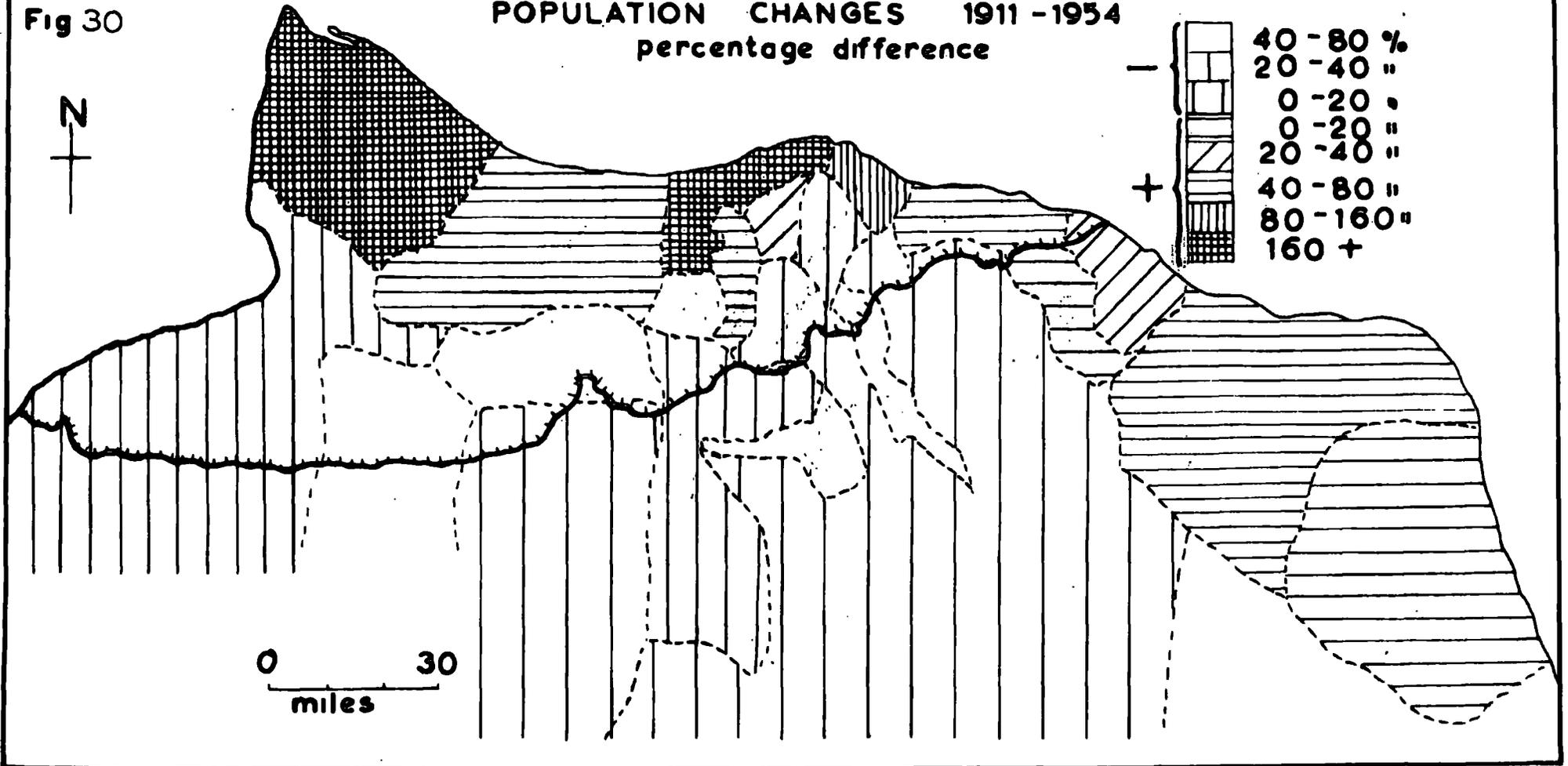
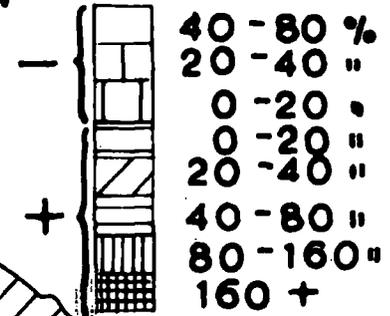


Fig 31

LIBYAN SANIYA - SUK EL GIUMA OASIS

TOTAL AREA-4hectares

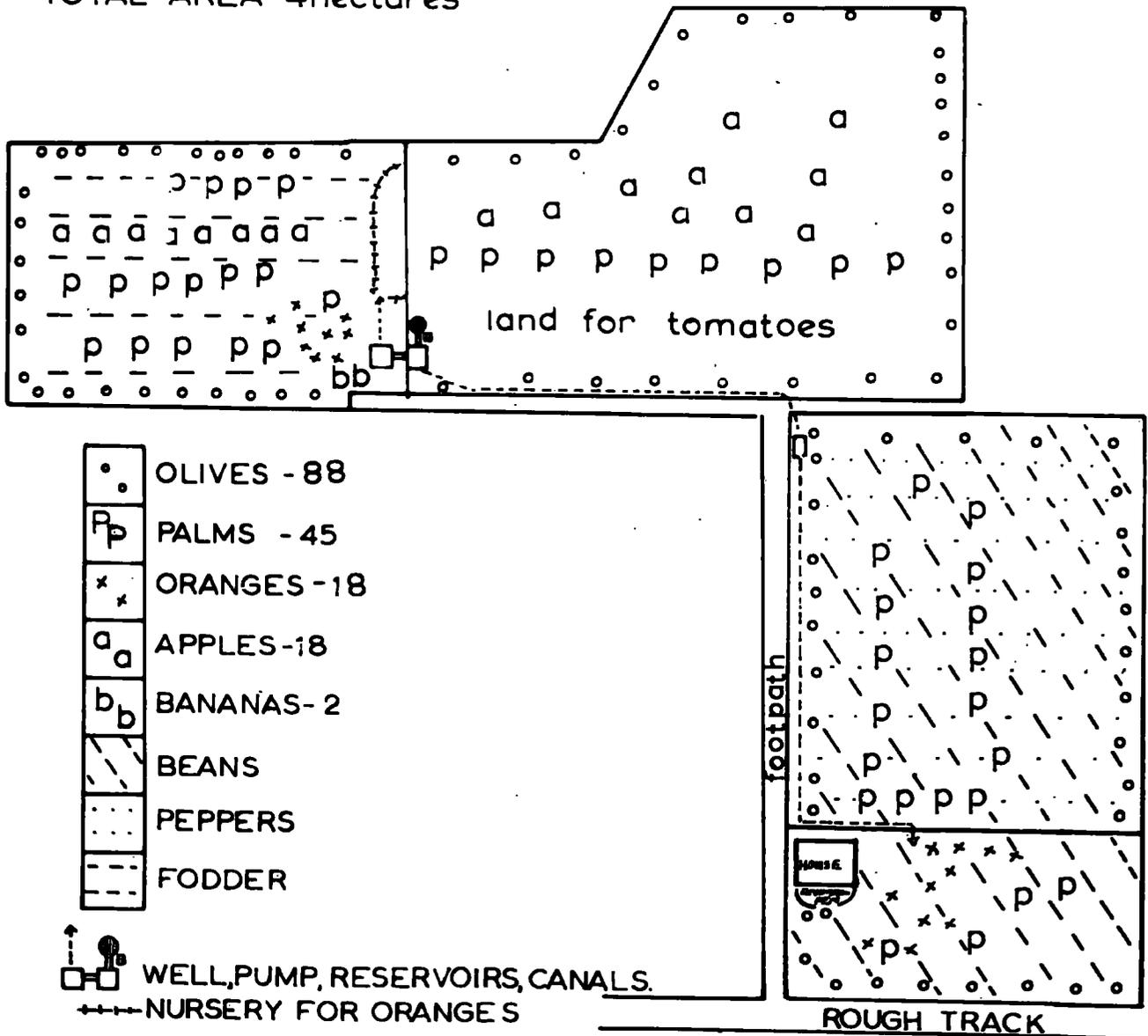


Fig 32

LIBYAN DRY GARDEN AT GASR CHIAR

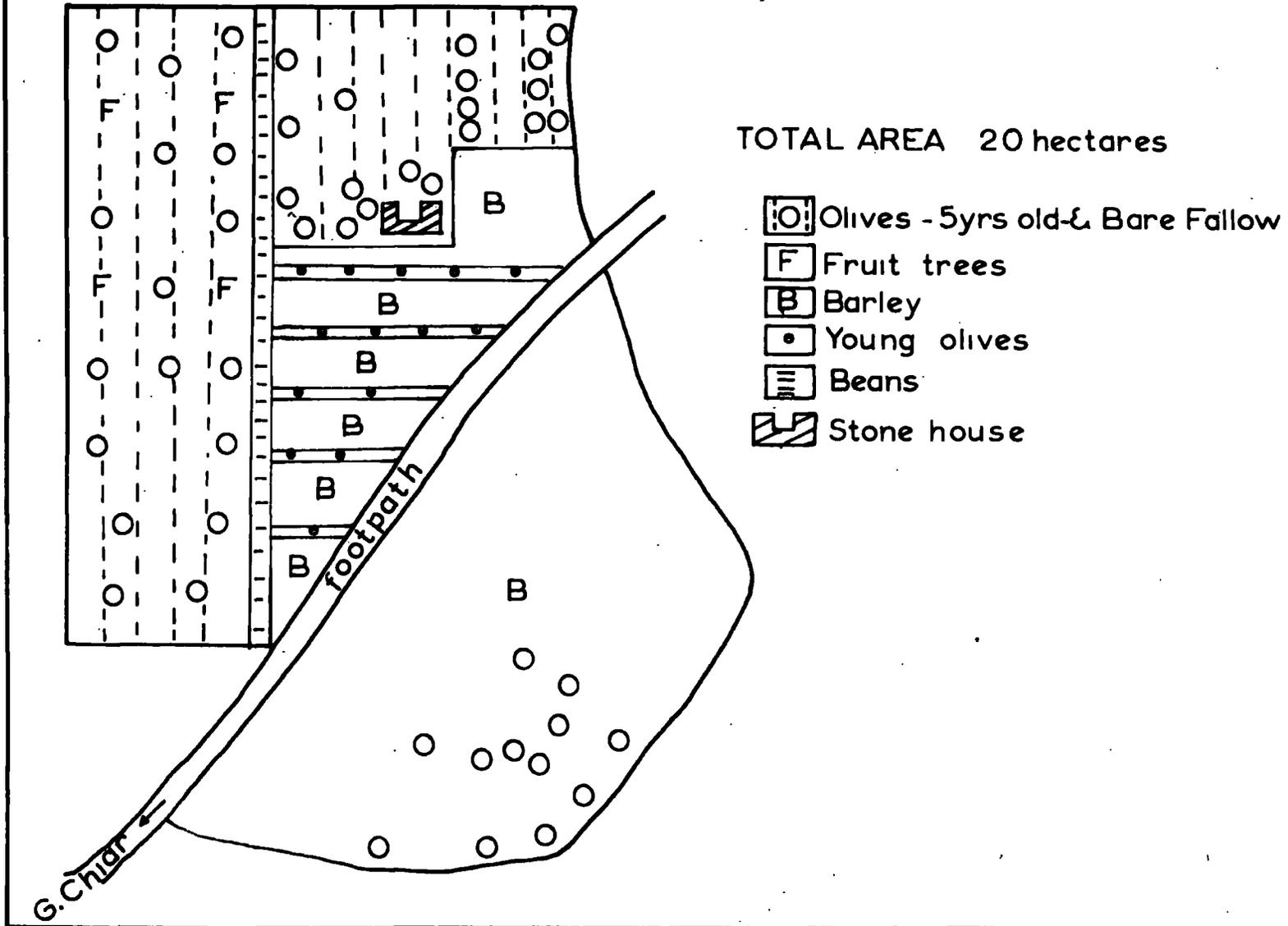


FIG 33

PATTERN OF CULTIVATION AT THE HEAD OF THE WADI HASNUN

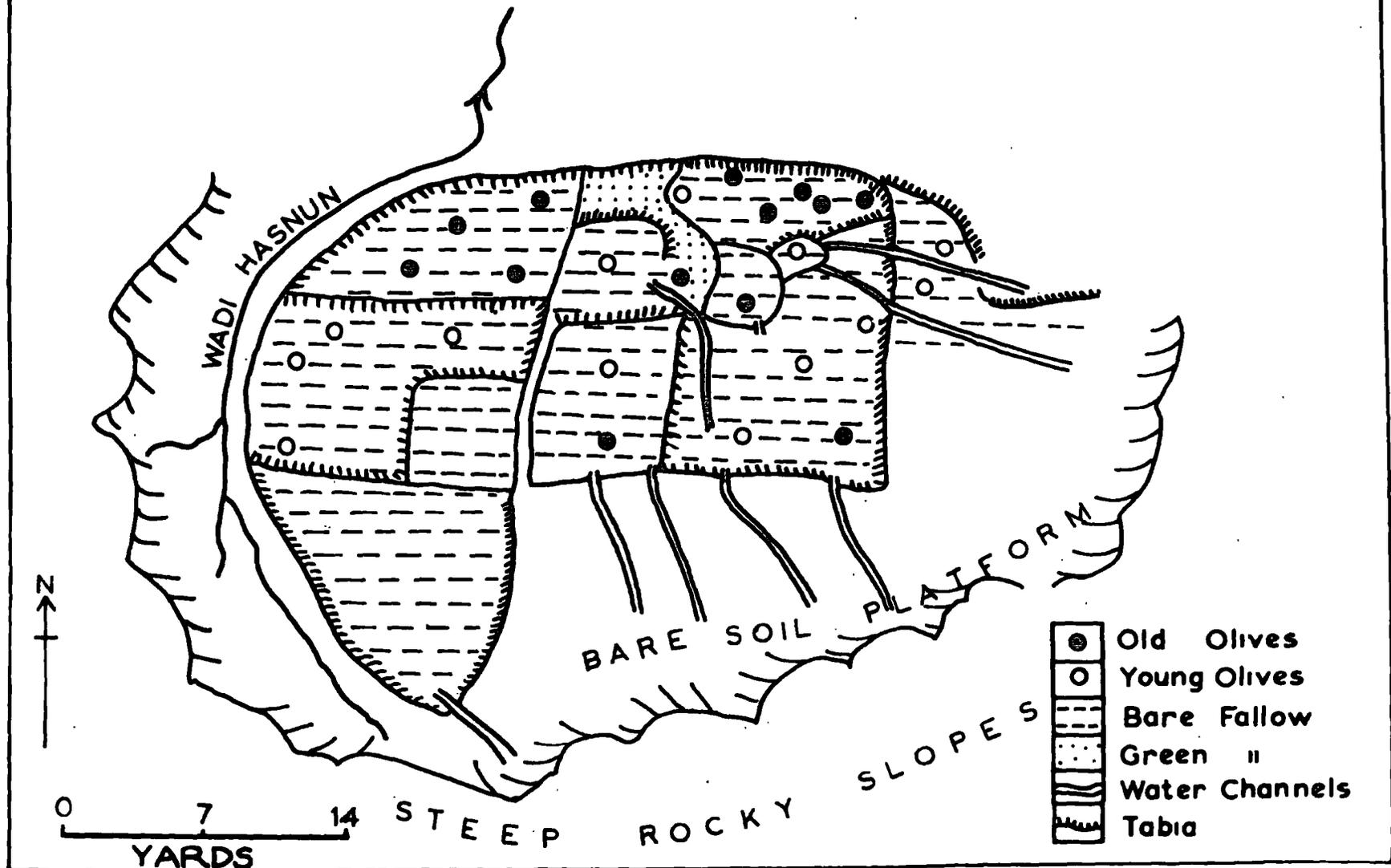


Fig 34

FARM 72 OLIVETI

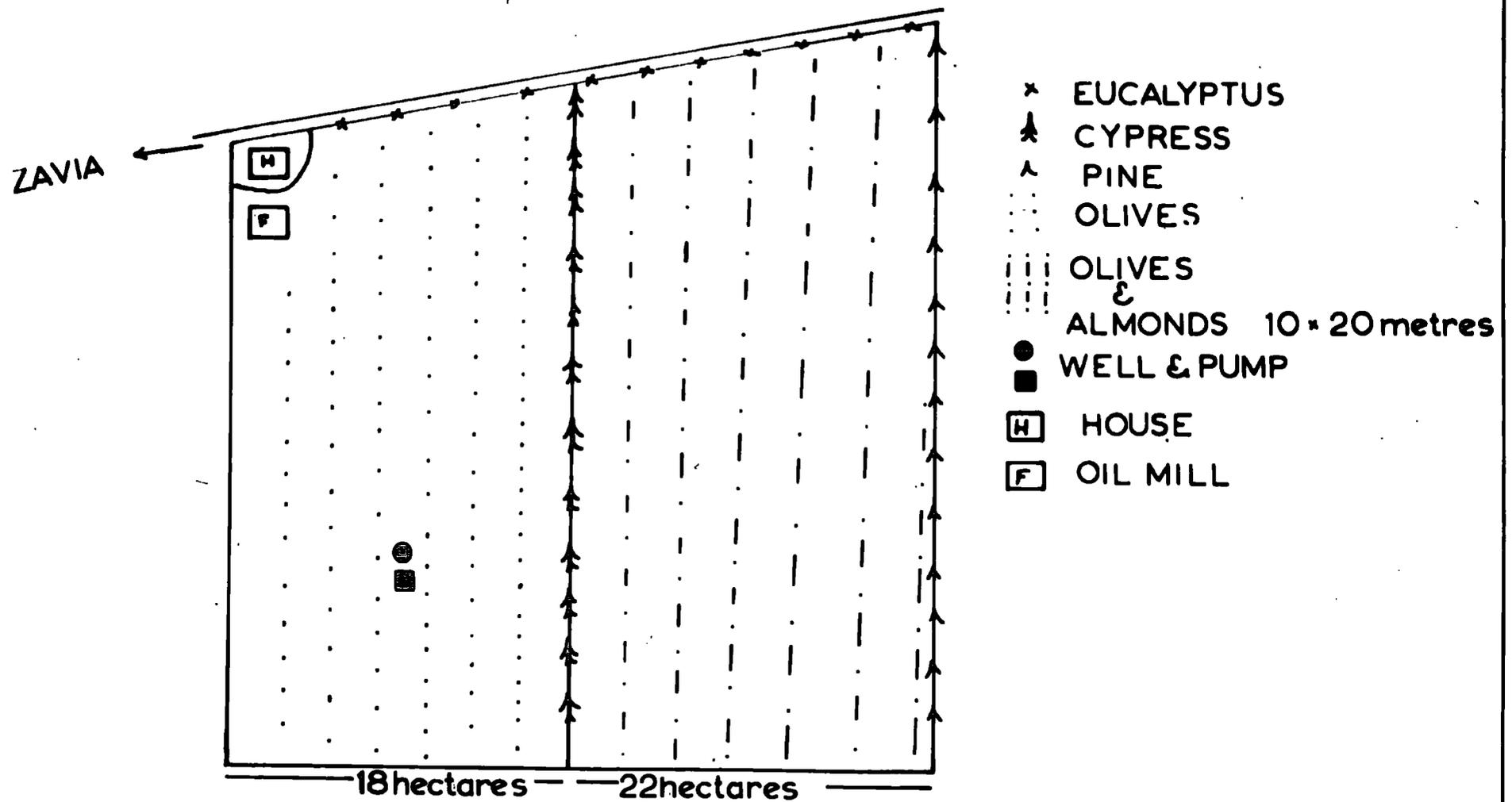


FIG 35

FARM 80 BREVEGLIERI (EL KHADRA)

TOTAL AREA 56 hectares

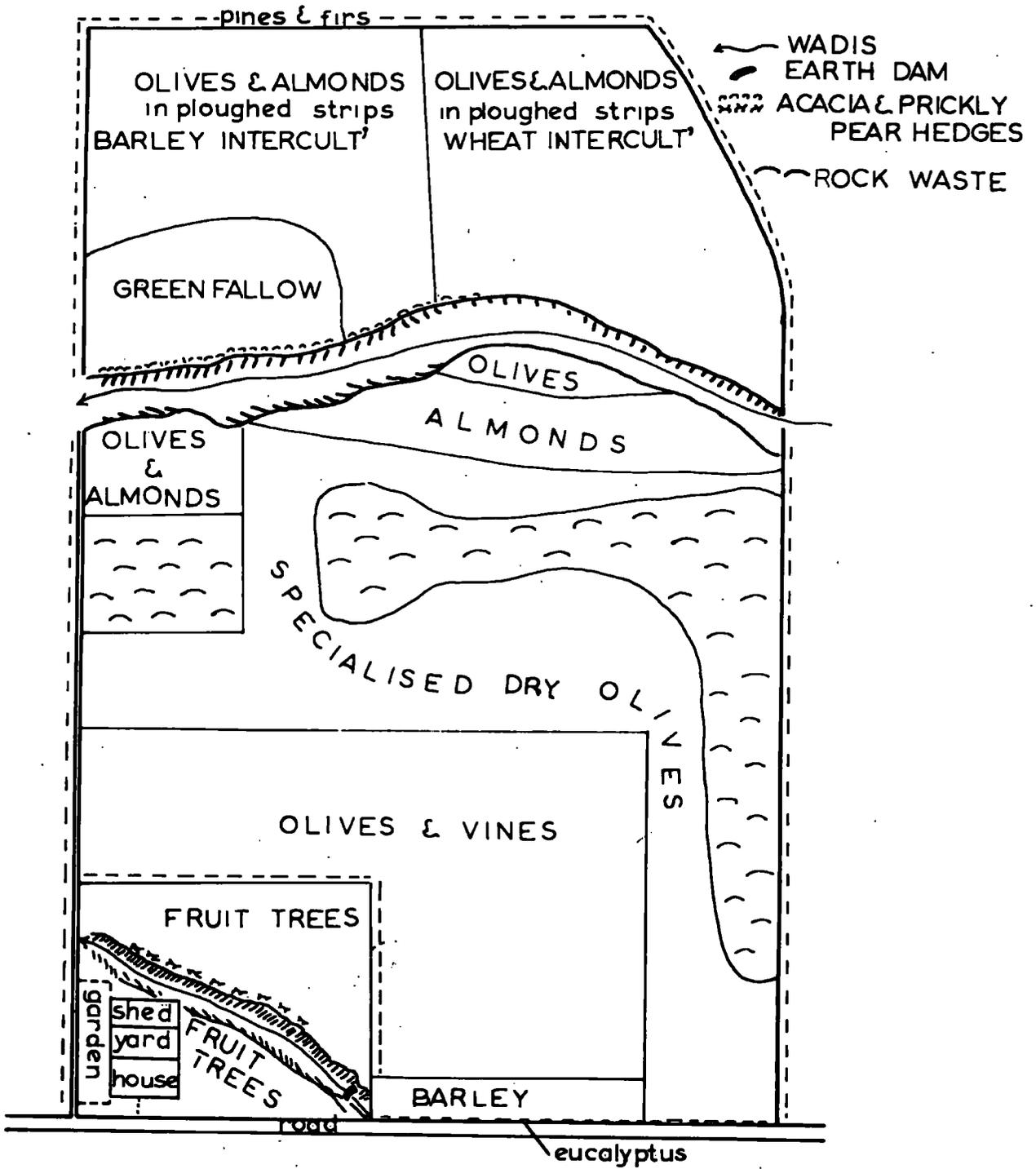
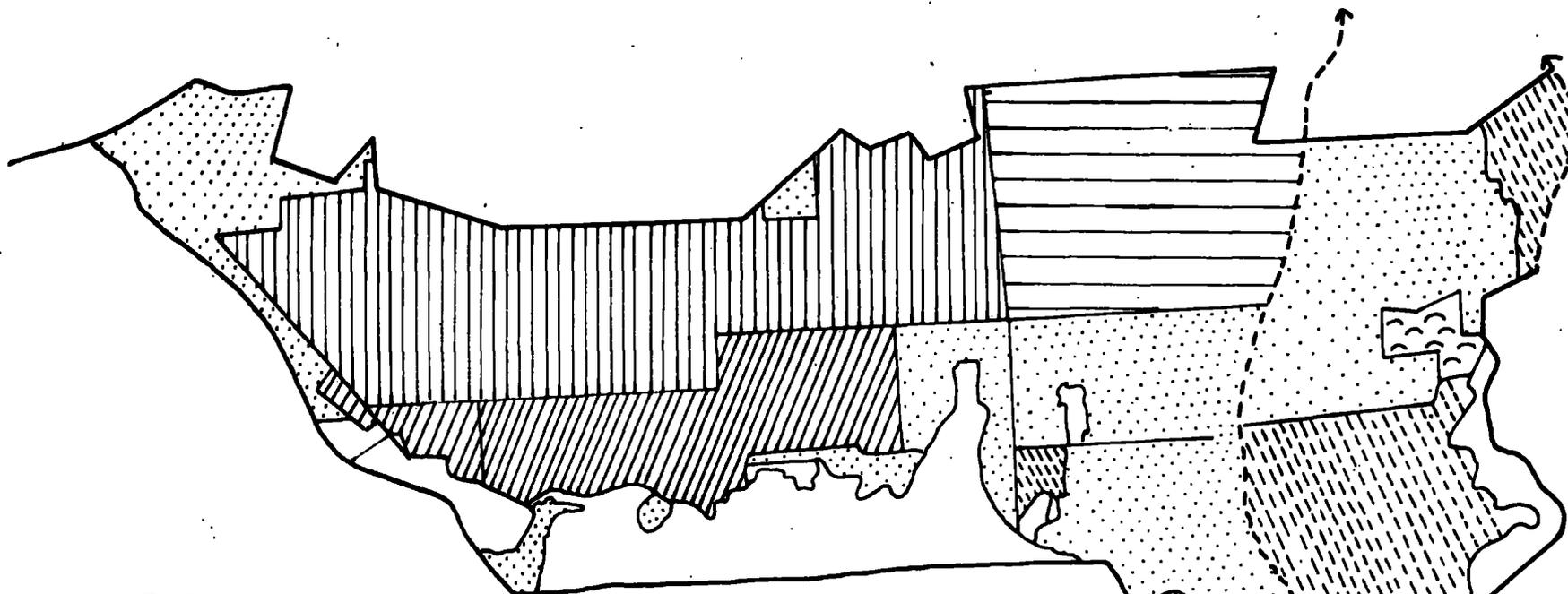


Fig 36

LAND USE - VALDAGNO ESTATE



	Uncultivated Rock Waste	243.75 hectares
	Irrigated plots-Olives, Vines, Annuals	376.50 hectares
	Dry farmed olives 20x10metres	159.50 "
	Irrigated olives 10 x 10 "	226.0 "
	Dry farmed olives irregular	12.0 "
	Eucalyptus, Pine, Cypress	
	Development Area	368.63 "

FIG 37

YIELDS PER TREE OF OLIVES

1952/3 - 1955/6

- O OLIVETTI
- B BIANCHI
- I HASCIAN
- M MICCA
- C CORRADINI

- IRRIGATED
- DRY FARMED

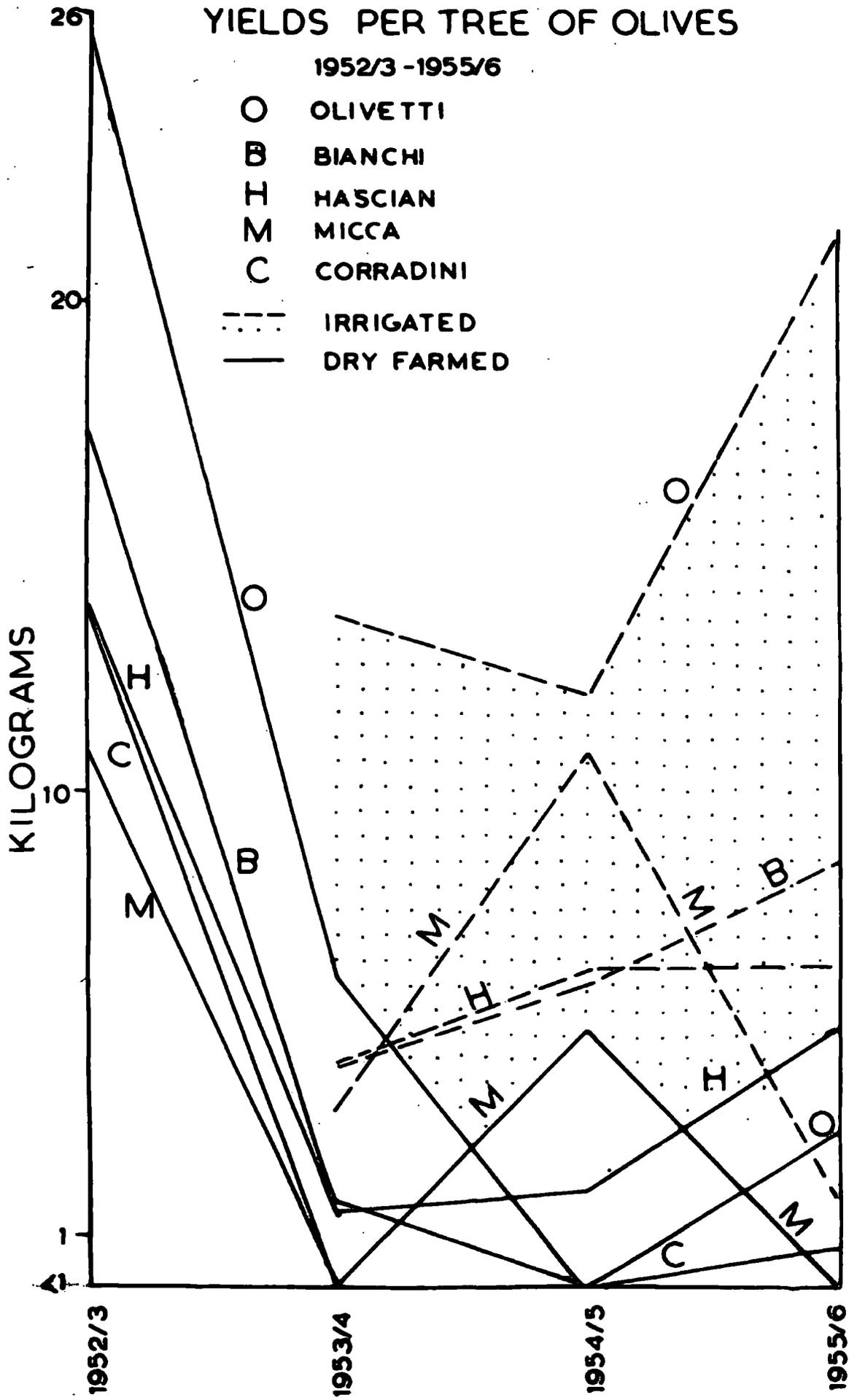


FIG 38

PRODUCTION OF OLIVE OIL IN THE WORLD AND MEDITERRANEAN

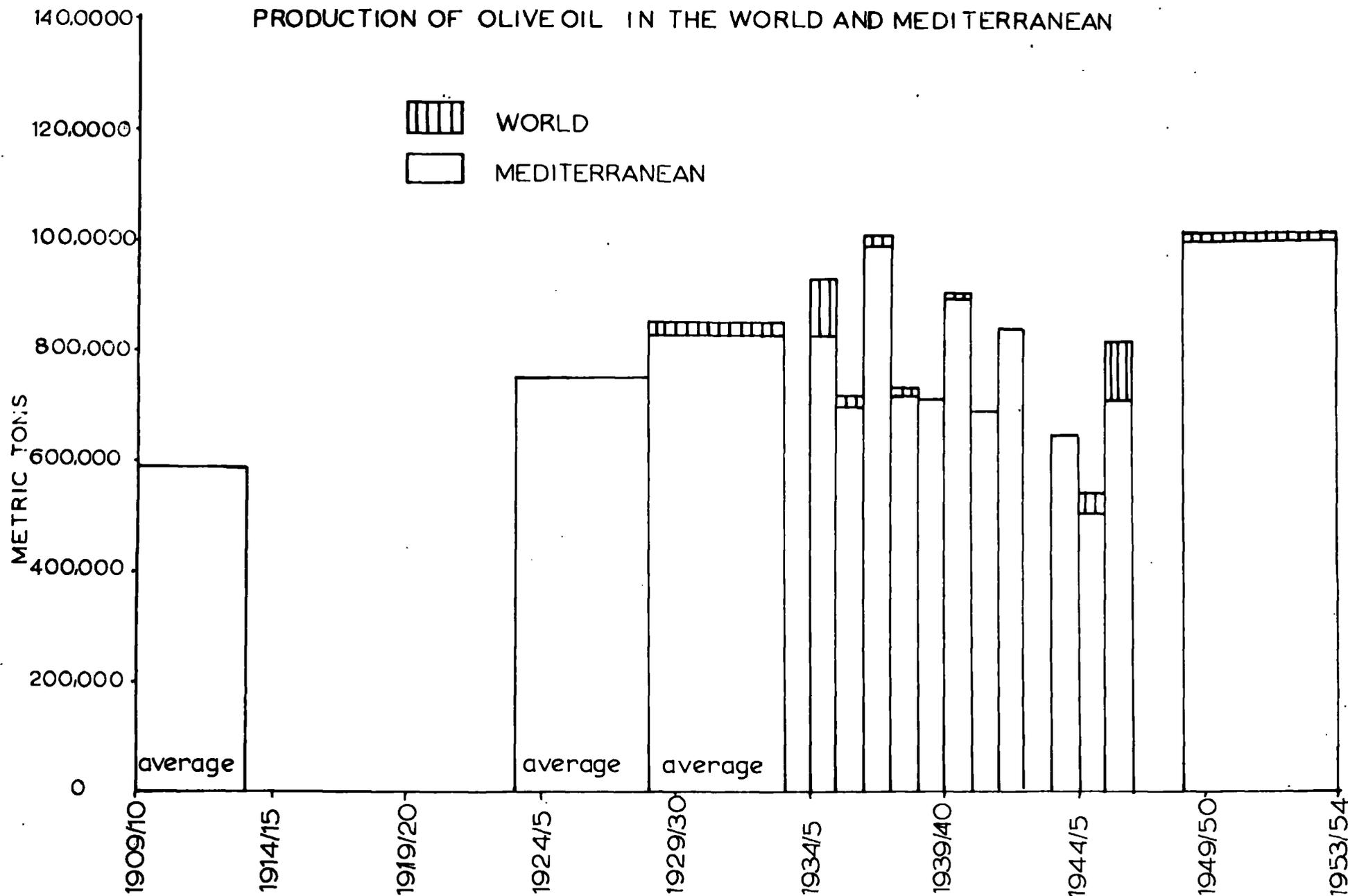


FIG 39

PRODUCTION OF OLIVES, OLIVE OIL & SANSO OIL
IN TRIPOLITANIA

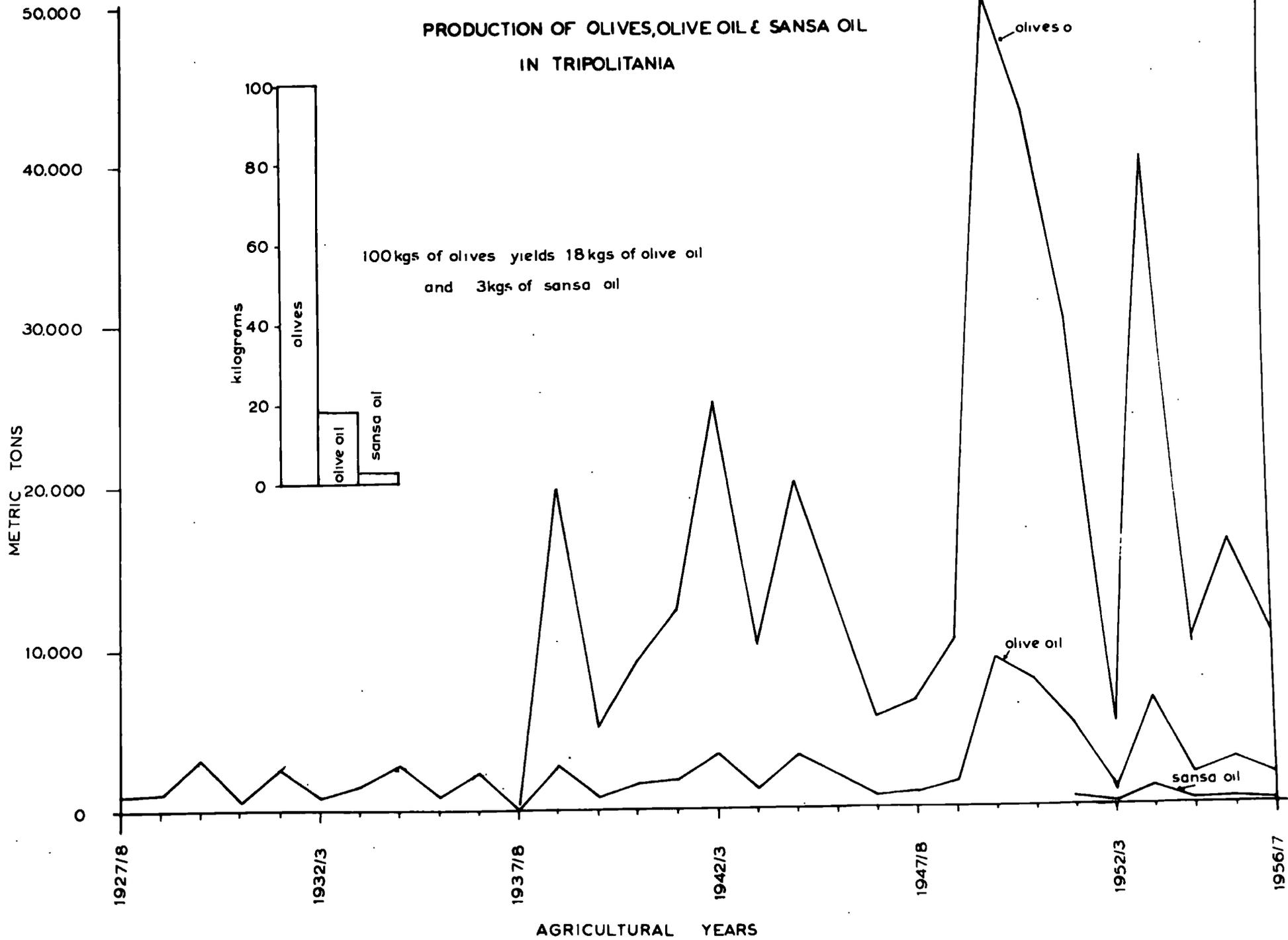


FIG 40

DISTRIBUTION OF OIL PRESSES in 1953

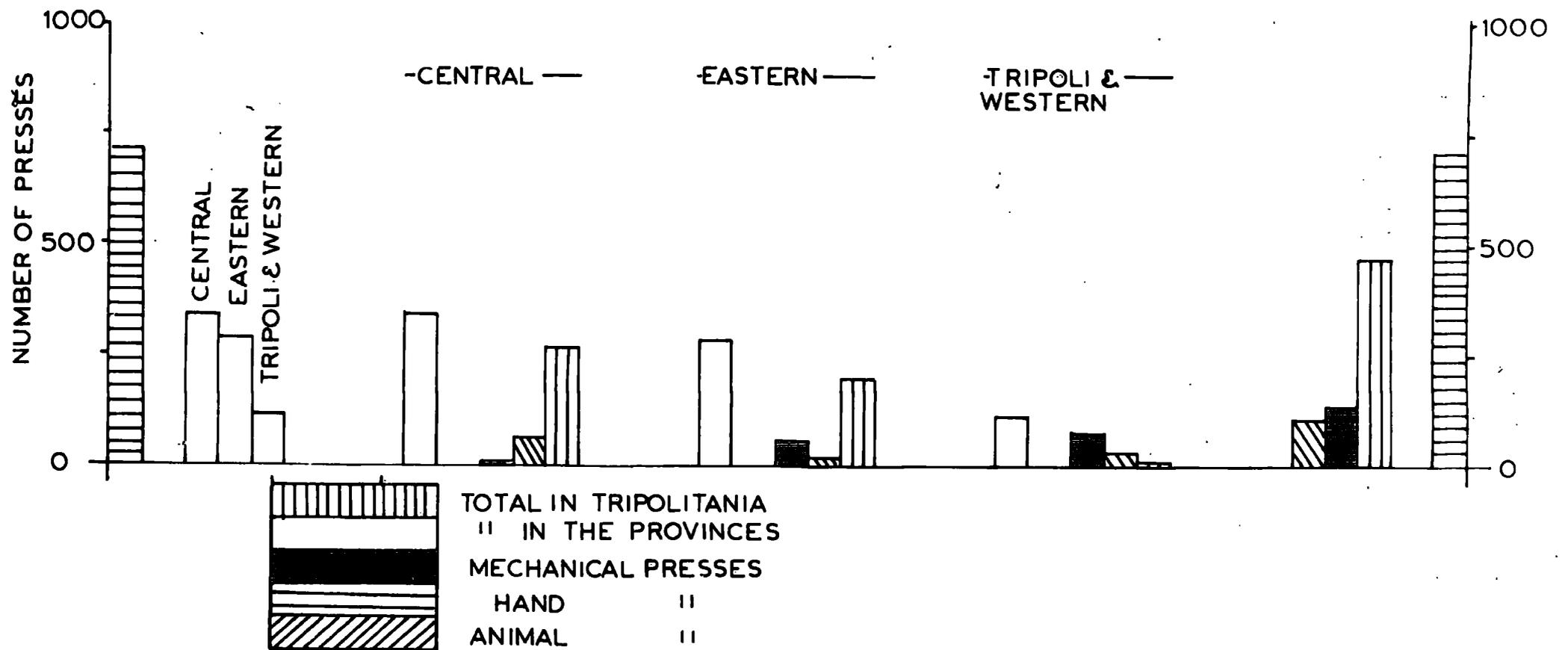
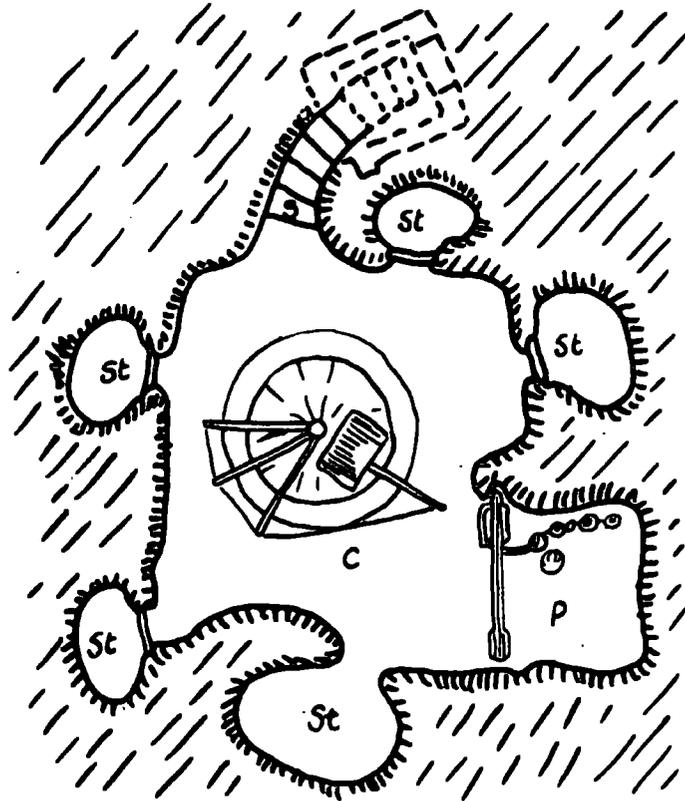


Fig 41

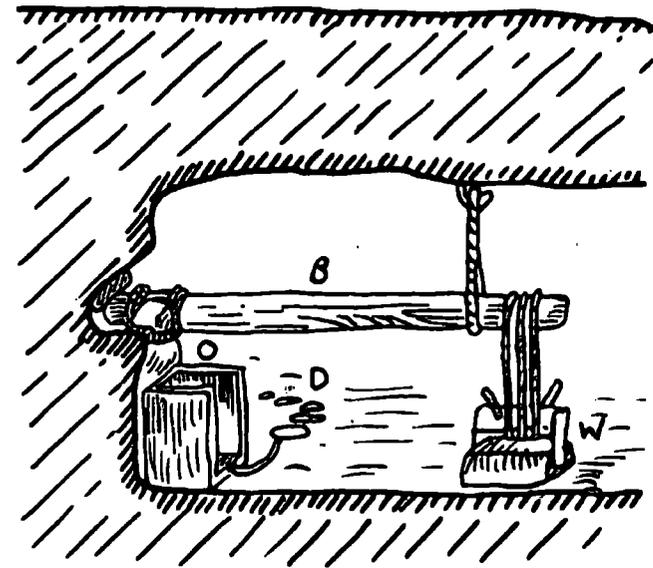
INDIGENOUS OIL MILL - MASARA

PLAN



- S - Steps
- st - Storage Recesses
- C - Crushing Cover
- P - Press

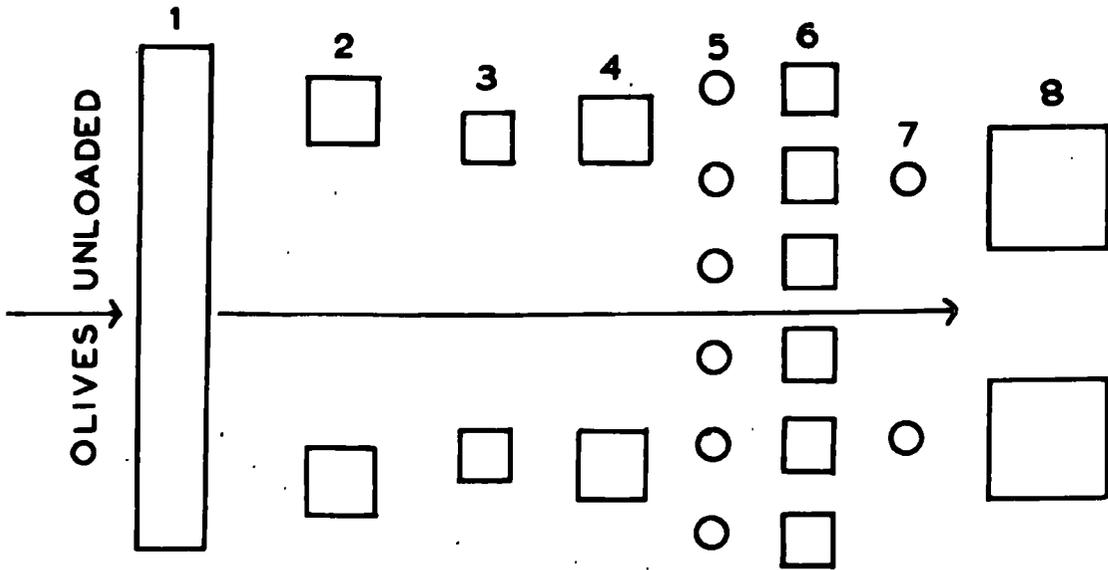
PRESS



- B - Wooden beam
- D - Distilling bowls
- W - Weight
- O - Container for olives

FIG 4.2

MODERN OIL MILL IN TARHUNA - PLAN



- | | |
|----------------------|----------------------------|
| 1 UNLOADING PLATFORM | 5 OIL PRESSES |
| 2 WASHING MACHINES | 6 OIL & WATER REPOSITARIES |
| 3 WEIGHING MACHINES | 7 OIL SEPARATORS |
| 4 CRUSHING MACHINES | 8 OIL STORAGE TANKS |

FIG 4.3 COOPERATIVE OIL MILL IN GARIAN - PLAN

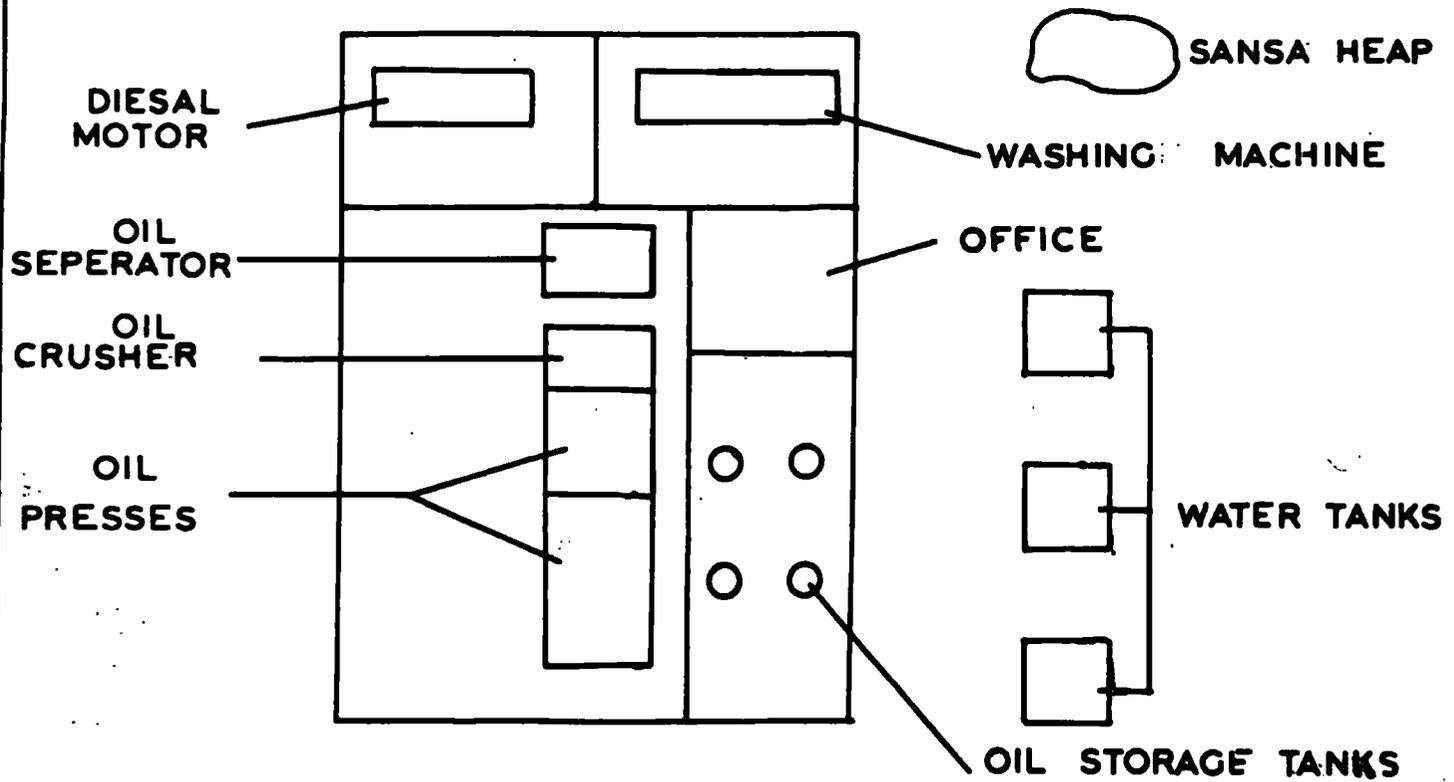


FIG 44

TRADE IN EDIBLE OILS

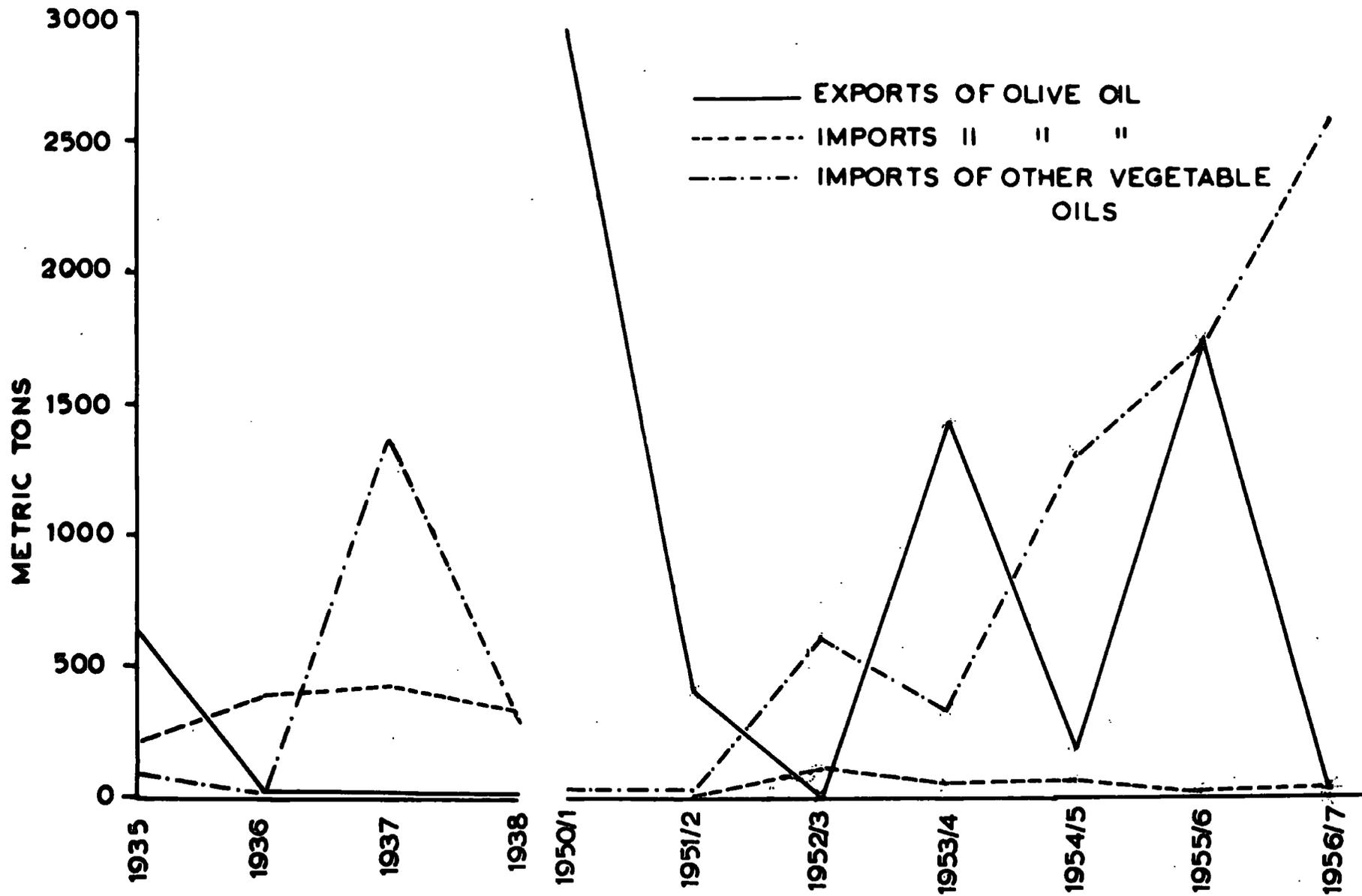


PLATE 1



JEBEL SCARP AT GARIAN
OVERLOOKING THE PLAIN OF
GUASSEM

PLATE 2



JEBEL SCARP AT GIADO
note-the detrital cones^x at the
foot of the scarp and the
horizontal bedding

PLATE 3

MIOCENE FORMATIONS IN THE JEBEL

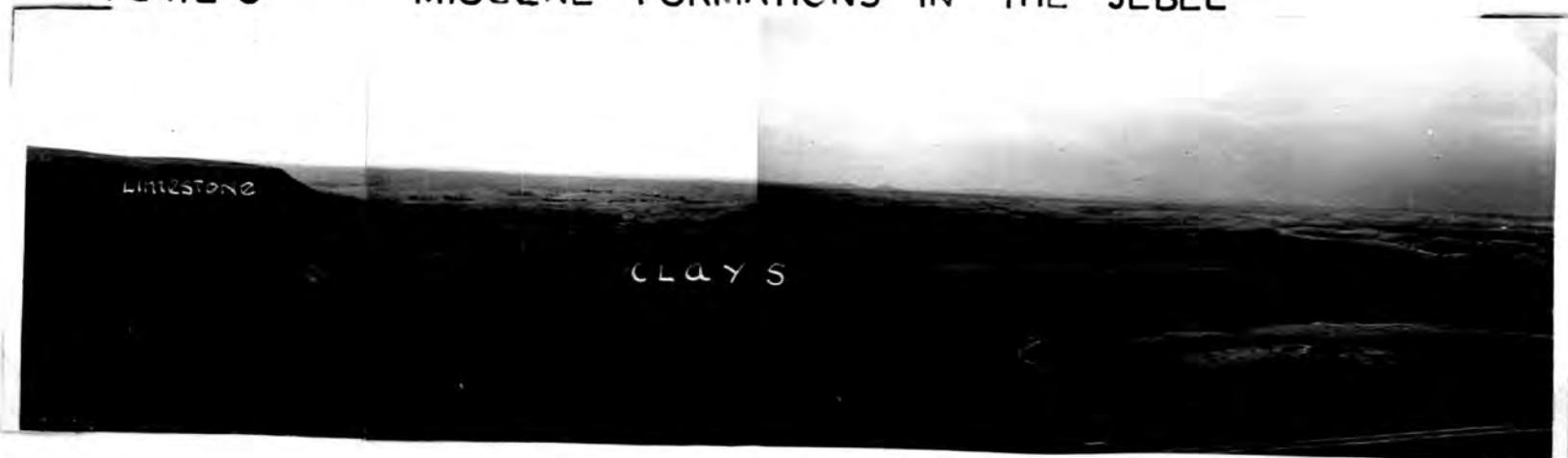


PLATE 4



QUATERNARY AND RECENT DEPOSITS MASKING THE JEBEL STRATA NEAR GARIAN note - the distribution of olive and fruit trees coincides with this formation

} quaternary

PLATE 5



QUATERNARY OF THE NORTHERN PLAINS

} mobile dunes
} quaternary
} miocene outlier

PLATE 6



QUATERNARY OF THE UPPER WADI BASINS

note - the young olives in the foreground, roman fort in the middle distance, x eroded interfluvies in the background.

PLATE 7



DELTAIC CONES IN THE WADI
NEAR GLADO
note- the deltas form small
peninsulas of moisture which
are terraced and planted to
trees

PLATE 8



OLIVES IN SCATTERED PATCHES
OF WADI ALLUVIUM

PLATE 9



SOUTHERN JEFARA & JEBEL
SCARP
note- wind eroded surface

PLATE 10

UNDULATING PLAIN OF ASSABA



PLATE 11



QUATERNARY OF THE HIGH
LEVEL SURFACES
note- the moulded relief
dotted with esparto grass

PLATE 12



THE PLAIN OF CUSSABAT
note- the nucleated settlement
and high density of
olives

PLATE 13



DISSECTED SCIOGRAN
SURFACE
note-olives in wadis

PLATE 14



THE SAHEL OF HOMS
note- except for a few olives
the deep gullies and pebble
surface reflect the consequen-
ces of progressive
deforestation

PLATE 15



UPPER WADI BASIN - GASR
DOGA
note- the eroded terraces

PLATE 16



WIND ERODED SOILS OF THE JEFARA

outliers

PLATE 17

DUNE ENCROACHED OLIVES



PLATE 18

ERODED INTERFLUVES OF THE WADI LEBDA



PLATE 19



SILTING UP OF THE WADI MEGENIN
AFTER HEAVY FLOODS

PLATE 20



WADI HIRA DAM

PLATE 21



LIBYAN DALU

PLATE 22a



2nd ACQUIFER ITALIAN WELL
note-wind pumps are now being replaced
by electric motors

PLATE 22b



ARTESIAN
WELL

PLATE 23a



OLIVES IN THE WADI BENI ULID

PLATE 23b



OLIVES BEHIND LATERAL STONE
DAMS AT BENI ULID

PLATE 24

LOCAL OLIVE VARIETIES

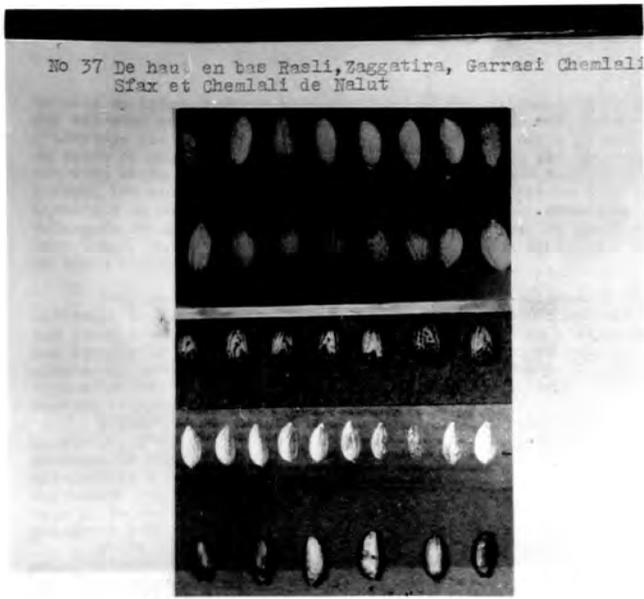


PLATE 25

CHEMLALI GRAFTS ON ITALIAN VARIETIES AT ZAVIA



PLATE 26a

PLATE 26b



PLATE 27



INTENSIVE CROPPING IN A LIBYAN GARDEN note-the crumbling tabia enclosing olives and wheat

PLATE 29

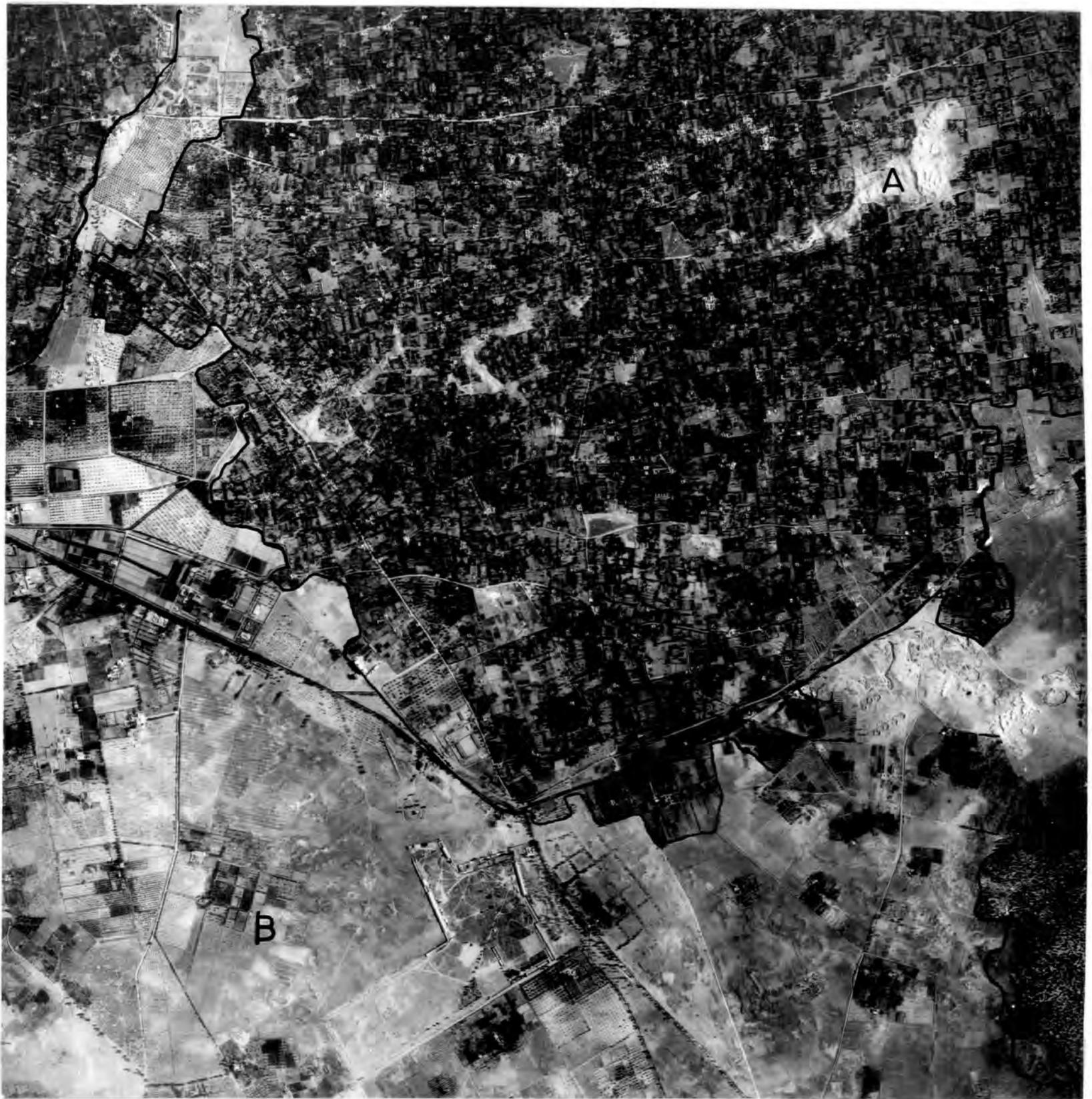


RECENT COLONISATION OF STEPPE AREAS SURROUNDING TRIPOLI OASIS

PLATE 30



LARGE ITALIAN OLIVES AT SUANI BEN ADEM



TRIPOLI OASIS AND ITS ENVIRONS

- A - libyan cultivation mosaic, with small gardens and tortuous tracks.
- B - italian private farms are dispersed extensively over undulating sandy areas surrounding the oasis depressions
- C - afforested zone



PLATE 32

DRY FARMED OLIVES AT
 GARIBALDI
 note the wide spacing of the
 trees and clean cultivation
 either side of the rows the
 green fallow in between
 prevents soil erosion.



PLATE 33 SOUTHERN MARGIN OF CULTIVATION IN THE JEFARA



PLATE 34



SCHECSUICH; A PIEDMONT, SPRINGLINE OASES.

PLATE 35 VILLAGES & OLIVES IN THE JEBEL NEAR JEFREN

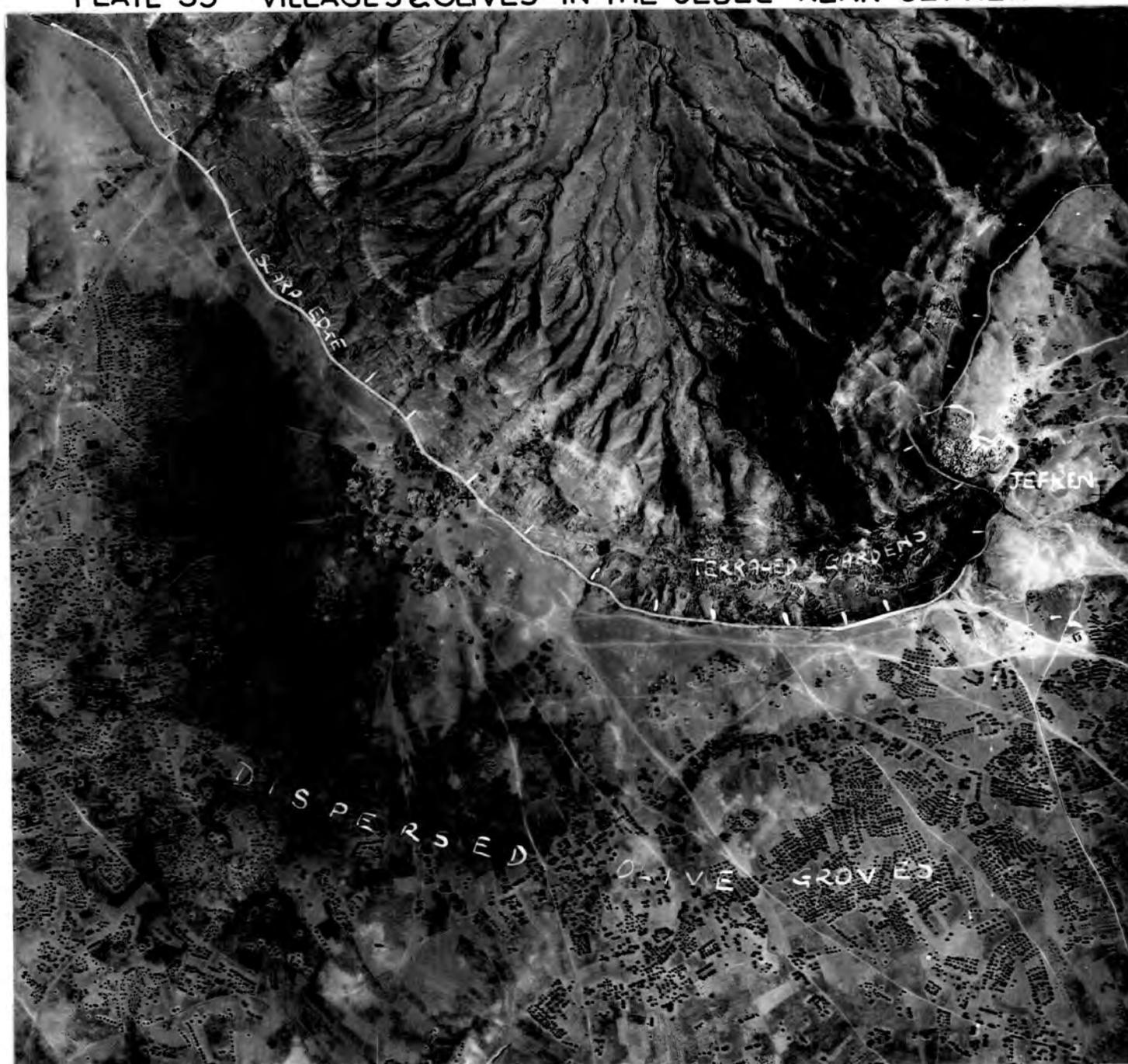


PLATE 36a



OLD OLIVES ON THE
CUSSABAT PLAIN

PLATE 36b



CUSSABAT

PLATE 37



DISSECTED NORTHERN EDGE
OF THE EASTERN JEBEL

PLATE 38



ITALIAN OLIVE PLANTATIONS ON THE CENTRAL TARHUNA PLATEAU

PLATE 39 MARCONI: AN UNFINISHED DEMOGRAPHIC SETTLEMENT

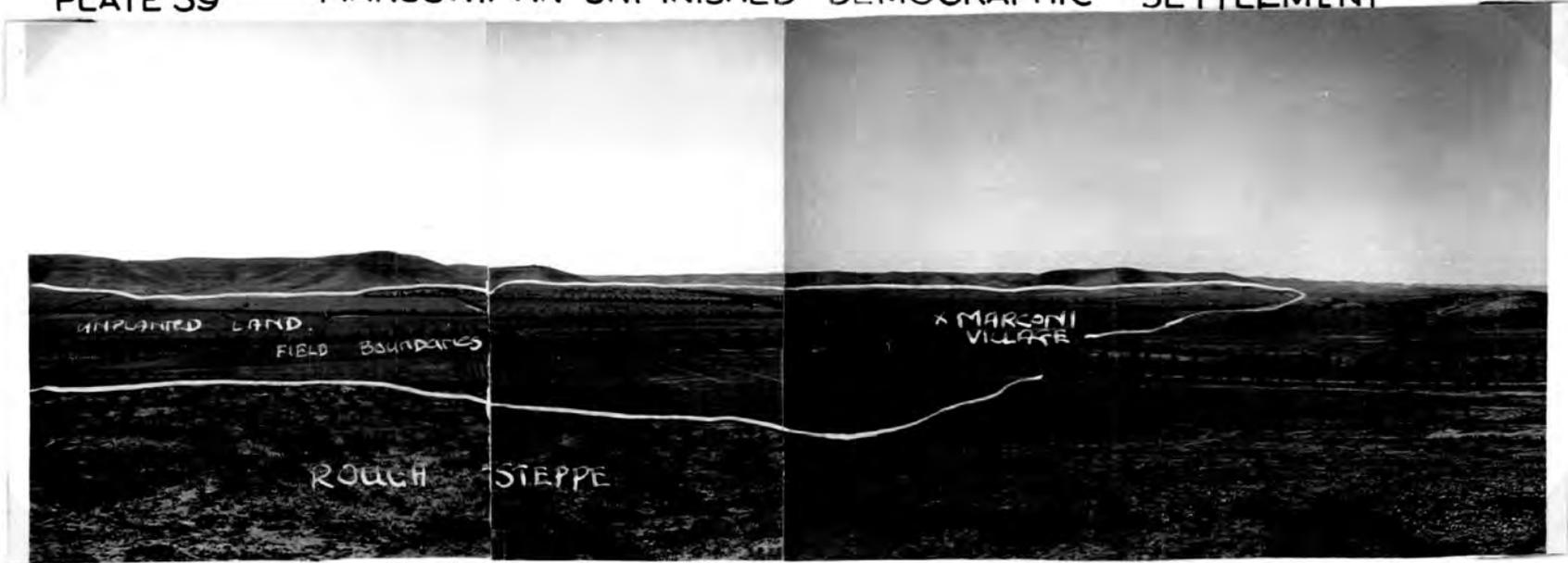


PLATE 40

TIGRINNA PLAIN
note- italian demographic farms
are dispersed amongst former
libyan owned olives



PLATE 41



OLIVES DISPERSED OVER THE QUATERNARY OF THE WESTERN JEBEL

PLATE 42



CULTIVATION IN THE WADIS OF THE WESTERN JEBEL

PLATE 43a



SABRATHA

PLATE 43b



LEPTIS MAGNA

note-coarse vegetation has taken root on wind blown sands which have partially enveloped these magnificent 'oil cities'

PLATE 44



REMAINS OF ROMAN OLIVE
FARM IN THE EASTERN
JEBEL

PLATE 45



ROMAN MAUSOLEA 'ES SENAMA'
(OIL STONE) IN THE CENTRAL
JEBEL

PLATE 46



ROMAN OIL PRESSES^x IN THE
EASTERN JEBEL

PLATE 47



WADI EROSION AS A RESULT
OF THE DESTRUCTION OF
ROMAN DAMS

PLATE 48



BEDOUIN TENT ON THE
PLAIN OF ASSABA

PLATE 49



PERIPHERAL DEVELOPMENT
ZONES OF ITALIAN FARMS
AT BIANCHI



BREVIQUERI - A TYPICAL ITALIAN DEMOGRAPHIC SETTLEMENT
note - the rectangular layout of the farms, the predominance
of tree crops (dots on the photo), and the encroachment
by sand dunes of the southern farms.

PLATE 51

DEMONSTRATION TERRACING
AT THE GARIAN STATE
NURSERY



PLATE 52

STONE HOUSES^x REPLACING
THE TENT IN THE PLAIN OF
ASSABA



} wadi garden with olives and
fruit trees

PLATE 53

TABIA: TYPICAL BOUNDARY OF AN
OASIS GARDEN
note- the sandy track and prickly pears
on top of the tabia



PLATE 54



NON IRRIGATED LAND
PLANTED TO TREES
SURROUNDING THE TRIPOLI
OASIS
note- sheep and goats are
traditionally grazed on the
water-consuming green fallow
between the olives.

PLATE 55



LIBYAN GEDULA SYSTEM
OF IRRIGATION

PLATE 56



DRY GARDEN IN THE WADI
LEBDA WITH OLIVES & FRUIT
TREES

PLATE 57



OLIVES, PALMS & FRUIT TREES IN DRY OASIS GARDENS AT MISURATA

PLATE 59



INUNDATED CULTIVATION OF OLIVES →

PLATE 58



LIBYAN DRY GARDENS AT GASR CHIAR

x STONE HOUSES

} FARM SAMPLE



INDIGENOUS ARD PLOUGH

BEATING WITH A STICK: A LIBYAN METHOD OF HARVESTING THE HIGHER OLIVE FRUITS

PLATE 61

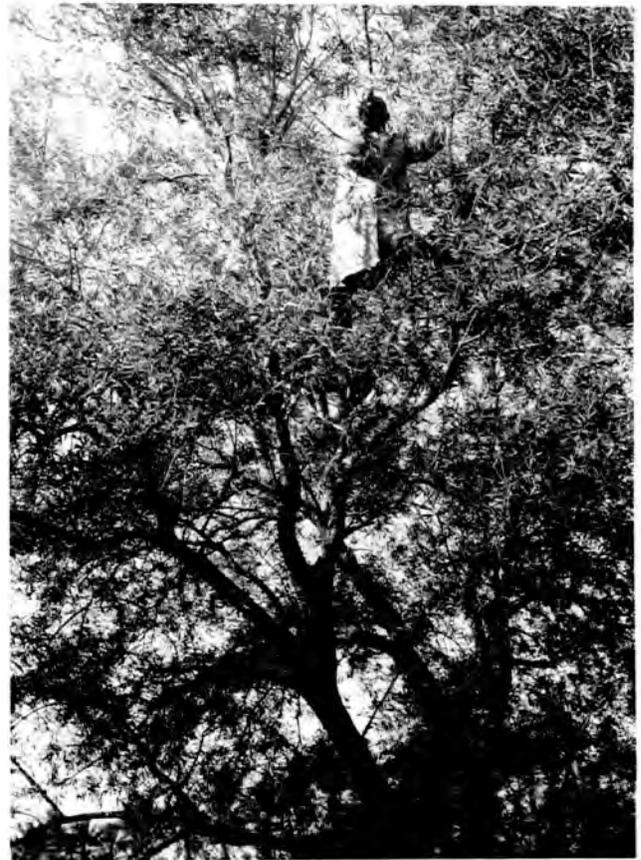


PLATE 62a



MODERN HARVESTING METHODS(1)
note- the tripod enables the fruit to be handpicked whilst the groundsheet eliminates bruising and wastage

PLATE 62b



(2)
LIBYAN HARVESTING TEAMS
ON AN ITALIAN OLIVE
PLANTATION
note- men pick, women gather
and bag the fruit

PLATE 62c



(3) 'GUANTES': SHEEP HORNS USED TO
STRIP OLIVE BRANCHES OF
THEIR FRUITS

PLATE 63

SEMI-IRRIGATION OF
ITALIAN OLIVES AT ZAVIA
note- the use of the
sprinkler system, strip
cropping and the sandy
nature of the clean-
weeded soils



PLATE 64



VINES INTERCULTIVATED WITH
OLIVES AT BREVIGLIERI

PLATE 65



SPECIALISED OLIVES IN
DRYLAND PLANTATIONS ON
THE JEBEL

PLATE 66



LIBYAN OLIVE NURSERY
(FARM SAMPLE 7)

PLATE 67



BADLY PRUNED OLIVE TREES
(FARM SAMPLE 7)

PLATE 68



OLIVES IN 'GEDULA' AT VALDAGNO

PLATE 69



OLIVES & ALMONDS ON THE
ITALIAN CONCESSION
FONTANA PIACENTE

PLATE 70



OLIVE OVULES READY FOR
TRANSPORT FROM SFAX TO
TRIPOLI

PLATE 71



LIBYAN METHOD OF REJUVENATING
OLD OLIVE TREES
note- young shoots are allowed to grow
from the trunk of the old tree
which is being cut away for firewood

PLATE 72



DARB-EL-ME OIL PRESS AT
CUSSABAT

} stone crusher

} distillation tank

PLATE 73



MECHANICAL OLIVE CRUSHER IN A
STANDARD LIBYAN MILL

PLATE 74



COOPERATIVE OIL MILL AT
GARIAN



PLATE 75
SANSO OIL AND SOAP
FACTORY AT HOMS

PLATE 76



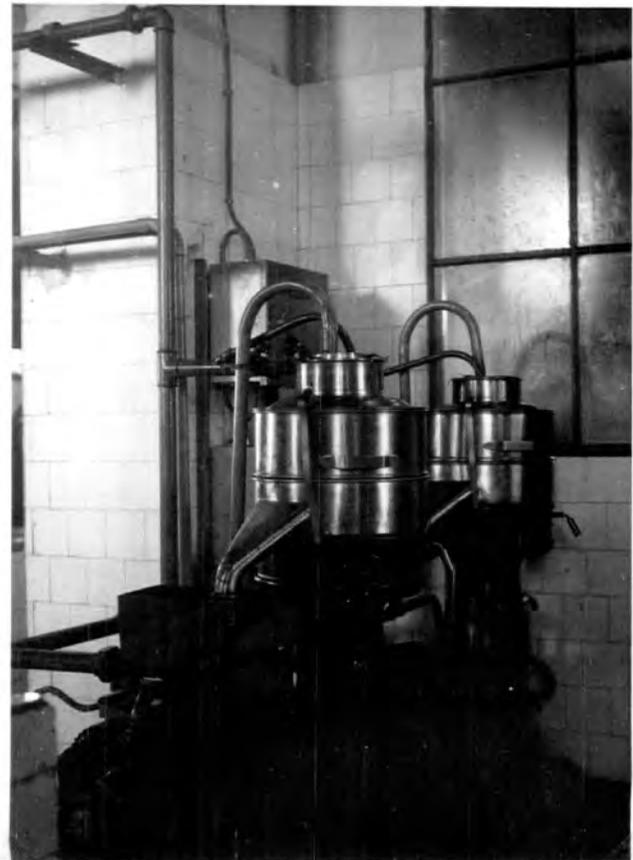
MODERN ITALIAN OIL MILL
S.A.F.I.L.

PLATE 77a



PRESSES^P & DISTILLING BARRELS^D IN
CLASSIC OIL MILL

PLATE 77b



CENTRIFUGAL OIL SEPARATORS